Yahoo Group Archive: TS-520_820_530_830 (2013-08 — 2013-12)

Yahoo Group summary: KENWOOD TS-520_820_530_830

These Yahoo Groups messages were archived in WARC format by ArchiveTeam in 2017. This PDF was generated by Digital Library of Amateur Radio & Communications from the WARC files in 2026.

Date span: 2013-08-01 through 2013-12-31

Source WARC: ts-520_820_530_830.d0kBnMS.warc.gz

Source item: https://archive.org/details/yahoo-groups-2017-04-17T04-04-28Z-8e1d1d

Messages included in this PDF: 2960

Messages omitted as spam from this PDF: 7

Yahoo replaced the domain portions of email addresses with @... in the archived messages. Characters lost in Yahoo's archived text appear as ?.

Messages are presented in ascending Yahoo message-ID order. Gaps indicate records absent from the source WARC or messages omitted from this PDF as spam.

43766. Re: New guy introduction

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 01:04:30 UTC
From: kf5lch
Topic: 43748 Message: 43766

Thank you guys for the warm welcome. I'm excited about this rig. I don't plan on parting with it. Took me a long time to find one in mint condition inside & out. I have a few questions on the tune up procedure, ALC keeps falling off, but i'll start a new thread for those questions. Thanks again.
--- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@...> wrote:
>
> Glad to see you on here, Matt! I'm proud of my 820 and have only had it a couple of months, but these guys are an invaluable resource and have helped me tremendously to get it up and going.
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> --- In TS-520_820_530_830@yahoogroups.com, Matt W <kf5lch@> wrote:
> >
> > Hello all. New guy here. My name is Matt, callsign KF5LCH. I recently picked up my first hybrid Kenwood rig, a TS820S. It's in mint condition inside & out, very clean. I am still relatively new to Amateur Radio, so I consider it a learning experience. I want to learn the hobby. I'm currently being elmered by a couple of great old school hams at the club & I'm studying for the extra ticket. I'm also doing my best to learn code. I have also enrolled at the local vo-tech, taking intro to electronics. Please excuse my ignorance. I have been a locomotive engineer for the last 12 years, so electronics is a little out of my league. I have been using all Kenwood gear since I got my ticket & prefer using it over other equipment. The first time I heard a hybrid on the other end was at Field Day last year with the local club. I had been working a Kenwood TS480 all day, when I cam across a station with the BEST sounding audio I have yet to hear. Every contact was
> > asking him about his rig. He advised it was a Kenwood TS820 he bought new in 1979. Man did it sound good. Anyways, I'm looking forward to meeting you guys & talking about these rigs. Thanks for having me.
> >
> >
> >
> > KF5LCH
> > WWW.W5CUQ.COM
> >
> > [Non-text portions of this message have been removed]
> >
>

43767. Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 01:40:49 UTC
From: kf5lch
Topic: 43767 Message: 43767

All, I having some issues tuning up my new to me ts820s. I'm using K4EAA's tune up procedure. Tuning into a Sinclair dummy load. I have yet to TX on the radio, due to fear of burning something up. Hear are my observations. Mode switch in the tune position, I peak the ALC with the drive knob. Once I peak the ALC, it almost immediately starts falling off. I can re-peak it with more drive, but it still falls off.

Ok, besides that. Mode switch still in Tune, meter to IP, dip the plate. Dips just fine. How you guys do this in 5 seconds is beyond me. Next: Mode switch is now in CW. Re-dip the plate. Ken says I'm looking for 225ma or so dipped on the meter. I can get it to dip at 225 ma with the load around 25% no problem. Inline wattmeter shows 100+ watts out at this time.

Now we move the meter to the RF position, Mode is still in CW. I tune with the plate control for max power output. At this time I can see 120+ watts on my watt meter. I switch the meter back to IP to check & see how far off I am from the 225ma target. around 215-220ma. Looks good. Now I switch the mode to tune to check ALC & it's DEAD. NOTHING. I can re-peak the ALC, start all over with the tune up procedure, come back & check the ALC & it'll be dead again.

Does this sound like a common problem of the Hybrid rigs? Or am I screwing something up on the tune up procedure? I have always tuned into the dummy load & my "SEND" time during tune up has never exceeded 5 seconds. I always let it cool for 10 seconds between adjustments. I'm trying very hard to go easy on it while I get the tuning part down to an art.

Thanks a bunch,
Matt

43768. Westinghouse video from 1943 explaining how tubes (valves) work.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 01:50:54 UTC
From: ralph_ts_830s
Topic: 43768 Message: 43768

All,
Some of you may have seen this already. I stumbled onto this video while researching VTVM's. I know it's not a Kenwood hybrid video but for the guys that think "real radios glow" and for guys just getting accustomed to their hybrids, it's very informative.
http://www.youtube.com/watch?v=2eDb8ojvreo

73
Ralph/KB1ZYI

43769. Re: [TS-520_820_530_830] Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 05:29:46 UTC
From: John Davidson
Topic: 43767 Message: 43769

Wonder why you switch the meter to RF if you already have a wattmeter connected? The RF metering position is a relative reading and the wattmeter is a better indication of the same thing.
I would monitor plate current and the wattmeter while doing the last steps of tuneup. If you have 100 W out and 200-225 mA of plate current, STOP messing with things and operate, Try to answer a CQ or call your own. !

From: kf5lch <kf5lch@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, July 31, 2013 9:40 PM
Subject: [TS-520_820_530_830] Tuning issues.
 .

Now we move the meter to the RF position, Mode is still in CW. I tune with the plate control for max power output. At this time I can see 120+ watts on my watt meter. I switch the meter back to IP to check & see how far off I am from the 225ma target. around 215-220ma. Looks good. Now I switch the mode to tune to check ALC & it's DEAD. NOTHING. I can re-peak the ALC, start all over with the tune up procedure, come back & check the ALC & it'll be dead again.

Thanks a bunch,
Matt

[Non-text portions of this message have been removed]

43770. Re: Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 10:46:02 UTC
From: Terry Wagoner
Topic: 43767 Message: 43770

1. Falling ALC can be due to soft 12BY7A Driver tube. If changing Driver tube doesnt cure this come back for additional checks.

2. No need to flip to RF meter position as a last step. Your Wattmeter is better way to load. After you get your first dip in plate current in Tune mode leave meter in Ip position and then use your external wattmeter. Switch to CW mode and flip to send and alternately adjust the Plate Tune and Plate Load controls for maximum RF output of approx 100 watts without exceeding approx 200ma of plate current. (notice 200ma)

The RF meter position step was used in these rigs as in the 70s people did not have watt meters and rig had to stand alone so manufacturers starting putting the RF detector position in their transceivers.

The reason for 200ma is that the TS-820 is rated at 160 watts DC input and not 180 watts input. Page 20 of your manual tells you to load to approx 200 ma and not 225 ma which you would do for a TS-530 or TS-830 rated at 180 watts dc input. In actual practice with ICAS duty and SSB and CW modes you can load a TS-820 to 225ma and not suffer any immediate damage or any noticeable effect on tube, transformer, or HV rectifier life. However, the TS-820 design is 200ma and you will not gain anything by routinely loading to 225ma.

3. Where in instructions does it tell you to go back and check ALC or repeak the Drive? I guess you are concerned about the falling ALC indication? This is not a Class C Grid Leak bias transmitter of the 50s/60s where you have to worry about maximum grid drive current on the final tube control grids. No worry about loss of grid drive or the loading affect causing the grid drive to fall off and need to re-set drive current level frequently as you pick up more load.

In fact if you look at Page 20 you will see that it states at 200ma of plate current there may be no ALC indication. They had to state that because people (old timers) were going back and checking and trying to repeak the drive. There is a technical reason for why may be no ALC indication at 200ma of plate current but wont spend the keystrokes here.

All you need to do is peak the Drive in Tune mode once and do not worry about it after that. The Driver stage is providing RF voltage swing for the 6146 control grids. All you are doing is adjusting the driver tube plate tank circuit to resonance. The ALC peak indication tells you that you have maximum RF drive voltage which occurs at resonance.

Good to be cautious but dont obsess over 5 or 10 seconds key down time. Most important time limit is that first dip. If the Plate Tune control is not pre-set near band specific resonance (White scribed marks) when you first flip to send you could have very high plate current maybe even full scale and long key down time off resonance is hardest on the 6146s as you are exceeding plate dissipation. For that reason Kenwood gives you Tune position where Screen Grid voltage is at half normal so you cannot have extremely high plate current.

Just dont linger as you are alternately adjusting Plate Tune and Platge Load controls for approx 100 watts output into your wattmeter. As a last step adjust your Plate Tune control

to peak the output power on your wattmeter to approx 100watts. At this point plate current Ip should be close to "dip" and if Ip is near 200 ma you are done and ready to transmit.

Now need to read how to adjust Mic gain for SSB operation and how to set Car Level pot for CW operation.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "kf5lch" <kf5lch@...> wrote:
>
> All, I having some issues tuning up my new to me ts820s. I'm using K4EAA's tune up procedure. Tuning into a Sinclair dummy load. I have yet to TX on the radio, due to fear of burning something up. Hear are my observations. Mode switch in the tune position, I peak the ALC with the drive knob. Once I peak the ALC, it almost immediately starts falling off. I can re-peak it with more drive, but it still falls off.
>
> Ok, besides that. Mode switch still in Tune, meter to IP, dip the plate. Dips just fine. How you guys do this in 5 seconds is beyond me. Next: Mode switch is now in CW. Re-dip the plate. Ken says I'm looking for 225ma or so dipped on the meter. I can get it to dip at 225 ma with the load around 25% no problem. Inline wattmeter shows 100+ watts out at this time.
>
> Now we move the meter to the RF position, Mode is still in CW. I tune with the plate control for max power output. At this time I can see 120+ watts on my watt meter. I switch the meter back to IP to check & see how far off I am from the 225ma target. around 215-220ma. Looks good. Now I switch the mode to tune to check ALC & it's DEAD. NOTHING. I can re-peak the ALC, start all over with the tune up procedure, come back & check the ALC & it'll be dead again.
>
> Does this sound like a common problem of the Hybrid rigs? Or am I screwing something up on the tune up procedure? I have always tuned into the dummy load & my "SEND" time during tune up has never exceeded 5 seconds. I always let it cool for 10 seconds between adjustments. I'm trying very hard to go easy on it while I get the tuning part down to an art.
>
>
> Thanks a bunch,
> Matt
>

43771. Re: Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 11:52:27 UTC
From: Terry Wagoner
Topic: 43767 Message: 43771

Matt:

Ask yourself this:

If I have 100watts output on my wattmeter and 200ma of plate current in panel meter Ip position and ZERO ALC indication how can this be a problem? If I have no RF drive or low RF drive how could I have 100 watts output at 200ma plate current?

Does Zero ALC indication at 200ma Ip mean I have no RF grid drive to my 6146 finals? Well of course not!

So if I have 100 watts output I must have sufficient RF drive from the Driver stage even though I cant see it on ALC. YES!

What then does ZERO ALC at output and 200ma Ip mean?

Simply that you do not have positive RF drive voltage level at the 6146 control grids that exceeds the negative dc offset voltage of the operating bias.

It means with approx -55vdc operating bias on the 6146 final tube control grids(which sets your 60ma resting plate current and class of operation) that you have approx 39rms volts of RF drive or less. 39 x 1.414 = 55 peak RF volts. 55 - 55 = 0. 0 volts difference means the 6146 control grids never go positive and there will be no grid current and therefore no ALC indication. Very small grid current (30 to 40ua) causes the ALC circuit to drive the ALC bus voltage down and the ALC meter go up scale accordingly.

So at 100 watts output you have approx 39rms volts of drive or 55 peak volts of drive or 110 Peak to Peak volts of RF drive from the Driver tube tuned plated circuit you previously tuned to resonance.

39 rf volts of RF drive just isnt enough to overcome the dc bias offset so there will be no grid current and with no grid current there will be no ALC indication. However 39 rf volts is more than sufficient rf drive voltage to produce 100watts output power.

As I said in my first response you do not need grid current drive. All you need is RF voltage swing at the 6146 control grids to cause corresponding Plate voltage swing to produce current pulses at an RF rate to be applied to the Tank circuit (pi-network)as line current (I-line) which in turn causes the Tank circuit circulating current (I-circ) to continue to flow 360 degrees which in turn that RF circ current is coupled by the Plate Load capacitor to the dummy load or your antenna. ARRL Handbook, Basic Electronics Bureau of Naval Personnel, and numerous texts explain how parallel resonant tank circuits work and how a RF amplifier tube converts the HV dc Anode supply to RF.

At 100 watts dissipated by your dummy load you have approx 71rf volts and 1.4 rf amps.

Short answer is...Do not worry about no ALC indication at 200ma Ip and 100 watts output power.

If you have no ALC indication when modulating rig in SSB mode then there can be a problem which we can help you with.

Terry K9TW

43772. Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 12:51:25 UTC
From: Don D
Topic: 43772 Message: 43772

Good morning Terry and group and Good Evening Dave down under.

Back about fifty treads i complained about low output on LSB.
I found that both crystal's on the PLL board were lose and re-soldered them.
Still had low output on LSB,but thought we just need to balance the carrier.
Ok, last night as i am now waiting for parts i decided to check the boards again for any lose connectors.
I took off the IF board to check it for lose connector solder joints[just give them a little wiggle] and all was fine and all with nice shinny solder joints.
Next i took off the PLL board and as you can remove it right off the rig with no problem's,i put it under my mag lamp and noticed a brown spot at crystal X2 and low
and behold there was no foil from TC2 to the jumper going to L34.
Looked like it was scraped away,or it came lose with time due to the movement of the bad solder joint at that crystal,more like scraped away.
No was not my fault when i re-soldered those crystals,as i am a very good at soldering.plus i always use solder wick,instead of a suction pump.

73
Don/Ve2ud

43773. Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 13:52:06 UTC
From: Terry Wagoner
Topic: 43772 Message: 43773

Don:

Not being picky but there should be no path from TC-2 trimmer cap to L34 choke. There is a path from L34 to X2 crystal. If that path was open should be no LSB oscillator signal level at all as no forward bias for switching diode D52 unless D52 is leaky? Not sure how you had any LSB carrier oscillator signal? If TC-2 path was broken would have LSB carrier output, but could not pull the xtal frequency with TC-2 to adjust the frequency response.

In any event looks like it was easy to miss when re-soldering the crystal pins. Cant imagine it being there at that time and has since disappeared. There is low current at this point.

Stranger things happen.

Just good that you found it. Not to big a fan of jumpering very many missing traces or cracked traces, but sometimes a must to salvage a board.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Don D" <ve2ud@...> wrote:
>
> Good morning Terry and group and Good Evening Dave down under.
>
> Back about fifty treads i complained about low output on LSB.
> I found that both crystal's on the PLL board were lose and re-soldered
> them.
> Still had low output on LSB,but thought we just need to balance the
> carrier.
> Ok, last night as i am now waiting for parts i decided to check the
> boards again for any lose connectors.
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> shinny solder joints.
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> with no problem's,i put it under my mag lamp and noticed a brown spot at
> crystal X2 and low
> and behold there was no foil from TC2 to the jumper going to L34.
> Looked like it was scraped away,or it came lose with time due to the
> movement of the bad solder joint at that crystal,more like scraped away.
> No was not my fault when i re-soldered those crystals,as i am a very
> good at soldering.plus i always use solder wick,instead of a suction
> pump.
>
> 73
> Don/Ve2ud
>

43774. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 16:33:12 UTC
From: Don
Topic: 43772 Message: 43774

Terry
I just download a pic of a pll board on Ebay,and by the look of that,it
has the trace cut too.
Wonder if there was a mistake and that was done at the factory?

http://www.ebay.com/itm/Kenwood-TS-830S-PLL-Board-/231016721344?pt=US_Ham_Radio_Transceive
rs&hash=item35c9ab6bc0

Don/Ve2ud

On 01/08/2013 9:52 AM, Terry Wagoner wrote:
>
> Don:
>
> Not being picky but there should be no path from TC-2 trimmer cap to
> L34 choke. There is a path from L34 to X2 crystal. If that path was
> open should be no LSB oscillator signal level at all as no forward
> bias for switching diode D52 unless D52 is leaky? Not sure how you had
> any LSB carrier oscillator signal? If TC-2 path was broken would have
> LSB carrier output, but could not pull the xtal frequency with TC-2 to
> adjust the frequency response.
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> In any event looks like it was easy to miss when re-soldering the
> crystal pins. Cant imagine it being there at that time and has since
> disappeared. There is low current at this point.
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> Stranger things happen.
>
> Just good that you found it. Not to big a fan of jumpering very many
> missing traces or cracked traces, but sometimes a must to salvage a
> board.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Don D" <ve2ud@...> wrote:
> >
> > Good morning Terry and group and Good Evening Dave down under.
> >
> > Back about fifty treads i complained about low output on LSB.
> > I found that both crystal's on the PLL board were lose and re-soldered
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> > Still had low output on LSB,but thought we just need to balance the
> > carrier.
> > Ok, last night as i am now waiting for parts i decided to check the
> > boards again for any lose connectors.

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> >
> > 73
> > Don/Ve2ud
> >
>
>

[Non-text portions of this message have been removed]

43775. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 17:17:18 UTC
From: Joseph Stiles
Topic: 43772 Message: 43775

Don,

Just got back after a bit of holiday time.

  I have a PLL board here (out of rig) and it also has a cut trace that you noticed on yours. This seems to me to be a "post-production" modification or an error in the schematic itself. The board I am looking at here is: PLL board, X-50-1680-00, with "J25-2270-12" printed on the foil side.

Hope this helps.....cheers.........

73 Joe
WB7UQU

From: Don <ve2ud@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 1, 2013 9:33 AM
Subject: Re: [TS-520_820_530_830] Re: Low output on LSB

Terry
I just download a pic of a pll board on Ebay,and by the look of that,it has the trace cut too.
Wonder if there was a mistake and that was done at the factory?

http://www.ebay.com/itm/Kenwood-TS-830S-PLL-Board-/231016721344?pt=US_Ham_Radio_Transceivers&hash=item35c9ab6bc0

Don/Ve2ud

On 01/08/2013 9:52 AM, Terry Wagoner wrote:
>
> Don:
>
> Not being picky but there should be no path from TC-2 trimmer cap to
> L34 choke. There is a path from L34 to X2 crystal. If that path was
> open should be no LSB oscillator signal level at all as no forward
> bias for switching diode D52 unless D52 is leaky? Not sure how you had
> any LSB carrier oscillator signal? If TC-2 path was broken would have
> LSB carrier output, but could not pull the xtal frequency with TC-2 to
> adjust the frequency response.
>
> In any event looks like it was easy to miss when re-soldering the
> crystal pins. Cant imagine it being there at that time and has since
> disappeared. There is low current at this point.
>
> Stranger things happen.

>
> Just good that you found it. Not to big a fan of jumpering very many
> missing traces or cracked traces, but sometimes a must to salvage a
> board.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Don D" <ve2ud@...> wrote:
> >
> > Good morning Terry and group and Good Evening Dave down under.
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> >
> > 73
> > Don/Ve2ud
> >
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43776. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 17:23:56 UTC
From: Don
Topic: 43772 Message: 43776

Hi Joe
Ok that confirms it then.

Thanks Joe
73
Don/Ve2ud

On 01/08/2013 1:17 PM, Joseph Stiles wrote:
>
> Don,
>
> Just got back after a bit of holiday time.
>
> I have a PLL board here (out of rig) and it also has a cut trace
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> modification or
> an error in the schematic itself. The board I am looking at here is:
> PLL board, X-50-1680-00, with "J25-2270-12" printed on the foil side.
>
> Hope this helps.....cheers.........
>
>
> 73 Joe
> WB7UQU
>
> _____
> From: Don <ve2ud@...m <mailto:ve2ud%40travel-net.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Thursday, August 1, 2013 9:33 AM
> Subject: Re: [TS-520_820_530_830] Re: Low output on LSB
>
>
>
>
>
> Terry
> I just download a pic of a pll board on Ebay,and by the look of that,it
> has the trace cut too.
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> http://www.ebay.com/itm/Kenwood-TS-830S-PLL-Board-/231016721344?pt=US_Ham_Radio_Transceivers&hash=item35c9ab6bc0
> <http://www.ebay.com/itm/Kenwood-TS-830S-PLL-Board-/231016721344?pt=US_Ham_Radio_Transceivers&hash=item35c9ab6bc0>
>

> Don/Ve2ud
>
> On 01/08/2013 9:52 AM, Terry Wagoner wrote:
> >
> > Don:
> >
> > Not being picky but there should be no path from TC-2 trimmer cap to
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> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Don D" <ve2ud@...>
> wrote:
> > >
> > > Good morning Terry and group and Good Evening Dave down under.
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> > > Back about fifty treads i complained about low output on LSB.
> > > I found that both crystal's on the PLL board were lose and re-soldered
> > > them.
> > > Still had low output on LSB,but thought we just need to balance the
> > > carrier.
> > > Ok, last night as i am now waiting for parts i decided to check the
> > > boards again for any lose connectors.
> > > I took off the IF board to check it for lose connector solder joints[
> > > just give them a little wiggle] and all was fine and all with nice
> > > shinny solder joints.
> > > Next i took off the PLL board and as you can remove it right off
> the rig
> > > with no problem's,i put it under my mag lamp and noticed a brown
> spot at
> > > crystal X2 and low
> > > and behold there was no foil from TC2 to the jumper going to L34.
> > > Looked like it was scraped away,or it came lose with time due to the

> > > movement of the bad solder joint at that crystal,more like scraped
> away.
> > > No was not my fault when i re-soldered those crystals,as i am a very
> > > good at soldering.plus i always use solder wick,instead of a suction
> > > pump.
> > >
> > > 73
> > > Don/Ve2ud
> > >
> >
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> [Non-text portions of this message have been removed]
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> [Non-text portions of this message have been removed]
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[Non-text portions of this message have been removed]

43777. Re: Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 18:22:08 UTC
From: kf5lch
Topic: 43767 Message: 43777

Terry, Thank you & the other members for the reply. It's good to get definite answers for a change. I've been talking with some of the OM from the club about this same issue & I tend to get alot of "boy I can't remember" or "that was 30 years ago" answers.

I'm gonna tune it up this evening & give it a try on 20m. At least see if I can get a signal report. If I run into any more issues, you guys will be the first to know.

Thanks again,
Matt

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Matt:
>
> Ask yourself this:
>
> If I have 100watts output on my wattmeter and 200ma of plate current in panel meter Ip position and ZERO ALC indication how can this be a problem? If I have no RF drive or low RF drive how could I have 100 watts output at 200ma plate current?
>
> Does Zero ALC indication at 200ma Ip mean I have no RF grid drive to my 6146 finals? Well of course not!
>
> So if I have 100 watts output I must have sufficient RF drive from the Driver stage even though I cant see it on ALC. YES!
>
> What then does ZERO ALC at output and 200ma Ip mean?
>
> Simply that you do not have positive RF drive voltage level at the 6146 control grids that exceeds the negative dc offset voltage of the operating bias.
>
> It means with approx -55vdc operating bias on the 6146 final tube control grids(which sets your 60ma resting plate current and class of operation) that you have approx 39rms volts of RF drive or less. 39 x 1.414 = 55 peak RF volts. 55 - 55 = 0. 0 volts difference means the 6146 control grids never go positive and there will be no grid current and therefore no ALC indication. Very small grid current (30 to 40ua) causes the ALC circuit to drive the ALC bus voltage down and the ALC meter go up scale accordingly.
>
> So at 100 watts output you have approx 39rms volts of drive or 55 peak volts of drive or 110 Peak to Peak volts of RF drive from the Driver tube tuned plated circuit you previously tuned to resonance.
>
> 39 rf volts of RF drive just isnt enough to overcome the dc bias offset so there will be no grid current and with no grid current there will be no ALC indication. However 39 rf volts is more than sufficient rf drive voltage to produce 100watts output power.
>

> As I said in my first response you do not need grid current drive. All you need is RF voltage swing at the 6146 control grids to cause corresponding Plate voltage swing to produce current pulses at an RF rate to be applied to the Tank circuit (pi-network)as line current (I-line) which in turn causes the Tank circuit circulating current (I-circ) to continue to flow 360 degrees which in turn that RF circ current is coupled by the Plate Load capacitor to the dummy load or your antenna. ARRL Handbook, Basic Electronics Bureau of Naval Personnel, and numerous texts explain how parallel resonant tank circuits work and how a RF amplifier tube converts the HV dc Anode supply to RF.
>
> At 100 watts dissipated by your dummy load you have approx 71rf volts and 1.4 rf amps.
>
> Short answer is...Do not worry about no ALC indication at 200ma Ip and 100 watts output power.
>
> If you have no ALC indication when modulating rig in SSB mode then there can be a problem which we can help you with.
>
> Terry K9TW
>

43778. Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 19:25:13 UTC
From: Terry Wagoner
Topic: 43772 Message: 43778

Don/Joe:

That trace is a mistake in producing the boards. That is why it is cut. It was cut at the factory. Do not bridge it with a jumper wire as it would put 9vdc at junction of Xtal and TC-2. LSB carrier osc circuit must be exactly same config as USB is shown.

The small jumper wire you see is the correct path that I described earlier to forward bias diode D52. It is reflected in the Revised Edition and in the 3rd Edition of the Service Manual as a dotted line on the X-ray view of the board.

You will notice no such mistaken trace on USB carrier oscillator circuit which is identical.

I cannot say for sure if or when it was corrected. I have 4 J25-2770-12 boards here all with the mistake on them.

Don I thought you were telling us that you bridged this cut with a jumper and restored your LSB carrier oscillator.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Don <ve2ud@...> wrote:
>
>
> Hi Joe
> Ok that confirms it then.
>
> Thanks Joe
> 73
> Don/Ve2ud
>
>
>

43779. Re: Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 19:37:09 UTC
From: Terry Wagoner
Topic: 43767 Message: 43779

Matt:

Even joining a club may not ensure you can find an experienced Kenwood owner. My club has lots of mostly old timers but many of them havent operated a tube rig in many years and have gravitated to mostly 2 meters and perhaps a menu driven DSP solid state final rig.

OK to ask their input, but good to have a resource like what Gordon has provided us.

I suggest that you dont live too long with ALC indication falling off under key down when loading the rig.

As I mentioned first thing to try is a different 12BY7A Driver Tube.

Make sure rig is unplugged and has set awhile. Remove just the top cover of the radio. Driver tube is located on right side of chassis on the vertically oriented RF board. It has a black metal shield can on it. You need to remove this shield to remove the tube. The shield is split along its length and wraps tightly around the tube. There is a ground strap captured between this shield and the tubes glass envelope. Take a small screw driver and spread the shield to allow you to pull it off the tube without damaging the ground strap. Install new tube and re-install the black metal shield can making sure the ground strap is on the inside. You can leave top cover off and try loading to see if different tube has corrected the fall off ALC indication.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "kf5lch" <kf5lch@...> wrote:
>
> Terry, Thank you & the other members for the reply. It's good to get definite answers for a change. I've been talking with some of the OM from the club about this same issue & I tend to get alot of "boy I can't remember" or "that was 30 years ago" answers.
>
> I'm gonna tune it up this evening & give it a try on 20m. At least see if I can get a signal report. If I run into any more issues, you guys will be the first to know.
>
> Thanks again,
> Matt
>
>

43780. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 20:00:23 UTC
From: Don
Topic: 43772 Message: 43780

Terry
No i did not bridge it,i was thinking about it.
I remembered seeing a board on Ebay,so i wanted to compare it first,and
then Joe confirmed it.
Waiting for a answer from Jim on parts.
This might do if he has none.

http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37

Might be a good time to take off the RF board and check it,as it has no
forty meters signal,when i feed a signal in from my SSG.
When i last loaded the rig it arched badly and then all when silent,it
was on forty meters.

Don/Ve2ud

On 01/08/2013 3:25 PM, Terry Wagoner wrote:
>
> Don/Joe:
>
> That trace is a mistake in producing the boards. That is why it is
> cut. It was cut at the factory. Do not bridge it with a jumper wire as
> it would put 9vdc at junction of Xtal and TC-2. LSB carrier osc
> circuit must be exactly same config as USB is shown.
>
> The small jumper wire you see is the correct path that I described
> earlier to forward bias diode D52. It is reflected in the Revised
> Edition and in the 3rd Edition of the Service Manual as a dotted line
> on the X-ray view of the board.
>
> You will notice no such mistaken trace on USB carrier oscillator
> circuit which is identical.
>
> I cannot say for sure if or when it was corrected. I have 4
> J25-2770-12 boards here all with the mistake on them.
>
> Don I thought you were telling us that you bridged this cut with a
> jumper and restored your LSB carrier oscillator.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@...> wrote:
> >
> >

> > Hi Joe
> > Ok that confirms it then.
> >
> > Thanks Joe
> > 73
> > Don/Ve2ud
> >
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> >
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>

[Non-text portions of this message have been removed]

43781. Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 20:42:23 UTC
From: Terry Wagoner
Topic: 43772 Message: 43781

Don:

Can you find a Phillips capacitor data sheet to see what the pin spacing is?

So you are saying no RX and no TX now on 40 meters after experiencing an arc during loading the rig.

Also tried injecting 40 meter signal (7.2mhz?) into SO-239 and no RX signal.

Would be interesting to inject 7.2mhz at TP-4 and see if you have RX.

L15 tuned circuit is switched in by the RF board bandswitch deck S1-4 and is shared with the TX Mixer and RF buffer amp FET Q2.

Absent this tuned circuit you wont be able to peak the RF drive at output of the TX mixer and at gate circuit of Q2. I would think you should still be able to copy sig gen signal if you injected high enough level.

If it were me I would trouble shoot via signal injection/tracing until I found where losing it. However if it is easier for you to remove the board and perform visual inspection go ahead. Just be careful on aligning the two shafts on re-install. Have you replaced the S22 nylon coupler in the PA cage? If not, then would do that at this time.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Don <ve2ud@...> wrote:
>
> Terry
> No i did not bridge it,i was thinking about it.
> I remembered seeing a board on Ebay,so i wanted to compare it first,and
> then Joe confirmed it.
> Waiting for a answer from Jim on parts.
> This might do if he has none.
>
> http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37
>
> Might be a good time to take off the RF board and check it,as it has no
> forty meters signal,when i feed a signal in from my SSG.
> When i last loaded the rig it arched badly and then all when silent,it
> was on forty meters.
>
>
>
> Don/Ve2ud
>
>

>
>
>

43782. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 21:18:49 UTC
From: Don
Topic: 43772 Message: 43782

Terry

Think it's 8mm spacing on those caps,which would be just fine.Hard to
find a data sheet,but will keep searching.
Yes i was on forty meters when the arching started and then the radio
went to sleep.
I tried my SSG on all bands,and only 40 meters did not respond.
I will try that later or tomorrow and report back.

73
Don/Ve2ud

On 01/08/2013 4:42 PM, Terry Wagoner wrote:
>
> Don:
>
> Can you find a Phillips capacitor data sheet to see what the pin
> spacing is?
>
> So you are saying no RX and no TX now on 40 meters after experiencing
> an arc during loading the rig.
>
> Also tried injecting 40 meter signal (7.2mhz?) into SO-239 and no RX
> signal.
>
> Would be interesting to inject 7.2mhz at TP-4 and see if you have RX.
>
> L15 tuned circuit is switched in by the RF board bandswitch deck S1-4
> and is shared with the TX Mixer and RF buffer amp FET Q2.
>
> Absent this tuned circuit you wont be able to peak the RF drive at
> output of the TX mixer and at gate circuit of Q2. I would think you
> should still be able to copy sig gen signal if you injected high
> enough level.
>
> If it were me I would trouble shoot via signal injection/tracing until
> I found where losing it. However if it is easier for you to remove the
> board and perform visual inspection go ahead. Just be careful on
> aligning the two shafts on re-install. Have you replaced the S22 nylon
> coupler in the PA cage? If not, then would do that at this time.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@...> wrote:
> >

> > Terry
> > No i did not bridge it,i was thinking about it.
> > I remembered seeing a board on Ebay,so i wanted to compare it first,and
> > then Joe confirmed it.
> > Waiting for a answer from Jim on parts.
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> >
> http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20M
M-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37
> <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20
MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37>
> >
> > Might be a good time to take off the RF board and check it,as it has no
> > forty meters signal,when i feed a signal in from my SSG.
> > When i last loaded the rig it arched badly and then all when silent,it
> > was on forty meters.
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> >
> >
> > Don/Ve2ud
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[Non-text portions of this message have been removed]

43783. Re: Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-01 21:53:42 UTC
From: kf5lch
Topic: 43767 Message: 43783

You hit the nail right on the head Terry. Most of the guys have migrated to VHF/UHF repeaters & such. Still a great bunch of folks. They welcomed me with open arms when I inquired about becoming a ham. Any specific brand to look for when I buy tubes? I'll most likely get them from RF Parts since the club gets a little discount. They have a no-name USA made tube & a Mitsubishi listed for the 12BY7A. The Mitsu tube is a little more $$$.

I did locate the 12BY7A in the rig. One of the first things I did was take the cover off & try to familiarize myself with as much as I could. My rig has all the original tubes in it, so it very well could be time for replacements.

Matt
KF5LCH

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Matt:
>
> Even joining a club may not ensure you can find an experienced Kenwood owner. My club has lots of mostly old timers but many of them havent operated a tube rig in many years and have gravitated to mostly 2 meters and perhaps a menu driven DSP solid state final rig.
>
> OK to ask their input, but good to have a resource like what Gordon has provided us.
>
> I suggest that you dont live too long with ALC indication falling off under key down when loading the rig.
>
> As I mentioned first thing to try is a different 12BY7A Driver Tube.
>
> Make sure rig is unplugged and has set awhile. Remove just the top cover of the radio. Driver tube is located on right side of chassis on the vertically oriented RF board. It has a black metal shield can on it. You need to remove this shield to remove the tube. The shield is split along its length and wraps tightly around the tube. There is a ground strap captured between this shield and the tubes glass envelope. Take a small screw driver and spread the shield to allow you to pull it off the tube without damaging the ground strap. Install new tube and re-install the black metal shield can making sure the ground strap is on the inside. You can leave top cover off and try loading to see if different tube has corrected the fall off ALC indication.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "kf5lch" <kf5lch@> wrote:
> >
> > Terry, Thank you & the other members for the reply. It's good to get definite answers for a change. I've been talking with some of the OM from the club about this same issue & I tend to get alot of "boy I can't remember" or "that was 30 years ago" answers.
> >

> > I'm gonna tune it up this evening & give it a try on 20m. At least see if I can get a signal report. If I run into any more issues, you guys will be the first to know.
> >
> > Thanks again,
> > Matt
> >
> >
>

43784. Re: Tuning issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-02 00:00:03 UTC
From: Terry Wagoner
Topic: 43767 Message: 43784

Matt:

I have had good success with RF Parts tubes. Probably a little higher prices than some others but no hassle returns and exchanges if needed.

No need to buy matched finals. Tubes are in parallel not push pull and no way to set bias individually.

Not much difference in 12BY7A tubes. I try to use 6146B when I can get them and also run Sylvania JAN6146Ws. Good idea to keep a set of spares on hand and perhaps to rotate them from time to time.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "kf5lch" <kf5lch@...> wrote:
>
> You hit the nail right on the head Terry. Most of the guys have migrated to VHF/UHF repeaters & such. Still a great bunch of folks. They welcomed me with open arms when I inquired about becoming a ham. Any specific brand to look for when I buy tubes? I'll most likely get them from RF Parts since the club gets a little discount. They have a no-name USA made tube & a Mitsubishi listed for the 12BY7A. The Mitsu tube is a little more $$$.
>
> I did locate the 12BY7A in the rig. One of the first things I did was take the cover off & try to familiarize myself with as much as I could. My rig has all the original tubes in it, so it very well could be time for replacements.
>
> Matt
> KF5LCH
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Matt:
> >
> > Even joining a club may not ensure you can find an experienced Kenwood owner. My club has lots of mostly old timers but many of them havent operated a tube rig in many years and have gravitated to mostly 2 meters and perhaps a menu driven DSP solid state final rig.
> >
> > OK to ask their input, but good to have a resource like what Gordon has provided us.
> >
> > I suggest that you dont live too long with ALC indication falling off under key down when loading the rig.
> >
> > As I mentioned first thing to try is a different 12BY7A Driver Tube.
> >
> > Make sure rig is unplugged and has set awhile. Remove just the top cover of the radio. Driver tube is located on right side of chassis on the vertically oriented RF board. It has

a black metal shield can on it. You need to remove this shield to remove the tube. The shield is split along its length and wraps tightly around the tube. There is a ground strap captured between this shield and the tubes glass envelope. Take a small screw driver and spread the shield to allow you to pull it off the tube without damaging the ground strap. Install new tube and re-install the black metal shield can making sure the ground strap is on the inside. You can leave top cover off and try loading to see if different tube has corrected the fall off ALC indication.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "kf5lch" <kf5lch@> wrote:
> > >
> > > Terry, Thank you & the other members for the reply. It's good to get definite answers for a change. I've been talking with some of the OM from the club about this same issue & I tend to get alot of "boy I can't remember" or "that was 30 years ago" answers.
> > >
> > > I'm gonna tune it up this evening & give it a try on 20m. At least see if I can get a signal report. If I run into any more issues, you guys will be the first to know.
> > >
> > > Thanks again,
> > > Matt
> > >
> > >
> > >
> >
>

43785. Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-02 00:10:01 UTC
From: Terry Wagoner
Topic: 43772 Message: 43785

Don:

The other common thing to look at before you pull the RF board would be VCO signal level and frequency at TP-3 on RF board.

In 40 meter bandswitch position you should have close to 1.0rf volts @ 16mhz (see service manual for frequency vs VFO setting) at TP-3.

VCO is the Local Oscillator (LO) for both the Transmit Mixer and the 1st IF Mixer (RIF). NO VCO = no TX and no RX.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Don <ve2ud@...> wrote:
>
> Terry
>
> Think it's 8mm spacing on those caps,which would be just fine.Hard to
> find a data sheet,but will keep searching.
> Yes i was on forty meters when the arching started and then the radio
> went to sleep.
> I tried my SSG on all bands,and only 40 meters did not respond.
> I will try that later or tomorrow and report back.
>
> 73
> Don/Ve2ud
>
>
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>
>
> On 01/08/2013 4:42 PM, Terry Wagoner wrote:
> >
> > Don:
> >
> > Can you find a Phillips capacitor data sheet to see what the pin
> > spacing is?
> >
> > So you are saying no RX and no TX now on 40 meters after experiencing
> > an arc during loading the rig.
> >
> > Also tried injecting 40 meter signal (7.2mhz?) into SO-239 and no RX
> > signal.
> >

> > Would be interesting to inject 7.2mhz at TP-4 and see if you have RX.
> >
> > L15 tuned circuit is switched in by the RF board bandswitch deck S1-4
> > and is shared with the TX Mixer and RF buffer amp FET Q2.
> >
> > Absent this tuned circuit you wont be able to peak the RF drive at
> > output of the TX mixer and at gate circuit of Q2. I would think you
> > should still be able to copy sig gen signal if you injected high
> > enough level.
> >
> > If it were me I would trouble shoot via signal injection/tracing until
> > I found where losing it. However if it is easier for you to remove the
> > board and perform visual inspection go ahead. Just be careful on
> > aligning the two shafts on re-install. Have you replaced the S22 nylon
> > coupler in the PA cage? If not, then would do that at this time.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@> wrote:
> > >
> > > Terry
> > > No i did not bridge it,i was thinking about it.
> > > I remembered seeing a board on Ebay,so i wanted to compare it first,and
> > > then Joe confirmed it.
> > > Waiting for a answer from Jim on parts.
> > > This might do if he has none.
> > >
> > >
> > http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X2
0MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37
> > <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X
20MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37>
> > >
> > > Might be a good time to take off the RF board and check it,as it has no
> > > forty meters signal,when i feed a signal in from my SSG.
> > > When i last loaded the rig it arched badly and then all when silent,it
> > > was on forty meters.
> > >
> > >
> > >
> > > Don/Ve2ud
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> [Non-text portions of this message have been removed]
>

43786. Progress, incremental and small, but progress nonetheless!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-02 05:50:00 UTC
From: Wes Will
Topic: 43786 Message: 43786

I sent a list of precision resistors and a few capacitors to a friend in the city (I live a few hours' drive outside the urban St. Louis, Missouri area). He went to a parts store ("Gateway Electronics") for me, and today shipped the results of that little shopping spree.

Basically, it was the entire parts list for a Heathkit V7a VTVM. Cost altogether, everything but a new tube, was about six bucks. A couple more dollars to mail it to me, and I should be getting all the bits by Monday.

There is also a miniature slide switch in the bag, and some diodes for making a 3-diode RF probe. I'm going to build it into a "Sharpie" marker shell, after taking out the innards and flushing the ink residue out.

The switch is it toggle the thing from a 3-diode probe to a ONE-diode probe, at need. It's a small enough slide switch to fit inside the pen body, or so I am told anyway. A picture they sent me of the switch sitting on a centimeter rule seems to bear this out.

That will make things a bit easier to deal with. I'll be converting the V7a probe connection (actually just adding a BNC fitting to the banana plugs already there) to match the one on my old O-scope. Being able to just use the same probe for multiple devices will be a help.

Another thing, for those wishing to use the 2 x 100 ohm resistors on a T-fitting, the fitting that you MIGHT want to try instead is a self-terminating Ethernet T connector, from the old 10-Base days. I have a BOX full of them, and another round dozen of the unterminated sort as well. If nothing is plugged into one of the 'legs' it is automagically connected to an internal 50-ohm terminating resistor. The stock ones are 1/8th watt units, but with a bit of ingenuity I suspect I can turn that into a 1-watt unit, perhaps 2 watts if I do the 2 x 100 ohm in parallel thing. Won't fit so neatly inside, perhaps, but ought to still work.

Look for terminating resistor plugs for that era Ethernet, as well. Those already have one of those 1/8th watters inside, easily swapped for larger.

I would never in a million years thought of terminating something like that to act as a mini-dummy-load right on the input to the scope or meter. Thanks again to the group for a nifty idea.

--
Wes Will
N9KDY

43787. RE: [TS-520_820_530_830] Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-02 10:25:09 UTC
From: fpath fpath
Topic: 43772 Message: 43787

HI Don,

I have been following this thread since about mid way or there abouts. Well Just be careful not to bridge factory cut corrections, could end up with more troubl. From the sounds of it you are making progress and shouldn't be too long before the rig is up and running. What Terry, Mike, Gordon and some other don't know isn't worth knowing, keep up the good work and hopefully we'll hear you on the bands soon

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: ve2ud@...
Date: Thu, 1 Aug 2013 12:51:25 +0000
Subject: [TS-520_820_530_830] Low output on LSB

Good morning Terry and group and Good Evening Dave down under.

Back about fifty treads i complained about low output on LSB.
I found that both crystal's on the PLL board were lose and re-soldered them.
Still had low output on LSB,but thought we just need to balance the carrier.
Ok, last night as i am now waiting for parts i decided to check the boards again for any lose connectors.
I took off the IF board to check it for lose connector solder joints[just give them a little wiggle] and all was fine and all with nice shinny solder joints.
Next i took off the PLL board and as you can remove it right off the rig with no problem's,i put it under my mag lamp and noticed a brown spot at crystal X2 and low
and behold there was no foil from TC2 to the jumper going to L34.
Looked like it was scraped away,or it came lose with time due to the movement of the bad solder joint at that crystal,more like scraped away.
No was not my fault when i re-soldered those crystals,as i am a very good at soldering.plus i always use solder wick,instead of a suction pump.

73
Don/Ve2ud

[Non-text portions of this message have been removed]

43788. Re: [TS-520_820_530_830] Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-02 12:26:16 UTC
From: Don
Topic: 43772 Message: 43788

Hi Dave

A real learning experience for sure.Just glad Terry and the board has
not got fed up with me,but i am sure many
others are following and learning at the same time.
Now it's going to take a few weeks to get parts,so good time to catch up
on all that info i got from Terry.
I sure miss the days back in the 80'S when i had my 6 element Telrex 10
meter beam[long gone] and worked all those
VK's from down under.
My biggest battle right now is Arthritis,head to toe.

Cheers Dave

Don/Ve2ud

On 02/08/2013 6:25 AM, fpath fpath wrote:
> HI Don,
>
>
>
> I have been following this thread since about mid way or there abouts. Well Just be careful not to bridge factory cut corrections, could end up with more troubl. From the sounds of it you are making progress and shouldn't be too long before the rig is up and running. What Terry, Mike, Gordon and some other don't know isn't worth knowing, keep up the good work and hopefully we'll hear you on the bands soon
>
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> 73's
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> Dave
>
> VK5PDL
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>
>
> To: TS-520_820_530_830@yahoogroups.com
> From: ve2ud@...
> Date: Thu, 1 Aug 2013 12:51:25 +0000
> Subject: [TS-520_820_530_830] Low output on LSB
>
>
>
>

>
> Good morning Terry and group and Good Evening Dave down under.
>
> Back about fifty treads i complained about low output on LSB.
> I found that both crystal's on the PLL board were lose and re-soldered
> them.
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> carrier.
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> boards again for any lose connectors.
> I took off the IF board to check it for lose connector solder joints[
> just give them a little wiggle] and all was fine and all with nice
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> 73
> Don/Ve2ud
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> [Non-text portions of this message have been removed]
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43789. RE: [TS-520_820_530_830] Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-02 13:09:02 UTC
From: fpath fpath
Topic: 43772 Message: 43789

Don,

What I learnt years ago and forgot, the last 18 months has brought back lots and then some from being on this forum, no matter how much you know in theory, doesn't make up for actual experience or knowledge of the things that aren't mentioned in service manuals. I've had a couple of real out of the box issues and learnt so much more.

I remember the 80s cycle t'was a good one, especially compared to this one.

The knowledgable of the group don't mind spending time helping as long as one is prepared to make attempts, we all make mistakes or misread, but the support and guidance is fantastic.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: ve2ud@...
Date: Fri, 2 Aug 2013 08:26:16 -0400
Subject: Re: [TS-520_820_530_830] Low output on LSB

Hi Dave

A real learning experience for sure.Just glad Terry and the board has
not got fed up with me,but i am sure many
others are following and learning at the same time.
Now it's going to take a few weeks to get parts,so good time to catch up
on all that info i got from Terry.
I sure miss the days back in the 80'S when i had my 6 element Telrex 10
meter beam[long gone] and worked all those
VK's from down under.
My biggest battle right now is Arthritis,head to toe.

Cheers Dave

Don/Ve2ud

On 02/08/2013 6:25 AM, fpath fpath wrote:
> HI Don,
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running. What Terry, Mike, Gordon and some other don't know isn't worth knowing, keep up the good work and hopefully we'll hear you on the bands soon
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> 73's
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> Dave
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> VK5PDL
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>
> To: TS-520_820_530_830@yahoogroups.com
> From: ve2ud@travel-net.com
> Date: Thu, 1 Aug 2013 12:51:25 +0000
> Subject: [TS-520_820_530_830] Low output on LSB
>
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> Good morning Terry and group and Good Evening Dave down under.
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> I found that both crystal's on the PLL board were lose and re-soldered
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> Still had low output on LSB,but thought we just need to balance the
> carrier.
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> I took off the IF board to check it for lose connector solder joints[
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> shinny solder joints.
> Next i took off the PLL board and as you can remove it right off the rig
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> and behold there was no foil from TC2 to the jumper going to L34.
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> movement of the bad solder joint at that crystal,more like scraped away.
> No was not my fault when i re-soldered those crystals,as i am a very
> good at soldering.plus i always use solder wick,instead of a suction
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> 73
> Don/Ve2ud
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> [Non-text portions of this message have been removed]
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> Yahoo! Groups Links
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43790. TS 820S DG-1 Display Origin??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 00:06:20 UTC
From: Wm Marvin
Topic: 43790 Message: 43790

Hi Group Would anyone know where the Mhz segments originate from??

Example: Where does the Mhz band segments i.e 1,3,7 (14) etc originate?

In studying the Service manual these (band segments) for the DG-1 are unclear.

Thanks in advance

Bill KB9IV

43791. Kenwood TS-820S External VFO Plug

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 02:03:21 UTC
From: schneiderandrew
Topic: 43791 Message: 43791

I would like a Kenwood TS-820S External VFO Plug the Kenwood manual calls it a 9PMT SHORT PLUG

Anyone have one they want to sell or know where I can buy one?

Andy N7EBG andrew@...

43792. Re: [TS-520_820_530_830] Kenwood TS-820S External VFO Plug

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 02:41:45 UTC
From: W5RKL
Topic: 43791 Message: 43792

Ebay ad #370832886117 is selling them for $7.50 each plus $6.06 shipping
from the UK.

73
Mike W5RKL

On 8/2/2013 9:03 PM, schneiderandrew wrote:
>
> I would like a Kenwood TS-820S External VFO Plug the Kenwood manual
> calls it a 9PMT SHORT PLUG
>
> Anyone have one they want to sell or know where I can buy one?
>
> Andy N7EBG andrew@... <mailto:andrew%40tklcorp.com>
>
>

[Non-text portions of this message have been removed]

43793. Re: TS 820S DG-1 Display Origin??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 11:35:17 UTC
From: Terry Wagoner
Topic: 43790 Message: 43793

Bill:

Are you asking for a narrative circuit description of how the frequency counter works to go along with the block diagram in the Service Manual? OR

Are you experiencing intermittent 1 mhz segment display ie 1 is erratic or 3 is erratic or 7 is erratic or when displaying 14 the 4 is erratic?

If it is the latter not as simple as telling you a single IC to look at to fix the problem. Could start with reheating the pins on IC11 on Counter Board.

If you want a description of a basic frequency counter can find numerous ones via Goggle that will explain gate timing pulse, shaping the sine wave input signal to be counted to a square wave and 5 volt output, divide by 10 counting, BCD output, carry over, reset, latch, decoder drivers A thru G output etc. Some of the various freq counter makers have good descriptions to go along with the block diagrams. All of the early counters that used individual 7490, 7475 chips work basically the same.

Recognize that the DG-1 uses multiplexing so will be a little different than some of the basic descriptions you will find.

You can also download the DG-5 service manual from Gordons manual site and read the circuit descriptions as it is similar but not exact circuit.

I assume you are having a problem. If so might be better if you described the problem and someone may have a fix. Folks on here have described how to install small wires thru each of the vias and solder on each side etc as fixes for most of the intermittent display problems.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Wm Marvin" <wmarvin2@...> wrote:
>
> Hi Group Would anyone know where the Mhz segments originate from??
>
> Example: Where does the Mhz band segments i.e 1,3,7 (14) etc originate?
>
> In studying the Service manual these (band segments) for the DG-1 are unclear.
>
> Thanks in advance
>
> Bill KB9IV
>

43794. Kenwood TS-820S with HeathKit SB-200 Amp

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 06:51:54 UTC
From: schneiderandrew
Topic: 43794 Message: 43794

Anyone use the SB-200 with modern (or newer) transceiver?

My question..... is the cabling on the back of the SB-200 used?
ALC?
ANT RELAY?

I have the SB-200 with the Harbach Softkey MOD and want to use it with an Kenwood TS-820S

Thank you

Andy N7EBG
andrew@...

43795. RE: [TS-520_820_530_830] Kenwood TS-820S External VFO Plug

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 03:41:43 UTC
From: Steve
Topic: 43791 Message: 43795

Andy

I have one available for $12.50 shipped at

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem
<http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=151094536780>
&item=151094536780

Thanks
From the § of the storm
Steve
W5CIA
#1 DXCC Honor Roll
<http://599dxa.org/> Proud Member of the 599 DX Association
<http://stores.ebay.com/Connectors-Connectors-Connectors> Kenwood Parts,
Connectors and Ham Radio Accessories

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of schneiderandrew
Sent: Friday, August 02, 2013 9:03 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Kenwood TS-820S External VFO Plug

I would like a Kenwood TS-820S External VFO Plug the Kenwood manual calls it
a 9PMT SHORT PLUG

Anyone have one they want to sell or know where I can buy one?

Andy N7EBG andrew@... <mailto:andrew%40tklcorp.com>

[Non-text portions of this message have been removed]

43796. Re: TS 820S DG-1 Display Origin??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 16:21:41 UTC
From: Terry Wagoner
Topic: 43790 Message: 43796

Sorry I had a typo.... "counted to a square wave" should have been "converted to a square wave".

I was trying to say briefly after amplifying your counter input sine wave you need a circuit to "convert" it into a series of Low and High logic pulses ie 0volts and 5volts that can be fed to the BCD counter chips to be counted. Typically a Schmitt trigger is used for this.

It would be nice if someone would write a description of all the counter/display circuits for our Kenwoods. I am not smart enough to do that, but sure would be handy for troubleshooting.

If you look at the DG-5 service manual it does contain timing charts and key waveforms. I have not seen a similar manual for the DG-1 ???

Terry K9TW

"that will explain gate timing pulse, shaping the sine wave input signal to be counted to a square wave and 5 volt output,...."

>
>
> >
>

43797. Re: [TS-520_820_530_830] Kenwood TS-820S with HeathKit SB-200 Amp

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 16:43:54 UTC
From: W5RKL
Topic: 43794 Message: 43797

Andy,

Yes, the SB-200's ALC AND the RELAY terminals are used with the TS-820.

If you do not have the 820 operator's manual, go to the following link

www.n6wk.com/kenwood/

and down load the operator's manual. Go to page 15, item 16, and note how the RELAY and ALC connections are made.

Connect the SB-200 relay voltage terminal to the 820's pins 5 (Normally Open) on the 8 pin socket and ground to the 820's 8 pin octal socket pin 1 or 4.

When the 820 is keyed, relay terminals 4 and 5 will make connection, energizing the SB-200's internal relay. Switching to receive, relay terminals 5 and 4 will no longer be connected resulting in the SB-200 internal relay to De-energize.

Connect the SB-200's ALC output signal to the 820's 8 pin octal socket pin 6 and ground to the 820's 8 pin octal socket pin 1 or 4.

The SB-200's relay voltage is 100 volts. However, the 820's relay terminals can withstand that voltage so you don't need a relay interface circuit.

73
Mike W5RKL

On 8/3/2013 1:51 AM, schneiderandrew wrote:
>
> Anyone use the SB-200 with modern (or newer) transceiver?
>
> My question..... is the cabling on the back of the SB-200 used?
> ALC?
> ANT RELAY?
>
> I have the SB-200 with the Harbach Softkey MOD and want to use it with
> an Kenwood TS-820S
>
> Thank you
>
> Andy N7EBG
> andrew@... <mailto:andrew%40tklcorp.com>
>

>

[Non-text portions of this message have been removed]

43798. Re: TS 820S DG-1 Display Origin??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 17:49:40 UTC
From: Wm Marvin
Topic: 43790 Message: 43798

Terry Thanks a million for your idea's. I'll examine the counter boards and resolder all IC's or questionable looking solder joint(s)

Regretfully I don't have a O'Scope but have all other equipment.

Best Dx

Bill KB9IV

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Sorry I had a typo.... "counted to a square wave" should have been "converted to a square wave".
>
> I was trying to say briefly after amplifying your counter input sine wave you need a circuit to "convert" it into a series of Low and High logic pulses ie 0volts and 5volts that can be fed to the BCD counter chips to be counted. Typically a Schmitt trigger is used for this.
>
> It would be nice if someone would write a description of all the counter/display circuits for our Kenwoods. I am not smart enough to do that, but sure would be handy for troubleshooting.
>
> If you look at the DG-5 service manual it does contain timing charts and key waveforms. I have not seen a similar manual for the DG-1 ???
>
> Terry K9TW
>
>
>
>
> "that will explain gate timing pulse, shaping the sine wave input signal to be counted to a square wave and 5 volt output,...."
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> >
>

43799. TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 19:26:11 UTC
From: adrian.langford@ymail.com
Topic: 43799 Message: 43799

I've been aligning my 520SE this evening on receive, peaking the ANT and MIX coils for each band.

For 160-20m I can get an S9 on the meter using the internal calibration marker. But on 15m this drops to around S7 and only S5 or so on 10m band.

Is it normal for receive sensitivity to drop off like this, and I'd do why does it happen?

73S Adrian G4IQW

43800. Re: Kenwood TS-820S External VFO Plug

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 19:31:20 UTC
From: adrian.langford@ymail.com
Topic: 43791 Message: 43800

I just bought one of these from this vendor - but as I'm in UK postage was less!

It's a nice part and was sent well packaged almost immediately.

I soldered in a wire link to the internal VFO positions on plug. My rig came with a plug which was falling apart and held together by tape! The section with the link was intact (pins bridged by solder blob) but I wanted to treat my 520SE to a decent plug!

73 Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@...> wrote:
>
> Ebay ad #370832886117 is selling them for $7.50 each plus $6.06 shipping
> from the UK.
>
> 73
> Mike W5RKL
>
> On 8/2/2013 9:03 PM, schneiderandrew wrote:
> >
> > I would like a Kenwood TS-820S External VFO Plug the Kenwood manual
> > calls it a 9PMT SHORT PLUG
> >
> > Anyone have one they want to sell or know where I can buy one?
> >
> > Andy N7EBG andrew@... <mailto:andrew%40tklcorp.com>
> >
> >
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>
> [Non-text portions of this message have been removed]
>

43801. Re: TS 820S DG-1 Display Origin??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 19:46:11 UTC
From: Terry Wagoner
Topic: 43790 Message: 43801

Bill:

Dont forget the plated thru holes or vias. I dont think just heating on each side will help? I hope some other TS-820 owners will speak up and give you some ideas on how they addressed correcting TS-820S display problems.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Wm Marvin" <wmarvin2@...> wrote:
>
>
>
> Terry Thanks a million for your idea's. I'll examine the counter boards and resolder all IC's or questionable looking solder joint(s)
>
> Regretfully I don't have a O'Scope but have all other equipment.
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> Best Dx
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> Bill KB9IV
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
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> > Sorry I had a typo.... "counted to a square wave" should have been "converted to a square wave".
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> > I was trying to say briefly after amplifying your counter input sine wave you need a circuit to "convert" it into a series of Low and High logic pulses ie 0volts and 5volts that can be fed to the BCD counter chips to be counted. Typically a Schmitt trigger is used for this.
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> >

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>

43802. Re: [TS-520_820_530_830] TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 20:31:12 UTC
From: Jim S
Topic: 43799 Message: 43802

Assuming that there is not something electronically wrong with your receiver, it is quite normal for the S-meter readings to drop off the higher you go in frequency. The reason for this is quite easy to explain.

Your internal calibration marker is actually a harmonic generator, and as you go higher in frequency, the amplitude of the harmonics themselves, tends to drop off .

Actually, there is a very good test that you can try on your radio. On a "dead" band, listen to the background noise. Then, remove the antenna, and listen for the noise level to drop. If you can easily detect a drop in the noise level, you have adequate sensitivity to hear virtually anything that should be present on the band, and being sent to the RF amplifier stage through the tuned circuits.

This effect can even be measured up into the VHF/UHF frequencies with the proper test equipment. At those frequencies, it is called the "noise factor" of the receiver, and the desired effect is to cause the most difference between the noise the receiver produces when receiving a signal, and when it is not.

That is a rather simplified description, but should be adequate to whet your appetite to learn more about receiver sensitivity and the theoretical and practical limitations that determine it.

73, Jim AG3Y

On 8/3/2013 3:26 PM, adrian.langford@... wrote:
>
> I've been aligning my 520SE this evening on receive, peaking the ANT
> and MIX coils for each band.
>
> For 160-20m I can get an S9 on the meter using the internal
> calibration marker. But on 15m this drops to around S7 and only S5 or
> so on 10m band.
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> Is it normal for receive sensitivity to drop off like this, and I'd do
> why does it happen?
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> 73S Adrian G4IQW
>
>

[Non-text portions of this message have been removed]

43803. Re: [TS-520_820_530_830] Re: TS 820S DG-1 Display Origin??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 20:35:17 UTC
From: Jim S
Topic: 43790 Message: 43803

Plated wire-wrap wire can be an excellent tool to repair cracked walls
of through-holes and vias. Simply heat up the via, and push some
wire-wrap wire through from one side to the other while the solder is
molten. The smallest touch of rosin-core solder to the via will help
restore side to side continuity in stubborn cases.

73, Jim AG3Y

On 8/3/2013 3:46 PM, Terry Wagoner wrote:
>
> Bill:
>
> Dont forget the plated thru holes or vias. I dont think just heating
> on each side will help? I hope some other TS-820 owners will speak up
> and give you some ideas on how they addressed correcting TS-820S
> display problems.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Wm Marvin"
> <wmarvin2@...> wrote:
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> >
> >
> > Terry Thanks a million for your idea's. I'll examine the counter
> boards and resolder all IC's or questionable looking solder joint(s)
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> > Regretfully I don't have a O'Scope but have all other equipment.
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> > Best Dx
> >
> > Bill KB9IV
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@> wrote:
> > >
> > > Sorry I had a typo.... "counted to a square wave" should have been
> "converted to a square wave".
> > >
> > > I was trying to say briefly after amplifying your counter input
> sine wave you need a circuit to "convert" it into a series of Low and
> High logic pulses ie 0volts and 5volts that can be fed to the BCD
> counter chips to be counted. Typically a Schmitt trigger is used for this.

> > >
> > > It would be nice if someone would write a description of all the
> counter/display circuits for our Kenwoods. I am not smart enough to do
> that, but sure would be handy for troubleshooting.
> > >
> > > If you look at the DG-5 service manual it does contain timing
> charts and key waveforms. I have not seen a similar manual for the
> DG-1 ???
> > >
> > > Terry K9TW
> > >
> > >
> > >
> > >
> > > "that will explain gate timing pulse, shaping the sine wave input
> signal to be counted to a square wave and 5 volt output,...."
> > >
> > > > >
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>

[Non-text portions of this message have been removed]

43804. Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 20:44:08 UTC
From: Terry Wagoner
Topic: 43799 Message: 43804

Adrian:

It is "normal" to have some S-meter fall off on 10 meters, but that seems a bit much to me. I just looked at my TS-520 which has slightly different front end and I have approx S7 on 28.500mhz 10 meters.

Your rig has an automatic RF gain shunt attenuator circuit that reduces the gain of the receiver on 160 thru 15 meters by shunting some of the output of the Q5 RF amp thru capacitive voltage divider to ground. On 10 meters and Aux position of the bandswitch full RF output signal from Q5 RF amp is applied to the input of the 1st Rx Mixer.

If this circuit is not working you could have reduced gain on 10 meters.

This is accomplished by Switching Diode D4 and Capacitors C9/C10 tapped at the output of the Transmit Mixer Drain lead. It is tapped here because the Transmit Mixer and RF amp share the same tank circuit.

Diode D4 is forward biased all the time by 9vdc and is reverse biased by applying 14vdc to DS Terminal on the RF board. Go to DS terminal and monitor voltage to chassis ground as you switch from 15 meters to 10 meters. On 10 Meters should see 14vdc to ground. On 15 meters should see zero volts. With D4 reverse biased (turned off) you should experience full RF gain on 10 meters.

You can play with this by lifting the DS lead and using bench supply to key this circuit with low level RF signal injected into SO-239 and see if you can get change in S-meter readings.

I have seen problems with DS switching voltage due to bad bandswitch contacts and a bad D4 diode couple of times.

Now why is this circuit necessary? I have a white paper on this, but will try to give short version so dont bore anyone (although all hybrids accept the 520 have this circuit).

A multiband transceiver is a compromise rig. The TX and RX circuits share tuned circuits. For tuned circuits to be most effective you have to have correct Loaded or Operating Q. This Q is arrived at by optimizing practical values of L/C ratio for these shared parallel resonant circuits. On the higher bands like 10 there is a lot of fixed parasitic capacitance from tube interelectrode capacitance,pc foil traces, bandswitch contacts, wire leads etc. The Kenwood designers were faced with designing tuned circuits that used this parasitic capacitance. This is why you do not see any small fixed capacitors being switched in parallel with the 10 meter coil pack inductors. The parasitic capacitance must be used to form a parallel resonant circuit with less than optimum LC ratio and operating Q.

So if you have to design a multiband transceiver where would you want the performance to fall off both on TX and RX? Not on 160 or 80 but on 10 meters because it is much easier to address that loss by using high gain directive antennas which would not be so practical to build and swing on the lower bands. Easy to recover the gain on 10 meters with modest

antennas. The same is true in TX where it is "normal" to have less RF output on 10 meters due to primarily having to use the parasitic capacitance of the Driver Tube for your 10 meter plate tuned circuit. Less than an optimum tuned circuit. Antennas are used to easily address this slight TX performance deficiency.

So why do we need to have two different RF gain settings in the front end? By the way TS520 does not have this design improvement. So they set the gain of RF amp a little less hot at all times.

On low bands like 160 and 80 if you live in a urban area you can have a volt of signal at your antenna and more than one strong broadcast station in your pass band. If you run the RF amp wide open you will risk IMD being generated in the 1st RX Mixer. This IMD will cause SSB to sound like gibberish and CW signals to have phantom or ghost signals. Also poor 2 signal performance can result in de-senitizing the receiver and/or blocking if severe enough. Reducing the signal level to the 1st RX Mixer is a way to address this problem.

On 10 meters RX you are faced with exact opposite regardless of where you live. SO-239 typically sees very weak signals down in the uv level. You need Rf gain to be hot and not as much concern about 2 signal performance on 10 meters.

So fix is to reduce gain of the RF amp to the 1st RX Mixer and let 2nd Mixer run hot for the low bands (especially important on 160 and 80). Need to be able to do this without the operator of the rig having to remember to switch it so Kenwood gave you bandswitch contacts to control a diode switched RF attenuator at the output of Q5 RF amp.

So regarding your lower S-meter on 10 meters make sure you have RF-1 voltage set correctly so that AGC bus voltage is correct (some call this agc bias) and make sure that your RF shunt attenuator is working. On 160 thru 15 confirm that Diode D4 is turned on and on 10 meters make sure Diode D4 is turned off. D4 can be getting correct bias but can be failed open so need to make sure it really is switching. If D4 switch is working and RF-1 is good you probably have the best you will get out of 10 meters RX performance assuming you have done a good coil pack alignment.

If your rig was a monoband 10 meter rig the designers could have optimized the component layout and the LC ratio of tuned circuits to provide somewhat better TX and RX performance.

Sorry so long, but not easy to explain how this works in two or three sentences.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> I've been aligning my 520SE this evening on receive, peaking the ANT and MIX coils for each band.
>
> For 160-20m I can get an S9 on the meter using the internal calibration marker. But on 15m this drops to around S7 and only S5 or so on 10m band.
>
> Is it normal for receive sensitivity to drop off like this, and I'd do why does it happen?
>
> 73S Adrian G4IQW
>

43805. Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 20:49:38 UTC
From: Terry Wagoner
Topic: 43799 Message: 43805

Jim:

It is not likely that the Marker signal level falling off is the problem.

Use a calibrated RF signal generator and inject 50uv or -73dBm into SO-239. A well aligned TS-520 will give approx S9 on all the low bands and on 10 meters will see something in the S7 to S6 range.

RF sig gen level is constant.

Read my post.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Jim S <jimstan@...> wrote:
>
> Assuming that there is not something electronically wrong with your
> receiver, it is quite normal for the S-meter readings to drop off the
> higher you go in frequency. The reason for this is quite easy to explain.
>
> Your internal calibration marker is actually a harmonic generator, and
> as you go higher in frequency, the amplitude of the harmonics
> themselves, tends to drop off .
>
> Actually, there is a very good test that you can try on your radio. On a
> "dead" band, listen to the background noise. Then, remove the antenna,
> and listen for the noise level to drop. If you can easily detect a drop
> in the noise level, you have adequate sensitivity to hear virtually
> anything that should be present on the band, and being sent to the RF
> amplifier stage through the tuned circuits.
>
> This effect can even be measured up into the VHF/UHF frequencies with
> the proper test equipment. At those frequencies, it is called the
> "noise factor" of the receiver, and the desired effect is to cause the
> most difference between the noise the receiver produces when receiving a
> signal, and when it is not.
>
> That is a rather simplified description, but should be adequate to whet
> your appetite to learn more about receiver sensitivity and the
> theoretical and practical limitations that determine it.
>
> 73, Jim AG3Y
>
>
> On 8/3/2013 3:26 PM, adrian.langford@... wrote:
> >

> > I've been aligning my 520SE this evening on receive, peaking the ANT
> > and MIX coils for each band.
> >
> > For 160-20m I can get an S9 on the meter using the internal
> > calibration marker. But on 15m this drops to around S7 and only S5 or
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> > why does it happen?
> >
> > 73S Adrian G4IQW
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

43806. TS-830S simple alignment query

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 21:46:09 UTC
From: Craig Roberts
Topic: 43799 Message: 43806

I am suffering an internal struggle between my purist and pragmatic selves.

Here's the deal. Thanks in large measure to the advice and wisdom of the gurus among you, I have restored my originally roughshod TS-830S to cosmetic and functional shininess. Well, almost.

ONE anomoly remains. On 160 meters and 160 meters only, my PLATE control pointer indication is w-a-a-a-y off at the dip. In fact, it reads 18 MHz rather than 1.8. Pointer and dip are coincidental on all other bands.

So, can I tweak the coil pack on this one band only WITHOUT screwing up all the other bands?

As much as I would wish otherwise, my current "test bench" (ha-ha) consists of an ancient but functional Sentinel Electronics, military surplus VTVM, so I really don't want to attempt a full-blown alignment of an otherwise healthy radio using inadequate equipment in order to correct a nearly inconsequential problem on a band I will probably never use.

Still -- I want it to be right.

What say you, sirs?

Craig
W3CRR
>

[Non-text portions of this message have been removed]

43807. Re: TS-830S simple alignment query

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 22:02:54 UTC
From: Terry Wagoner
Topic: 43799 Message: 43807

Dave VK5PDL has much experience with this problem. Jim Showker has procedure to test if you have a LCR bridge.

I will let them run with this one.

--- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@...> wrote:
>
> I am suffering an internal struggle between my purist and pragmatic selves.
>
> Here's the deal. Thanks in large measure to the advice and wisdom of the
> gurus among you, I have restored my originally roughshod TS-830S to
> cosmetic and functional shininess. Well, almost.
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> ONE anomoly remains. On 160 meters and 160 meters only, my PLATE control
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> of an otherwise healthy radio using inadequate equipment in order to
> correct a nearly inconsequential problem on a band I will probably never
> use.
>
> Still -- I want it to be right.
>
> What say you, sirs?
>
> Craig
> W3CRR
> >
>
>
> [Non-text portions of this message have been removed]
>

43808. Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 22:08:52 UTC
From: adrian.langford@ymail.com
Topic: 43799 Message: 43808

Terry thanks do much for such a fascinating answer - not only pointing me to solution but enlightening on transceiver design.

Of course murphy's law says I've just buttoned up the rig, put the sig gen away and reconnected things. I did at least squeeze out an S point or so with the coil pack alignment, peak WWV reception and align transformers for the 8MHz trap and IF board. Before aligning the Rx coils I had almost no s Meyer deflection on 10m so at least it's improvement. When I set rig up again for operating I heard a QSO on 10m for first time since getting the rig!

So next job will be to haul the rig back to bench and run tests you describe, starting with checking the 0V/14V control voltage for the diode. Before that will study the relevant part of the circuit alongside your description.

Thanks again and I will post back what I find.

I was using the marker signal, si will also see if the s-meter readings are different using sig gen at SO239 (it's a lovely old Racal Dana - output rock solid as frequency changes)

73s Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Adrian:
>
> It is "normal" to have some S-meter fall off on 10 meters, but that seems a bit much to me. I just looked at my TS-520 which has slightly different front end and I have approx S7 on 28.500mhz 10 meters.
>
> Your rig has an automatic RF gain shunt attenuator circuit that reduces the gain of the receiver on 160 thru 15 meters by shunting some of the output of the Q5 RF amp thru capacitive voltage divider to ground. On 10 meters and Aux position of the bandswitch full RF output signal from Q5 RF amp is applied to the input of the 1st Rx Mixer.
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> If this circuit is not working you could have reduced gain on 10 meters.
>
> This is accomplished by Switching Diode D4 and Capacitors C9/C10 tapped at the output of the Transmit Mixer Drain lead. It is tapped here because the Transmit Mixer and RF amp share the same tank circuit.
>
> Diode D4 is forward biased all the time by 9vdc and is reverse biased by applying 14vdc to DS Terminal on the RF board. Go to DS terminal and monitor voltage to chassis ground as you switch from 15 meters to 10 meters. On 10 Meters should see 14vdc to ground. On 15 meters should see zero volts. With D4 reverse biased (turned off) you should experience full RF gain on 10 meters.
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> You can play with this by lifting the DS lead and using bench supply to key this circuit with low level RF signal injected into SO-239 and see if you can get change in S-meter readings.
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> I have seen problems with DS switching voltage due to bad bandswitch contacts and a bad D4 diode couple of times.
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> Now why is this circuit necessary? I have a white paper on this, but will try to give short version so dont bore anyone (although all hybrids accept the 520 have this circuit).
>
> A multiband transceiver is a compromise rig. The TX and RX circuits share tuned circuits. For tuned circuits to be most effective you have to have correct Loaded or Operating Q. This Q is arrived at by optimizing practical values of L/C ratio for these shared parallel resonant circuits. On the higher bands like 10 there is a lot of fixed parasitic capacitance from tube interelectrode capacitance,pc foil traces, bandswitch contacts, wire leads etc. The Kenwood designers were faced with designing tuned circuits that used this parasitic capacitance. This is why you do not see any small fixed capacitors being switched in parallel with the 10 meter coil pack inductors. The parasitic capacitance must be used to form a parallel resonant circuit with less than optimum LC ratio and operating Q.
>
> So if you have to design a multiband transceiver where would you want the performance to fall off both on TX and RX? Not on 160 or 80 but on 10 meters because it is much easier to address that loss by using high gain directive antennas which would not be so practical to build and swing on the lower bands. Easy to recover the gain on 10 meters with modest antennas. The same is true in TX where it is "normal" to have less RF output on 10 meters due to primarily having to use the parasitic capacitance of the Driver Tube for your 10 meter plate tuned circuit. Less than an optimum tuned circuit. Antennas are used to easily address this slight TX performance deficiency.
>
> So why do we need to have two different RF gain settings in the front end? By the way TS520 does not have this design improvement. So they set the gain of RF amp a little less hot at all times.
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> On low bands like 160 and 80 if you live in a urban area you can have a volt of signal at your antenna and more than one strong broadcast station in your pass band. If you run the RF amp wide open you will risk IMD being generated in the 1st RX Mixer. This IMD will cause SSB to sound like gibberish and CW signals to have phantom or ghost signals. Also poor 2 signal performance can result in de-senitizing the receiver and/or blocking if severe enough. Reducing the signal level to the 1st RX Mixer is a way to address this problem.
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>
> So fix is to reduce gain of the RF amp to the 1st RX Mixer and let 2nd Mixer run hot for the low bands (especially important on 160 and 80). Need to be able to do this without the operator of the rig having to remember to switch it so Kenwood gave you bandswitch contacts to control a diode switched RF attenuator at the output of Q5 RF amp.
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> So regarding your lower S-meter on 10 meters make sure you have RF-1 voltage set

correctly so that AGC bus voltage is correct (some call this agc bias) and make sure that your RF shunt attenuator is working. On 160 thru 15 confirm that Diode D4 is turned on and on 10 meters make sure Diode D4 is turned off. D4 can be getting correct bias but can be failed open so need to make sure it really is switching. If D4 switch is working and RF-1 is good you probably have the best you will get out of 10 meters RX performance assuming you have done a good coil pack alignment.
>
> If your rig was a monoband 10 meter rig the designers could have optimized the component layout and the LC ratio of tuned circuits to provide somewhat better TX and RX performance.
>
> Sorry so long, but not easy to explain how this works in two or three sentences.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > I've been aligning my 520SE this evening on receive, peaking the ANT and MIX coils for each band.
> >
> > For 160-20m I can get an S9 on the meter using the internal calibration marker. But on 15m this drops to around S7 and only S5 or so on 10m band.
> >
> > Is it normal for receive sensitivity to drop off like this, and I'd do why does it happen?
> >
> > 73S Adrian G4IQW
> >
>

43809. Re: [TS-520_820_530_830] Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 22:20:59 UTC
From: Jim S
Topic: 43799 Message: 43809

Terry, obviously it would be a better test to use a calibrated signal generator to check out all the bands. Of course, this is assuming a LOT to think that he might have test equipment of that caliber available. I will bow to your superior experience with these radios, but I was thinking that a few S-units drop would not be all that significant a decrease!

Just saying!

73, Jim AG3Y

On 8/3/2013 4:49 PM, Terry Wagoner wrote:
>
> Jim:
>
> It is not likely that the Marker signal level falling off is the problem.
>
> Use a calibrated RF signal generator and inject 50uv or -73dBm into
> SO-239. A well aligned TS-520 will give approx S9 on all the low bands
> and on 10 meters will see something in the S7 to S6 range.
>
> RF sig gen level is constant.
>
> Read my post.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Jim S <jimstan@...> wrote:
> >
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> > receiver, it is quite normal for the S-meter readings to drop off the
> > higher you go in frequency. The reason for this is quite easy to
> explain.
> >
> > Your internal calibration marker is actually a harmonic generator, and
> > as you go higher in frequency, the amplitude of the harmonics
> > themselves, tends to drop off .
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> > Actually, there is a very good test that you can try on your radio.
> On a
> > "dead" band, listen to the background noise. Then, remove the antenna,
> > and listen for the noise level to drop. If you can easily detect a drop
> > in the noise level, you have adequate sensitivity to hear virtually
> > anything that should be present on the band, and being sent to the RF
> > amplifier stage through the tuned circuits.

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> > This effect can even be measured up into the VHF/UHF frequencies with
> > the proper test equipment. At those frequencies, it is called the
> > "noise factor" of the receiver, and the desired effect is to cause the
> > most difference between the noise the receiver produces when
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> > signal, and when it is not.
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> > That is a rather simplified description, but should be adequate to whet
> > your appetite to learn more about receiver sensitivity and the
> > theoretical and practical limitations that determine it.
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> > 73, Jim AG3Y
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> >
> > On 8/3/2013 3:26 PM, adrian.langford@... wrote:
> > >
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> > > 73S Adrian G4IQW
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43810. Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 23:19:24 UTC
From: Terry Wagoner
Topic: 43799 Message: 43810

I completely agree with you Jim. Just not on the reason why S-meter indication may be lower on 10 meters. An S5 indication it is not anything to lose sleep over.

It is "normal" or "typical" to have less sensitivity unless he has problems with AGC bus voltage not set correctly (dc control voltage for the IF and RF gain controlled stages) or his RF shunt attenuator is not working properly or some other problem in the gain controlled stages. At S5 I suspect could be improved with another pass or two on the coil pack. If on my bench would make sure RF-1 was set properly and that shunt attenuator was turned off on 10 meters and do a good coil pack alignment and then check AGC threshold and button it up.

I just want him to optimize the performance to design and nothing more.

I think you and I grew up in the old Hallicrafters, Hammurlund, National tube receiver days and we lived with same affect only far worse. By even KW Hybrids standards those old treasures (which I owned many) would be considered deaf on 10 meters.

Why was this? Well very large components spaced apart with long connecting paths and tube inter-electrode capactance all contributing to a high level of fixed or parasitic capacitance that limited the designers ability to use optimum LC ratios and optimum Q on 10 meters.

One of first homebrew things many owners of these receivers built was a dual RCA Nuvistor 10 meter pre-amp. Later some upgraded to dual mosfets.

You can see this better if you look at the TS-830 RF Board schematic. You will notice there are no fixed capacitors across the tank coils for the ANT, MIXER, or DRIVER tuned circuits. They are all relying on the parasitic capacitance of the circuits and designers have played the hand dealt them and used a practical available physical size tuned inductor to allow adjusting these tanks to resonance. Just not able to optimize the LC ratio and the Q. I think if memory serves they have a 15 or 16 pf on the 18mhz tank coil. So that tells me at minimum there is that much fixed capacitance on 10 meters.

Here is article from 1961 where you can see in the introductory paragraph that authors briefly explain why sensitivity on 10 meters can be less.

http://n4trb.com/AmateurRadio/RCA_Ham_Tips/issues/rcahamtips2103.pdf

Same reason why the KW Hybrid transmit output power on 10 meters is typically lower. Having to tap down on the tank inductor so can have acceptable minimum capacitance of the air variable tank capacitor results in less than optimum Tank circuit LC ratio and loaded Q.

I have seen people saying it is due to tubes nearing upper frequency range and/or transit time and this is BS. Not at 30mhz and not with these tubes.

We all live with multiband linear amplifiers having typically lower output power on 10 meters, but seldom give much thought or discussion as to why.

A topic for another day.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Jim S <jimstan@...> wrote:
>
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> > > [Non-text portions of this message have been removed]
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> [Non-text portions of this message have been removed]
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43811. Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 23:23:15 UTC
From: adrian.langford@ymail.com
Topic: 43799 Message: 43811

Hi Jim

I was as you say using the internal marker, and take your point about weaker harmonics.

In fact I'm lucky to have found a Racal 9081 sig gen at very reasonable cost which is calibrated and holds output level from 5-412MHz!

I'm going to repeat with an injected signal. I just looked at the s readings again now I have rig back in operating position, and I'm getting S6 on market signal on 28.5MHz. I think the meter reads slightly higher when it's not upside down, as it was when I had it on bench with coil pack facing up for alignment (or maybe I was not being careful enough about parallax when reading it looking down on meter). Maybe it's not so down on 10m as I thought?

Will report back with measurements using injected signals later.

73s Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, Jim S <jimstan@...> wrote:
>
> Terry, obviously it would be a better test to use a calibrated signal
> generator to check out all the bands. Of course, this is assuming a LOT
> to think that he might have test equipment of that caliber available. I
> will bow to your superior experience with these radios, but I was
> thinking that a few S-units drop would not be all that significant a
> decrease!
>
> Just saying!
>
> 73, Jim AG3Y
>
>
>
> On 8/3/2013 4:49 PM, Terry Wagoner wrote:
> >
> > Jim:
> >
> > It is not likely that the Marker signal level falling off is the problem.
> >
> > Use a calibrated RF signal generator and inject 50uv or -73dBm into
> > SO-239. A well aligned TS-520 will give approx S9 on all the low bands
> > and on 10 meters will see something in the S7 to S6 range.
> >
> > RF sig gen level is constant.
> >
> > Read my post.

> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, Jim S <jimstan@> wrote:
> > >
> > > Assuming that there is not something electronically wrong with your
> > > receiver, it is quite normal for the S-meter readings to drop off the
> > > higher you go in frequency. The reason for this is quite easy to
> > explain.
> > >
> > > Your internal calibration marker is actually a harmonic generator, and
> > > as you go higher in frequency, the amplitude of the harmonics
> > > themselves, tends to drop off .
> > >
> > > Actually, there is a very good test that you can try on your radio.
> > On a
> > > "dead" band, listen to the background noise. Then, remove the antenna,
> > > and listen for the noise level to drop. If you can easily detect a drop
> > > in the noise level, you have adequate sensitivity to hear virtually
> > > anything that should be present on the band, and being sent to the RF
> > > amplifier stage through the tuned circuits.
> > >
> > > This effect can even be measured up into the VHF/UHF frequencies with
> > > the proper test equipment. At those frequencies, it is called the
> > > "noise factor" of the receiver, and the desired effect is to cause the
> > > most difference between the noise the receiver produces when
> > receiving a
> > > signal, and when it is not.
> > >
> > > That is a rather simplified description, but should be adequate to whet
> > > your appetite to learn more about receiver sensitivity and the
> > > theoretical and practical limitations that determine it.
> > >
> > > 73, Jim AG3Y
> > >
> > >
> > > On 8/3/2013 3:26 PM, adrian.langford@ wrote:
> > > >
> > > > I've been aligning my 520SE this evening on receive, peaking the ANT
> > > > and MIX coils for each band.
> > > >
> > > > For 160-20m I can get an S9 on the meter using the internal
> > > > calibration marker. But on 15m this drops to around S7 and only S5 or
> > > > so on 10m band.
> > > >
> > > > Is it normal for receive sensitivity to drop off like this, and
> > I'd do
> > > > why does it happen?
> > > >

> > > > 73S Adrian G4IQW
> > > >
> > > >
> > >
> > >
> > >
> > > [Non-text portions of this message have been removed]
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> [Non-text portions of this message have been removed]
>

43812. Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 23:29:58 UTC
From: Terry Wagoner
Topic: 43799 Message: 43812

Adrian:

No need to repeat with your signal generator unless you just have burning desire to use the Racal. There is nothing seriously wrong with your rig. If there are 10 meter openings and you can copy 100mw cw beacons all is well.

Kenwood describes using the Marker and S-meter to do basic receiver alignment in the Maintenance Section of your Operating manual. This method is perfectly acceptable and can get rig working pretty well in RX and TX by following these steps. Just cannot calibrate the S-meter but if you get an S9 on 20 meters the S-meter is close enough. Only really good for making comparisons anyway.

If you want to learn how the RF shunt attenuator works and play with it someday then take cover off and do that, but for now get it on the air and enjoy!

73s
Terry K9TW

>
>

43813. RE: [TS-520_820_530_830] TS-830S simple alignment query

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-03 23:45:59 UTC
From: fpath fpath
Topic: 43799 Message: 43813

Craig,

Thanks Terry for the reference. Just need a little more information, so we can look at this common issue. When you tune the radio for 3.5 and 7.0 Mhz, where are the pointers on the plate control and load control? Reason behind this is S22 switches in padder capacitors in the PA, due to extra capacitance needed to load at these lower bands and VC1 and VC 2 do not have enough range. These are very easy to get at and usually break down because of the amount of heat from the front 6146b, (C26 22pf and C10 390pf are in parrallel, C9 100pf is in seperate wafer but subject to band will be switched in and close to this tube.

If you need I can go through the whys and hows of the load and plate air capacitors and switching in padders caps.

I'll go through the replacement procedure.

1. Remove from mains power, discharge HV, twice, I now clip an aligator lead to earth and the HV cap once discharged, while working on HV system (just remember to remove once finished!).

2. Double check the shaft coupler on Plate and Load controls, they may have slipped, if all OK then proceed

3. Remove PA cage cover and remove both 6146B, looking a the PA cage from side view, at the front of the cage S22 will have 3 caps, C10 and C26 in parrallel and C9 on seperate wafer. What I have found in the past is C10 390pf, cracks or goes out of spec with age and from heat being generated from 6146B. But check to make sure the wafer fingers are actually making contact as this could be your issue. Don't keep trying to tune radio at these lower frequencies for too long as you cause other component failures, Also check the mounting of plate and load air caps.

4. This is the part you have to decide on wheather your going to attempt to desolder the caps at the switch tag or cut, twist and solder onto the leads. Due to the tight space you must re-install the glass fibre insulation or use heat shrink on the cap leads!

You can check the capacitance of these caps and find that the 390pf will most prob be somewhere around 250pf or less, this is enough to take the pointer out of the normal range and greatly increase the amount of RF volts.

5. I, like Terry, am not a fan of just replacing components for the sake of it, but in this case I believe replacing C26, C10 and C9 is warranted.

6. The most important part is making sure you use Type 1 RF HV caps, http://www.qsl.net/i0jx/capacit.html as reference. if you don't then you'll hear sizzle, pop and the horrible smell of burnt caps and will have to start all over again. If you want I can send off forum some pictures that may help guide you. You'll need patience and time, but all in all it is not too bad an issue to repair.

7. The other 6 caps on the other side of S22 are noramlly not an issue, but still warrant insepction. So far I have only replaced these once, but the second radio I did, I didn't touch them. But that is a more difficult and time consumming repair and replacement.

Let us know how you go.

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@...
Date: Sat, 3 Aug 2013 17:46:09 -0400
Subject: [TS-520_820_530_830] TS-830S simple alignment query

I am suffering an internal struggle between my purist and pragmatic selves.

Here's the deal. Thanks in large measure to the advice and wisdom of the gurus among you, I have restored my originally roughshod TS-830S to cosmetic and functional shininess. Well, almost.

ONE anomoly remains. On 160 meters and 160 meters only, my PLATE control pointer indication is w-a-a-a-y off at the dip. In fact, it reads 18 MHz rather than 1.8. Pointer and dip are coincidental on all other bands.

So, can I tweak the coil pack on this one band only WITHOUT screwing up all the other bands?

As much as I would wish otherwise, my current "test bench" (ha-ha) consists of an ancient but functional Sentinel Electronics, military surplus VTVM, so I really don't want to attempt a full-blown alignment of an otherwise healthy radio using inadequate equipment in order to correct a nearly inconsequential problem on a band I will probably never use.

Still -- I want it to be right.

What say you, sirs?

Craig
W3CRR
>

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[Non-text portions of this message have been removed]

43814. Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 01:08:07 UTC
From: schneiderandrew
Topic: 43814 Message: 43814

I have the TS 820s I notice that when I wear headphone by BOISE they cancel most of the constant background noise. does someone make a kit or product that is a Audio noise filter/blanker for consistent background noise, it would plug into the PHONE jack.

I am sure the new, solid state units must have some type of noise blanker built in like I am describing.

Thank you all

Andy N7EBG

43815. 820 acting weird after replacing driver tube

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 01:29:02 UTC
From: Barry
Topic: 43815 Message: 43815

I figured I would wait until I could work with someone to replace my finals, but I went ahead and replaced my driver tube today. Testing it in a contest with a contact, as soon as I transmitted, the display went to 14.992 and would not change frequencies when turning the VFO wheel. I turned it off and then back on, and I was able to change frequencies. After another transmission, though, it again jumped to 14.992 and would again not change frequencies with the VFO wheel.

I stayed on 20 meters the whole time, and I figured I would turn it off to wait until talking to you guys about it.

My next plan is to take out the new tube and put old one back in.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

43816. Re: [TS-520_820_530_830] TS-830S simple alignment query

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 02:04:17 UTC
From: Craig Roberts
Topic: 43799 Message: 43816

Many thanks, Dave.

In answer to your question, the pointer is off on the 3.5 MHz band as well. All is normal at 7 MHz and above.

Before ordering replacements (I usually deal with Mouser), I need to ascertain -- as you point out -- that these will be Type 1 RF power caps. The Vishay and TDK data sheets I have downloaded from Mouser seem to be ambiguous in this regard. Do you have any specific brand/model# caps or series of caps you recommend?

Thanks VERY much,

Craig
W3CRR

43817. RE: [TS-520_820_530_830] TS-830S simple alignment query

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 02:17:08 UTC
From: fpath fpath
Topic: 43799 Message: 43817

Craig,

I always go for the best I can afford, here in VK we have very few electronics outlets, so most of my electronics is bought from overseas, I use a lot of vishay products, but mainly stick with large manufacturers as at least I know they have a good history. When ordering, refer to the webpage that I gave and make sure the data sheets your looking at match what is explained on the webpage.

One thing you can change is the voltage rating, don't go less, but you can go higher as long as the capacitance is the same. I had to settle for a 5kv rating on one of the caps as that was all I could find at the time, was a little over kill, but it isn't going to hurt.

As for your pointers this now gives more credit to the padder caps being suspect. You'll find that 7Mhz isn't exactly the same as it use to be, but until you replace these caps you won't really notice. Make sure when you change these out you remember the previous marks, you'll be very surprised.

Keep us informed and don't forget we're here to help if you run into trouble

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
CC: fpath@...
From: crgrbrts@...
Date: Sat, 3 Aug 2013 22:04:17 -0400
Subject: Re: [TS-520_820_530_830] TS-830S simple alignment query

Many thanks, Dave.

In answer to your question, the pointer is off on the 3.5 MHz band as
well. All is normal at 7 MHz and above.

Before ordering replacements (I usually deal with Mouser), I need to
ascertain -- as you point out -- that these will be Type 1 RF power
caps. The Vishay and TDK data sheets I have downloaded from Mouser seem
to be ambiguous in this regard. Do you have any specific brand/model#
caps or series of caps you recommend?

Thanks VERY much,

Craig
W3CRR

[Non-text portions of this message have been removed]

43818. Re: [TS-520_820_530_830] Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 02:34:37 UTC
From: Jim S
Topic: 43799 Message: 43818

Fascinating reading, Terry, and I don't want to get too far afield of the main purpose that this forum exists. But it doesn't do too much harm to think about "the way it used to be" once in a while.

If you want to consider receivers that were "deaf" above 20 meters, just consider the old general coverage sets built around the "All American Five" concept, such as the famous S-38 Hallicrafters setup. Of course, that set was not much more than a table-top five tube model with extra coils and caps and a rudimentary band switch. The S-38 was microphonic as all get-out, mainly due to the stray capacitance that was rampant throughout the set, and it was amazing if you were able to hear ANYTHING above 14.3 Mhz (mega-cycles, we used to call them !) .

I was extremely privileged to possess a Central Electronics 100V Transmitter and Collins 75A-4 Receiver in my early years as a ham. How they were able to get such quality out of those early rigs amazes me, to this day!

Well, enough. I don't want to derail the forum more than I have. Thanks for the memories!

73, Jim AG3Y

On 8/3/2013 7:19 PM, Terry Wagoner wrote:
>
> I completely agree with you Jim. Just not on the reason why S-meter
> indication may be lower on 10 meters. An S5 indication it is not
> anything to lose sleep over.
>
> It is "normal" or "typical" to have less sensitivity unless he has
> problems with AGC bus voltage not set correctly (dc control voltage
> for the IF and RF gain controlled stages) or his RF shunt attenuator
> is not working properly or some other problem in the gain controlled
> stages. At S5 I suspect could be improved with another pass or two on
> the coil pack. If on my bench would make sure RF-1 was set properly
> and that shunt attenuator was turned off on 10 meters and do a good
> coil pack alignment and then check AGC threshold and button it up.
>
> I just want him to optimize the performance to design and nothing more.
>

[Non-text portions of this message have been removed]

43819. Re: [TS-520_820_530_830] Re: TS520SE less sensitive on 10m?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 02:39:27 UTC
From: Jim S
Topic: 43799 Message: 43819

All I can say, is "FB OM" As I said, I have not had that much experience with the various Kenwoods, so I probably should have kept my mouth shut! But it certainly doesn't sound as though you have anything major, or even significant, to be concerned about !

The simplest test is the one I mentioned in my first post. If you can hear atmospherics etc. on 10 when you have an antenna hooked up, you probably have all the sensitivity that you will ever need! In the post just prior to this, I mentioned the infamous S-38 and similar receivers. Now those, were DEAF !

73, Jim AG3Y

On 8/3/2013 7:23 PM, adrian.langford@... wrote:
>
> Hi Jim
>
> I was as you say using the internal marker, and take your point about
> weaker harmonics.
>
> In fact I'm lucky to have found a Racal 9081 sig gen at very
> reasonable cost which is calibrated and holds output level from 5-412MHz!
>
> I'm going to repeat with an injected signal. I just looked at the s
> readings again now I have rig back in operating position, and I'm
> getting S6 on market signal on 28.5MHz. I think the meter reads
> slightly higher when it's not upside down, as it was when I had it on
> bench with coil pack facing up for alignment (or maybe I was not being
> careful enough about parallax when reading it looking down on meter).
> Maybe it's not so down on 10m as I thought?
>
> Will report back with measurements using injected signals later.
>
> 73s Adrian G4IQW
>

[Non-text portions of this message have been removed]

43820. Re: [TS-520_820_530_830] Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 02:43:23 UTC
From: John Davidson
Topic: 43814 Message: 43820

Is that a company in Idaho?

From: schneiderandrew <andrew@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, August 3, 2013 9:08 PM
Subject: [TS-520_820_530_830] Older TS-820s external audio filter/blanker

I have the TS 820s I notice that when I wear headphone by BOISE they cancel most of the constant background noise.

Andy N7EBG

[Non-text portions of this message have been removed]

43821. Re: [TS-520_820_530_830] Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 02:47:45 UTC
From: Jim S
Topic: 43814 Message: 43821

I bet you are cracking a joke, aren't you, John? The noise-cancelling
headphones that I am aware of are made by the BOSE corporation.

Jim AG3Y

On 8/3/2013 10:43 PM, John Davidson wrote:
>
> Is that a company in Idaho?
>
> _____
> From: schneiderandrew <andrew@tklcorp.com <mailto:andrew%40tklcorp.com>>
> To: TS-520_820_530_830@...m
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Saturday, August 3, 2013 9:08 PM
> Subject: [TS-520_820_530_830] Older TS-820s external audio filter/blanker
>
>
>
> I have the TS 820s I notice that when I wear headphone by BOISE they
> cancel most of the constant background noise.
>
> Andy N7EBG
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

43822. RE: [TS-520_820_530_830] Ol der TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 03:17:41 UTC
From: <andrew@...>
Topic: 43822 Message: 43822

Is that a company in Idaho? my mistake; BOSE noise cancelling
headphones

Andrew Schneider N7EBG

-------- Original Message --------
Subject: Re: [TS-520_820_530_830] Older TS-820s external audio
filter/blanker
From: John Davidson <k8jd@...>
Date: Sat, August 03, 2013 8:43 pm
To: "TS-520_820_530_830@yahoogroups.com"
<TS-520_820_530_830@yahoogroups.com>

Is that a company in Idaho? my mistake; BOSE noise cancelling
headphones

_____
From: schneiderandrew <andrew@tklcorp.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, August 3, 2013 9:08 PM
Subject: [TS-520_820_530_830] Older TS-820s external audio
filter/blanker

I have the TS 820s I notice that when I wear headphone by BOSE they
cancel most of the constant background noise.

Andy N7EBG

[Non-text portions of this message have been removed]

43823. RE: [TS-520_820_530_830] Ol der TS-820s external audio filter/blanker BO SE not BOISE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 03:19:36 UTC
From: <andrew@...>
Topic: 43823 Message: 43823

No joke just a typo; BOSE noise cancelling headphones
sorry N7EBG

-------- Original Message --------
Subject: Re: [TS-520_820_530_830] Older TS-820s external audio
filter/blanker
From: Jim S <jimstan@...>
Date: Sat, August 03, 2013 8:47 pm
To: TS-520_820_530_830@yahoogroups.com

I bet you are cracking a joke, aren't you, John? The
noise-cancelling
headphones that I am aware of are made by the BOSE corporation.

Jim AG3Y

On 8/3/2013 10:43 PM, John Davidson wrote:
>
> Is that a company in Idaho?
>
> _____
> From: schneiderandrew <andrew@tklcorp.com
<mailto:andrew%40tklcorp.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Saturday, August 3, 2013 9:08 PM
> Subject: [TS-520_820_530_830] Older TS-820s external audio
filter/blanker
>
>
>
> I have the TS 820s I notice that when I wear headphone by BOISE they
> cancel most of the constant background noise.
>
> Andy N7EBG
>
> [Non-text portions of this message have been removed]
>
>

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43824. POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 06:25:14 UTC
From: Craig Roberts
Topic: 43799 Message: 43824

Alas! While tuning my TS-530S into a dummy load (quickly and carefully, as always) a "pop!" and a "flash!" signaled the death of its transmitting capabilities.
A final cage inspection revealed a cracked .01 pF 2KV cap and a burn mark on the little 6.8 uH RF choke. Accordingly, I replaced the cap, the choke and the .001 10KV cap as well, just for good measure.

Well, now I get an ALC indication in TUNE, but that's it. In normal transmit mode (momentarily) plate current is off the scale.

What blew up??

Craig
W3CRR

[Non-text portions of this message have been removed]

43825. RE: [TS-520_820_530_830] POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 09:04:35 UTC
From: fpath fpath
Topic: 43799 Message: 43825

Craig,

Have you checked the SG reisitors on the final board??

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@verizon.net
Date: Sun, 4 Aug 2013 02:25:14 -0400
Subject: [TS-520_820_530_830] POP! FLASH! 530 goes west.

Alas! While tuning my TS-530S into a dummy load (quickly and carefully,
as always) a "pop!" and a "flash!" signaled the death of its
transmitting capabilities.
A final cage inspection revealed a cracked .01 pF 2KV cap and a burn
mark on the little 6.8 uH RF choke. Accordingly, I replaced the cap,
the choke and the .001 10KV cap as well, just for good measure.

Well, now I get an ALC indication in TUNE, but that's it. In normal
transmit mode (momentarily) plate current is off the scale.

What blew up??

Craig
W3CRR

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43826. Re: [TS-520_820_530_830] POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 15:03:54 UTC
From: Craig Roberts
Topic: 43799 Message: 43826

Hooray!. It was, indeed, the cathode resistors. I had doubted this because they were replaced about two weeks ago.

Of course, now I need to learn what blew them. Certainly not abuse (on my part, anyway). Flaky finals? Age? Or was it a consequence of C8's failure (cracked open).

Whaddya think?

Oh -- thanks Dave! (and Terry, of course).

73,

Craig
W3CRR

43827. Re: Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 15:06:26 UTC
From: Michael George
Topic: 43814 Message: 43827

Andy,

I have a TS-830 as a backup - a wonderful radio! I use a GAP HEAR IT in line module for noise reduction. Works great as I have a hearing issue. A little pricey, but I feel it is worth it.The unit requires an external 12 volt source and can be used to connect to earphones or an external speaker, as I use both at times.

Hope this might help and enjoy the hobby as I do.

73,

Mike/K3MG

[Non-text portions of this message have been removed]

43828. Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 16:05:12 UTC
From: Terry Wagoner
Topic: 43799 Message: 43828

Craig:

Almost 100% of time the cause of blown cathode resistors is 6146 anode to suppressor grid/cathode arc over. Approx current = 850v/5ohms = 170 amps! (This is rough calc that does not include ESR of the transformer and if you assume 5 ohms ERS you are still looking at 85 amps).

I have modified my rigs to prevent arc overs from blowing the cathode resistors. In addition to the stress on the HV caps and HV power supply you dont want to perform too many unsolder/resolder evolutions on your final board. High risk of eventually lifting a foil.

Hated to install a mod but with the 30 year old NOS 6146s tubes available to us that have set around on the shelf off gassing and experiencing several blown cathode resistors I bit the bullet and modified my rigs and no more blown cathode resistors. Also, any time you blow the cathode resistors there is high risk of damaging your panel meter.

If you do any mods I would suggest the diode string across the cathode resistors to prevent them from blowing and protecting your meter.

You can see the mod I installed on Ron WB4HFN website. Mark Gilger WB0IQK posted it there under the Kenwood Hybrid Net page under the Articles tab.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@...> wrote:
>
> Hooray!. It was, indeed, the cathode resistors. I had doubted this
> because they were replaced about two weeks ago.
>
> Of course, now I need to learn what blew them. Certainly not abuse (on
> my part, anyway). Flaky finals? Age? Or was it a consequence of C8's
> failure (cracked open).
>
> Whaddya think?
>
> Oh -- thanks Dave! (and Terry, of course).
>
> 73,
>
> Craig
> W3CRR
>

43829. Re: [TS-520_820_530_830] POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 16:08:48 UTC
From: Joseph Stiles
Topic: 43799 Message: 43829

Craig,

  If I may...the MOST common reason that the cathode resistors fail is that one or both final amplifier tubes have some form of
internal "malfunction." It can be several things..internal short...etc...6146A/B/W series tubes, along with other transmitting RF tubes,
MAY test "fine" or "ok" when tested in a tubes tester...but will not function correctly in the REAL RF environment. I suggest that
you obtain some known good finals, put them in the rig and see if the cathode resistors pop. If, I have to replace popped cathode
resistors...I always have lots of extras on hand....and they pop again with the same finals...I'll replace the resistors again...and
put in known good finals. By known good...I mean...have worked in another rig without problem. Be mindful that those solder pads
on the board will only take so much...then you pull up the pad and...well you get the picture.

  Just my opinion...good luck

73 Joe
WB7UQU

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Cc: fpath fpath <fpath@...>
Sent: Sunday, August 4, 2013 8:03 AM
Subject: Re: [TS-520_820_530_830] POP! FLASH! 530 goes west.

Hooray!. It was, indeed, the cathode resistors. I had doubted this
because they were replaced about two weeks ago.

Of course, now I need to learn what blew them. Certainly not abuse (on
my part, anyway). Flaky finals? Age? Or was it a consequence of C8's
failure (cracked open).

Whaddya think?

Oh -- thanks Dave! (and Terry, of course).

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

43830. Re: [TS-520_820_530_830] Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 16:17:11 UTC
From: Wes Will
Topic: 43799 Message: 43830

> You can see the mod I installed on Ron WB4HFN website. Mark Gilger
> WB0IQK posted it there under the Kenwood Hybrid Net page under the
> Articles tab.

And if you'd rather just have a direct link to that article (PDF File) it's:

http://wb4hfn.com/KENWOOD/Articles/Technical_EX-004.pdf

--
Wes Will
N9KDY

43831. Re: [TS-520_820_530_830] Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 16:40:15 UTC
From: Craig Roberts
Topic: 43799 Message: 43831

Thanks VERY much Wes, Joe and Terry. I will definitely install the mod. I can foresee the resistor replacement as being a recurrent inconvenience otherwise. My NOS spare finals are 35 years old and since the 6146Bs in my 830S seem to be functioning fine, I'd just as soon leave them in place (I'm superstitious, y'see).

The 530S in question apparently sat idle for a couple of decades before I acquired it -- plenty of time for the old GEs to get gassy.

Thanks again,

Craig
W3CRR

43832. Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 18:28:38 UTC
From: Terry Wagoner
Topic: 43799 Message: 43832

Understand being superstitious. Lots of opinions on best practice.

You might want to think about rotating them every year or two rather than leaving on the shelf. No better test than to put them in the circuit and for them to see the RF anode voltage swing and plate current under actual operating conditions.

I rotate mine about once a year. Have to neutralize but no big deal and it allows you to clean/inspect the PA cage and lube the fan bushings at same time.

Cooking or Gettering has no effect with 6146 tubes. I use to run my spares in a DX60 for awhile and the anode voltage swing just doesnt replicate what they see in Kenwood service. I think operating them in actual KW service conditions may be better than letting them set on shelf year after year and hope they are viable when you really need them?

After I lost two sets of supposed NOS 6146B spares in one weekend I changed how I approached it.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@...> wrote:
>
> Thanks VERY much Wes, Joe and Terry. I will definitely install the
> mod. I can foresee the resistor replacement as being a recurrent
> inconvenience otherwise. My NOS spare finals are 35 years old and since
> the 6146Bs in my 830S seem to be functioning fine, I'd just as soon
> leave them in place (I'm superstitious, y'see).
>
> The 530S in question apparently sat idle for a couple of decades before
> I acquired it -- plenty of time for the old GEs to get gassy.
>
> Thanks again,
>
> Craig
> W3CRR
>

43833. Re: [TS-520_820_530_830] Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 18:34:59 UTC
From: Jim S
Topic: 43799 Message: 43833

IMHO, it would be more than a "recurrent inconvenience", Craig. Blown out cathode resistors due to tube failures are probably becoming more and more common as good tubes become harder and harder to find. All the problems mentioned earlier would be among the consequences one would face - lifted lands on the circuit boards, additional blown resistors needing to be replaced, other components, especially the meter movement, etc. needing to be replaced. It ain't worth it NOT to put in the mod!

73, Jim AG3Y

On 8/4/2013 12:40 PM, Craig Roberts wrote:
>
> Thanks VERY much Wes, Joe and Terry. I will definitely install the
> mod. I can foresee the resistor replacement as being a recurrent
> inconvenience otherwise. My NOS spare finals are 35 years old and since
> the 6146Bs in my 830S seem to be functioning fine, I'd just as soon
> leave them in place (I'm superstitious, y'see).
>
> The 530S in question apparently sat idle for a couple of decades before
> I acquired it -- plenty of time for the old GEs to get gassy.
>
> Thanks again,
>
> Craig
> W3CRR
>
>

[Non-text portions of this message have been removed]

43834. Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 20:29:51 UTC
From: Terry Wagoner
Topic: 43799 Message: 43834

If anyone is worried about the mod based solely on my recommendation I can tell you that I had discussions about this problem with Tom Rauch W8JI and he helped me with the diode string across the cathode resistors and sizing of the glitch resistor.

I sized the MOVs for the Screen grid protection after looking at what Ian White G3SEK did with tetrode protection in his Tetrode Board articles. I can share the calcs if anyone is interested.

You can see what Tom had to say about Kenwood Hybrid cathode resistors here:

http://www.w8ji.com/cathode_fuse_resistors.htm

I cannot guarantee you will never blow the cathode resistors again or never incur any damage. I know more than one hybrid owner who has made this change and was previously experiencing failures and has had none since. Pretty hard to measure events that do not happen. Is the mod working or have we not had any tube arc overs? I dont know for sure and have no known bad tubes to test with.

I thought about removing the tubes and placing a jumper from the top of the plate choke to the cathode pin of the tube socket on the final board and see what happens and then I thought some more about it and went and had a cold beer!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Jim S <jimstan@...> wrote:
>
> IMHO, it would be more than a "recurrent inconvenience", Craig. Blown
> out cathode resistors due to tube failures are probably becoming more
> and more common as good tubes become harder and harder to find. All the
> problems mentioned earlier would be among the consequences one would
> face - lifted lands on the circuit boards, additional blown resistors
> needing to be replaced, other components, especially the meter movement,
> etc. needing to be replaced. It ain't worth it NOT to put in the mod!
>
> 73, Jim AG3Y
>
>
> On 8/4/2013 12:40 PM, Craig Roberts wrote:
> >
> > Thanks VERY much Wes, Joe and Terry. I will definitely install the
> > mod. I can foresee the resistor replacement as being a recurrent
> > inconvenience otherwise. My NOS spare finals are 35 years old and since
> > the 6146Bs in my 830S seem to be functioning fine, I'd just as soon
> > leave them in place (I'm superstitious, y'see).
> >
> > The 530S in question apparently sat idle for a couple of decades before
> > I acquired it -- plenty of time for the old GEs to get gassy.

> >
> > Thanks again,
> >
> > Craig
> > W3CRR
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

43835. Re: [TS-520_820_530_830] Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 21:00:45 UTC
From: Craig Roberts
Topic: 43799 Message: 43835

I believe opting for a cold beer was, indeed, wiser, Terry :-).

Hmmm. Has anyone tracked similar phenomena -- or absence thereof -- with alternative tubes, like 6883B 12 volt jobbies?

43836. Re: [TS-520_820_530_830] Re: POP! FLASH! 530 goes west.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 23:28:14 UTC
From: Mark Gilger
Topic: 43799 Message: 43836

I've been using Terrys mod in a stubborn TS-520s
now for some time with no problems. I had a 6
months period where I could not find a good set
of 6146's, and kept blowing up the cathode
resistors. Once I made the mod, it's been
perfect ever since. I also made the mod on a
TS-830s. I would not hesitate to perform the mod again if needed.

Mark, WB0IQK

At 04:29 PM 8/4/2013, Terry Wagoner wrote:
>
>
>If anyone is worried about the mod based solely
>on my recommendation I can tell you that I had
>discussions about this problem with Tom Rauch
>W8JI and he helped me with the diode string
>across the cathode resistors and sizing of the glitch resistor.
>
>I sized the MOVs for the Screen grid protection
>after looking at what Ian White G3SEK did with
>tetrode protection in his Tetrode Board
>articles. I can share the calcs if anyone is interested.
>
>You can see what Tom had to say about Kenwood Hybrid cathode resistors here:
>
><http://www.w8ji.com/cathode_fuse_resistors.htm>http://www.w8ji.com/cathode_fuse_resistor
s.htm
>
>I cannot guarantee you will never blow the
>cathode resistors again or never incur any
>damage. I know more than one hybrid owner who
>has made this change and was previously
>experiencing failures and has had none since.
>Pretty hard to measure events that do not
>happen. Is the mod working or have we not had
>any tube arc overs? I dont know for sure and
>have no known bad tubes to test with.
>
>I thought about removing the tubes and placing a
>jumper from the top of the plate choke to the
>cathode pin of the tube socket on the final
>board and see what happens and then I thought
>some more about it and went and had a cold beer!
>

>Terry K9TW
>
>--- In
><mailto:TS-520_820_530_830%40yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
>Jim S <jimstan@...> wrote:
> >
> > IMHO, it would be more than a "recurrent inconvenience", Craig. Blown
> > out cathode resistors due to tube failures are probably becoming more
> > and more common as good tubes become harder and harder to find. All the
> > problems mentioned earlier would be among the consequences one would
> > face - lifted lands on the circuit boards, additional blown resistors
> > needing to be replaced, other components, especially the meter movement,
> > etc. needing to be replaced. It ain't worth it NOT to put in the mod!
> >
> > 73, Jim AG3Y
> >
> >
> > On 8/4/2013 12:40 PM, Craig Roberts wrote:
> > >
> > > Thanks VERY much Wes, Joe and Terry. I will definitely install the
> > > mod. I can foresee the resistor replacement as being a recurrent
> > > inconvenience otherwise. My NOS spare finals are 35 years old and since
> > > the 6146Bs in my 830S seem to be functioning fine, I'd just as soon
> > > leave them in place (I'm superstitious, y'see).
> > >
> > > The 530S in question apparently sat idle for a couple of decades before
> > > I acquired it -- plenty of time for the old GEs to get gassy.
> > >
> > > Thanks again,
> > >
> > > Craig
> > > W3CRR
> > >
> > >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
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43837. TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-04 22:34:41 UTC
From: dllewiszz
Topic: 43837 Message: 43837

Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?

43838. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 00:07:20 UTC
From: Terry Wagoner
Topic: 43837 Message: 43838

It is possible you have bad ac line filter capacitors.

Did you power transformer on bench before installing?

Did you measure xfmr Primary resistance?

Always good idea to measure the resistances of all windings and log in a notebook.

Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@...> wrote:
>
> Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
>

43839. Re: [TS-520_820_530_830] Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 01:48:01 UTC
From: John Davidson
Topic: 43814 Message: 43839

Yeah, Andy (see below) must have fat fingered BOISE.
If you don't know BOSE audio you must play Edison shellac discs on a Victrola

---
From: Jim S <jimstan@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, August 3, 2013 10:47 PM
Subject: Re: [TS-520_820_530_830] Older TS-820s external audio filter/blanker

I bet you are cracking a joke, aren't you, John? The noise-cancelling
headphones that I am aware of are made by the BOSE corporation.

Jim AG3Y

On 8/3/2013 10:43 PM, John Davidson wrote:
>
> Is that a company in Idaho?
>
> ---
> From: schneiderandrew <andrew@... <mailto:andrew%40tklcorp.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Saturday, August 3, 2013 9:08 PM
> Subject: [TS-520_820_530_830] Older TS-820s external audio filter/blanker
>
>
>
> I have the TS 820s I notice that when I wear headphone by BOISE they
> cancel most of the constant background noise.
>
> Andy N7EBG
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43840. TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 03:08:16 UTC
From: kk6ezq
Topic: 43840 Message: 43840

Hello group,

I tested for and passed my Technician and General exams in the past few months and have been monitioring many of the insightful posts in this group. As the saying goes, "The only stupid question is the one not asked" here goes:

How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).

The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?

KK6EZQ
Steve

43841. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 00:52:13 UTC
From: dllewiszz
Topic: 43837 Message: 43841

I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.

When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> It is possible you have bad ac line filter capacitors.
>
> Did you power transformer on bench before installing?
>
> Did you measure xfmr Primary resistance?
>
> Always good idea to measure the resistances of all windings and log in a notebook.
>
> Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> >
> > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
> >
>

43842. TS-820S Remote Connector 8 PIN plug

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 06:42:21 UTC
From: schneiderandrew
Topic: 43842 Message: 43842

I need a TS-820S Remote Connector 8 PIN plug (male) to make an interface cable for the 8 pin (female) socket.

Anyone know where to buy one? or have an extra one you want to sell?

Thank you

Andy N7EBG
andrew@...
801-529-3033

43843. Re: Older TS-820s external audio filter/blanker TYPO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 03:37:18 UTC
From: <andrew@...>
Topic: 43843 Message: 43843

Sorry for the TYPO, BOISE instead of BOSE headphones

All jokes aside, Does any one have suggests for an external audio filter
to cut out the background noise.

Something like modern radios have as standard.

Andrew Schneider
N7EBG
8015293033

43844. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 10:53:47 UTC
From: Terry Wagoner
Topic: 43837 Message: 43844

Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).

Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?

Can unplug the fan leads (never seen a bad fan)

Can lift the line noise caps (one end) Have seen bad caps and if bad need to replace the old disc ceramics with modern X-Y safety caps. I use X1/Y2 type.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@...> wrote:
>
> I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
>
> When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > It is possible you have bad ac line filter capacitors.
> >
> > Did you power transformer on bench before installing?
> >
> > Did you measure xfmr Primary resistance?
> >
> > Always good idea to measure the resistances of all windings and log in a notebook.
> >
> > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > >
> > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC

stuff causing this? Can I remove all of that and run OK on 120VAC?
> > >
> >
>

43845. Re: Older TS-820s external audio filter/blanker TYPO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 11:02:12 UTC
From: w5rkl
Topic: 43843 Message: 43845

There are a number of "opamp" filters you can build by simply searching for them on the web. I built a simple 2 stage audio filter using cheap, less than $1, LM-741 opamps.

A powered breadboard such as the one sold by allelectronics.com

http://www.allelectronics.com/make-a-store/item/PB-4060/POWERED-BREADBOARD/1.html

for $120, well worth the price!

You can also purchase the non-powered breadboard

http://www.allelectronics.com/make-a-store/item/PB-4060/POWERED-BREADBOARD/1.html

but you will have to have separate power supplies for power which include Positive and Negative supplies.

I purchased the self power breadboard and have found it indispensable when designing/experimenting with solid state circuits. I built my 2 stage opamp using single LM-741 ops amps (had quite a few of those LM-741s) using the self powered breadboard. If use a breadboard then I highly recommend you purchase the breadboard jumpers that are also sold by All Electronics. They are better than cutting solid wire then stripping the ends plus they are reusable.

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, <andrew@...> wrote:
>
>
> Sorry for the TYPO, BOISE instead of BOSE headphones
>
> All jokes aside, Does any one have suggests for an external audio filter
> to cut out the background noise.
>
> Something like modern radios have as standard.
>
> Andrew Schneider
> N7EBG
> 8015293033
>

43846. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 11:38:03 UTC
From: Terry Wagoner
Topic: 43840 Message: 43846

Steve:

TS-820 is rated at 160 watts DC input. 780v X .225 = 168.75 watts.

Class AB1 efficiency ranges from 50% to 60% and typically we use 55%. 168.75 X .55 = 92.81 watts.

Assuming your dummy load resistor is 50 ohm non reactive then should see approx 92.81 x 50 = square root of 4640.63 = 68.12 rms rf volts across the dummy load or 192.65 P-P rf volts.

Did you measure the dummy load resistance? Common for them not to be precisely 50 ohms.

So your 80 watts indicated and 72 watts measured is low.

TS-820 should be able to easily get close to 100 watts output into 50 ohm dummy load or approx 70.71rms volts and 1.414 rf amps.

Finals may be getting soft.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
>
> Hello group,
>
> I tested for and passed my Technician and General exams in the past few months and have been monitioring many of the insightful posts in this group. As the saying goes, "The only stupid question is the one not asked" here goes:
>
> How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).
>
> The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?
>
> KK6EZQ
> Steve
>

43847. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 11:46:34 UTC
From: Terry Wagoner
Topic: 43840 Message: 43847

OOPS! A typo. I used 750vdc for anode and not 780vdc.

780 x .225 = 175.5 dc input power. 175.5 x .55 = 96.52 watts

96.52 x 50 = square root of 4826 = 69.47 rms volts or 196.46 P-P across your dummy load.

96 watts output is more like what a TS-820 should do on 160 meters.

Again 80 watts is low.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Steve:
>
> TS-820 is rated at 160 watts DC input. 780v X .225 = 168.75 watts.
>
> Class AB1 efficiency ranges from 50% to 60% and typically we use 55%. 168.75 X .55 = 92.81 watts.
>
> Assuming your dummy load resistor is 50 ohm non reactive then should see approx 92.81 x 50 = square root of 4640.63 = 68.12 rms rf volts across the dummy load or 192.65 P-P rf volts.
>
> Did you measure the dummy load resistance? Common for them not to be precisely 50 ohms.
>
> So your 80 watts indicated and 72 watts measured is low.
>
> TS-820 should be able to easily get close to 100 watts output into 50 ohm dummy load or approx 70.71rms volts and 1.414 rf amps.
>
> Finals may be getting soft.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@> wrote:
> >
> > Hello group,
> >
> > I tested for and passed my Technician and General exams in the past few months and have been monitioring many of the insightful posts in this group. As the saying goes, "The only stupid question is the one not asked" here goes:
> >
> > How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked

the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).
> >
> > The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?
> >
> > KK6EZQ
> > Steve
> >
>

43848. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 11:57:31 UTC
From: Terry Wagoner
Topic: 43840 Message: 43848

Also as I noted in first response the TS-820 is rated at 160 watts dc input and not 180 watts like 530/830. The loading instructions state to load to approx 200ma. I know many folks who load to 225ma with no immediate or apparent long term ill effects.

Just want you to be aware of design dc input rating. I am not sure why rated at this level. 6146 final tube dissipation, power transformer VA rating, etc all factor in. Maybe just carry over from the TS-520S?

I have no idea what the original S2001A plate dissipation was as I have never been able to find an original tube data sheet. The tube dissipation would typically be the most limiting factor.

If you adhered to the dc input rating then 160 x .55 = 88 watts. 88 watts output would be about max you should load to.

Perhaps the long time TS-820 operators can comment on where they load to and their operational experience.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> OOPS! A typo. I used 750vdc for anode and not 780vdc.
>
> 780 x .225 = 175.5 dc input power. 175.5 x .55 = 96.52 watts
>
> 96.52 x 50 = square root of 4826 = 69.47 rms volts or 196.46 P-P across your dummy load.
>
> 96 watts output is more like what a TS-820 should do on 160 meters.
>
> Again 80 watts is low.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Steve:
> >
> > TS-820 is rated at 160 watts DC input. 780v X .225 = 168.75 watts.
> >
> > Class AB1 efficiency ranges from 50% to 60% and typically we use 55%. 168.75 X .55 = 92.81 watts.
> >
> > Assuming your dummy load resistor is 50 ohm non reactive then should see approx 92.81 x 50 = square root of 4640.63 = 68.12 rms rf volts across the dummy load or 192.65 P-P rf volts.

> >
> > Did you measure the dummy load resistance? Common for them not to be precisely 50 ohms.
> >
> > So your 80 watts indicated and 72 watts measured is low.
> >
> > TS-820 should be able to easily get close to 100 watts output into 50 ohm dummy load or approx 70.71rms volts and 1.414 rf amps.
> >
> > Finals may be getting soft.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@> wrote:
> > >
> > > Hello group,
> > >
> > > I tested for and passed my Technician and General exams in the past few months and have been monitioring many of the insightful posts in this group. As the saying goes, "The only stupid question is the one not asked" here goes:
> > >
> > > How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).
> > >
> > > The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?
> > >
> > > KK6EZQ
> > > Steve
> > >
> >
>

43849. Re: [TS-520_820_530_830] Re: Older TS-820s external audio filter/blanker TYPO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 12:49:05 UTC
From: Mike
Topic: 43843 Message: 43849

The "non-powered" breadboard link in my previous response is wrong. The
following link is correct for the non-powered breadboard sold at
allelectronics.com

http://www.allelectronics.com/make-a-store/item/PB-3260/BREADBOARD-3260-CONTACT/1.html

Separate positive and negative power supplies are required to use the
non-powered breadboard.

73
Mike W5RKL

On 8/5/2013 6:02 AM, w5rkl wrote:
>
> There are a number of "opamp" filters you can build by simply
> searching for them on the web. I built a simple 2 stage audio filter
> using cheap, less than $1, LM-741 opamps.
>
> A powered breadboard such as the one sold by allelectronics.com
>
> http://www.allelectronics.com/make-a-store/item/PB-4060/POWERED-BREADBOARD/1.html
>
> for $120, well worth the price!
>
> You can also purchase the non-powered breadboard
>
> http://www.allelectronics.com/make-a-store/item/PB-4060/POWERED-BREADBOARD/1.html
>
> but you will have to have separate power supplies for power which
> include Positive and Negative supplies.
>
> I purchased the self power breadboard and have found it indispensable
> when designing/experimenting with solid state circuits. I built my 2
> stage opamp using single LM-741 ops amps (had quite a few of those
> LM-741s) using the self powered breadboard. If use a breadboard then I
> highly recommend you purchase the breadboard jumpers that are also
> sold by All Electronics. They are better than cutting solid wire then
> stripping the ends plus they are reusable.
>
> 73
> Mike W5RKL
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, <andrew@...> wrote:
> >

> >
> > Sorry for the TYPO, BOISE instead of BOSE headphones
> >
> > All jokes aside, Does any one have suggests for an external audio filter
> > to cut out the background noise.
> >
> > Something like modern radios have as standard.
> >
> > Andrew Schneider
> > N7EBG
> > 8015293033
> >
>
>

[Non-text portions of this message have been removed]

43850. Re: Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 12:53:05 UTC
From: Terry Wagoner
Topic: 43814 Message: 43850

I just sold my SCAF-1. You can pick them up for around $75.00. I understand that the W9GR DSP-3 was highly rated unit. Not sure if he ever got around to making the DSP-4 model or not? Here is a list of manufacturers from Eham.

http://www.eham.net/reviews/products/6%3Fehamsid%3Db11d69f8bcf0449a88d54526fa8d3688

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "schneiderandrew" <andrew@...> wrote:
>
> I have the TS 820s I notice that when I wear headphone by BOISE they cancel most of the constant background noise. does someone make a kit or product that is a Audio noise filter/blanker for consistent background noise, it would plug into the PHONE jack.
>
> I am sure the new, solid state units must have some type of noise blanker built in like I am describing.
>
> Thank you all
>
> Andy N7EBG
>

43851. Re: [TS-520_820_530_830] Re: Older TS-820s external audio filter/blanker TYPO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 13:29:53 UTC
From: Mike
Topic: 43843 Message: 43851

The following link shows a schematic (scroll down the page) that may fit your needs. Notice it is used with headphones. If you want to use a speaker, you can either purchase an amplified speaker or build your own audio amplifier and make it partof the filterusing the popular LM-386 audio amplifier chip. You can build a simple 2 watt audio amp using the popularLM-380 chip. They are widely available, quite often from U.S. sellers on eBay. For example, eBay ad #390443114207 is selling the LM-380 2 watt audio amplifier chip for $3.98 (shipping includedin that price)!!

http://www.qrp.pops.net/low-pass-440.asp

You can buy quad op amp chips, LM-324, from Mouser for "45 cents" each. There's a U.S. seller on eBay selling "10" LM-324 quad op amps for "$4.99" (FREE SHIPPING)under eBay ad #220664660948. That's "49 cents each", 4 cents more than Mouser BUT you don't pay shipping.

As for Perfboards for final assembly of your filter andpossibly an additional audio amplifier, are being sold on eBay.For example, 6 perf boards are currently being soldon eBay under ad #380357917556, for total cost of $9.99, shipping is "FREE" on this ad!

You can experience a lot of fun playing with these chips, changing circuit design and components, to come up with the ideal filter YOU want. Most op-amp and audio amplifier chip data sheets are availableon the web, just search for the chip's data sheet.

73
Mike W5RKL

On 8/5/2013 7:49 AM, Mike wrote:
>
> The "non-powered" breadboard link in my previous response is wrong. The
> following link is correct for the non-powered breadboard sold at
> allelectronics.com
>
> http://www.allelectronics.com/make-a-store/item/PB-3260/BREADBOARD-3260-CONTACT/1.html
>
> Separate positive and negative power supplies are required to use the
> non-powered breadboard.
>
> 73
> Mike W5RKL
>
> On 8/5/2013 6:02 AM, w5rkl wrote:

> >
> > There are a number of "opamp" filters you can build by simply
> > searching for them on the web. I built a simple 2 stage audio filter
> > using cheap, less than $1, LM-741 opamps.
> >
> > A powered breadboard such as the one sold by allelectronics.com
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> >
> http://www.allelectronics.com/make-a-store/item/PB-4060/POWERED-BREADBOARD/1.html
> >
> > for $120, well worth the price!
> >
> > You can also purchase the non-powered breadboard
> >
> >
> http://www.allelectronics.com/make-a-store/item/PB-4060/POWERED-BREADBOARD/1.html
> >
> > but you will have to have separate power supplies for power which
> > include Positive and Negative supplies.
> >
> > I purchased the self power breadboard and have found it indispensable
> > when designing/experimenting with solid state circuits. I built my 2
> > stage opamp using single LM-741 ops amps (had quite a few of those
> > LM-741s) using the self powered breadboard. If use a breadboard then I
> > highly recommend you purchase the breadboard jumpers that are also
> > sold by All Electronics. They are better than cutting solid wire then
> > stripping the ends plus they are reusable.
> >
> > 73
> > Mike W5RKL
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, <andrew@...> wrote:
> > >
> > >
> > > Sorry for the TYPO, BOISE instead of BOSE headphones
> > >
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> filter
> > > to cut out the background noise.
> > >
> > > Something like modern radios have as standard.
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> > > Andrew Schneider
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> > > 8015293033
> > >
> >
> >

>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

43852. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 12:56:37 UTC
From: dllewiszz
Topic: 43837 Message: 43852

Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.

The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.

Thanks for the advice!
Dave WA4FXT

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
>
> Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
>
> Can unplug the fan leads (never seen a bad fan)
>
> Can lift the line noise caps (one end) Have seen bad caps and if bad need to replace the old disc ceramics with modern X-Y safety caps. I use X1/Y2 type.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> >
> > I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
> >
> > When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.
> >
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > >
> > > It is possible you have bad ac line filter capacitors.
> > >
> > > Did you power transformer on bench before installing?
> > >
> > > Did you measure xfmr Primary resistance?
> > >

> > > Always good idea to measure the resistances of all windings and log in a notebook.
> > >
> > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > >
> > > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
> > > >
> > >
> >
>

43853. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 13:35:03 UTC
From: w5rkl
Topic: 43837 Message: 43853

Do you have the 520 service manual schematic? If you do not then I recommend you download it from Gordon's website

n6wk.com/kenwood/

The 520 service manual schematic will answer your question.

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@...> wrote:
>
> Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.
>
> The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
>
> Thanks for the advice!
> Dave WA4FXT
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
> >
> > Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
> >
> > Can unplug the fan leads (never seen a bad fan)
> >
> > Can lift the line noise caps (one end) Have seen bad caps and if bad need to replace the old disc ceramics with modern X-Y safety caps. I use X1/Y2 type.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > >
> > > I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
> > >

> > > When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.
> > >
> > >
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > >
> > > > It is possible you have bad ac line filter capacitors.
> > > >
> > > > Did you power transformer on bench before installing?
> > > >
> > > > Did you measure xfmr Primary resistance?
> > > >
> > > > Always good idea to measure the resistances of all windings and log in a notebook.
> > > >
> > > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
> > > >
> > > > Terry K9TW
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > >
> > > > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
> > > > >
> > > >
> > > >
> > >
> > >
> >
>

43854. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 14:07:58 UTC
From: dllewiszz
Topic: 43837 Message: 43854

I do have the full service manuals for the 520 and the 520S -- and I've just discovered that the 520 schematic differs from the 520S wiring in the Primary side of the XFMR and the 120/240 switch. The manual doesn't really tell me about the internal construction of the 120/240 switch, but the ohmmeter confirms that the center/common is not physically in the middle of the switch. That aside, a close reading of the two schematics reveals the 520S schematic more closely matches the wiring on my old 520, and the 520 schematic is different! I'll rewire according to the 520S manual and report back here with results. (Surely there's a tech note out there somewhere about the error in the 520 schematic?)

--- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@...> wrote:
>
> Do you have the 520 service manual schematic? If you do not then I recommend you download it from Gordon's website
>
> n6wk.com/kenwood/
>
> The 520 service manual schematic will answer your question.
>
> 73
> Mike W5RKL
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> >
> > Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.
> >
> > The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
> >
> > Thanks for the advice!
> > Dave WA4FXT
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > >
> > > Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
> > >
> > > Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
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> > > Can unplug the fan leads (never seen a bad fan)
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> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
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> > > > I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
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> > > >
> > > >
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > > >
> > > > > It is possible you have bad ac line filter capacitors.
> > > > >
> > > > > Did you power transformer on bench before installing?
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> > > > > Did you measure xfmr Primary resistance?
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> > > > > Always good idea to measure the resistances of all windings and log in a notebook.
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> > > > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
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> > > > > Terry K9TW
> > > > >
> > > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > > >
> > > > > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
> > > > > >
> > > > > >
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> >
>

43855. TS-820 question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 14:32:27 UTC
From: Ted K8AQM
Topic: 43855 Message: 43855

Hello all,
New member here and somewhat new to the 820 (had one back in the 80s). I just picked up a "deal" on the 820 and thought I'd bring it back to standards and life. The rig hears well, looks ok but just doesn't transmit. I have made sure the heater switch is on, replaced the driver and both finals but no meter reading for output. The HV reads ok so I don't think there is a transformer issue. Any suggestions as to where to start looking(what board)? I have noticed that when keyed (cw) the meter jerks for a second in the opposite direction.
Thanks for any suggestions and I appreciate any help.
73,
Ted K8AQM

43856. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 15:46:17 UTC
From: w5rkl
Topic: 43837 Message: 43856

I don't see any difference between the TS-520 and the TS-520S primary voltage switch. Both TS-520/TS-520S primary voltage select switches are "DPDT" and both are wired the same. I may be missing something here so where are you seeing the difference in the voltage select switch wiring between the 520 and 520S on the 2 schematics? I don't see any difference.

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@...> wrote:
>
> I do have the full service manuals for the 520 and the 520S -- and I've just discovered that the 520 schematic differs from the 520S wiring in the Primary side of the XFMR and the 120/240 switch. The manual doesn't really tell me about the internal construction of the 120/240 switch, but the ohmmeter confirms that the center/common is not physically in the middle of the switch. That aside, a close reading of the two schematics reveals the 520S schematic more closely matches the wiring on my old 520, and the 520 schematic is different! I'll rewire according to the 520S manual and report back here with results. (Surely there's a tech note out there somewhere about the error in the 520 schematic?)
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@> wrote:
> > >
> > > Do you have the 520 service manual schematic? If you do not then I recommend you download it from Gordon's website
> > >
> > > n6wk.com/kenwood/
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> > > The 520 service manual schematic will answer your question.
> > >
> > > 73
> > > Mike W5RKL
> > >
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > >
> > > > Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.
> > > >
> > > > The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
> > > >

> > > Thanks for the advice!
> > > Dave WA4FXT
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > >
> > > > Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
> > > >
> > > > Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
> > > >
> > > > Can unplug the fan leads (never seen a bad fan)
> > > >
> > > > Can lift the line noise caps (one end) Have seen bad caps and if bad need to replace the old disc ceramics with modern X-Y safety caps. I use X1/Y2 type.
> > > >
> > > > Terry K9TW
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > >
> > > > > I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
> > > > >
> > > > > When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.
> > > > >
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> > > > >
> > > > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > > > >
> > > > > > It is possible you have bad ac line filter capacitors.
> > > > > >
> > > > > > Did you power transformer on bench before installing?
> > > > > >
> > > > > > Did you measure xfmr Primary resistance?
> > > > > >
> > > > > > Always good idea to measure the resistances of all windings and log in a notebook.
> > > > > >
> > > > > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
> > > > > >
> > > > > > Terry K9TW
> > > > > >
> > > > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > > > >
> > > > > > > Well, the old XFMR was indeed bad, and the replacement is wired according to

the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
> > > > > > >
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43857. RE: [TS-520_820_530_830] Re: TS-520 Blows Fuse s - No Secondary's connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 15:57:57 UTC
From: Brad Allen
Topic: 43837 Message: 43857

I am really confused here over a somewhat simple issue. First off, check the position of the switch. Second, just how hard is it to solder two or three wires from a primary to a switch that had the same wires on it from another transformer? Try taking the wiring off altogether and apply power. Normally they use the outer as 220 and one end and center tap for 110. Try putting a cord with a fuse in line direct to the transformer and see if it blows the fuse. I do not have a schematic in front of me, but it does seem fairly straight forward. Just what size fuse are you using? Brad KB2CHY

_____

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of dllewiszz
Sent: Monday, August 05, 2013 10:08 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Re: TS-520 Blows Fuses - No Secondaries connected

I do have the full service manuals for the 520 and the 520S -- and I've just discovered that the 520 schematic differs from the 520S wiring in the Primary side of the XFMR and the 120/240 switch. The manual doesn't really tell me about the internal construction of the 120/240 switch, but the ohmmeter confirms that the center/common is not physically in the middle of the switch. That aside, a close reading of the two schematics reveals the 520S schematic more closely matches the wiring on my old 520, and the 520 schematic is different! I'll rewire according to the 520S manual and report back here with results. (Surely there's a tech note out there somewhere about the error in the 520 schematic?)

--- In TS-520_820_530_830@yahoogroups.com
<mailto:TS-520_820_530_830%40yahoogroups.com> , "w5rkl" <w5rkl@...> wrote:
>
> Do you have the 520 service manual schematic? If you do not then I recommend you download it from Gordon's website
>
> n6wk.com/kenwood/
>
> The 520 service manual schematic will answer your question.
>
> 73
> Mike W5RKL
>
>
> --- In TS-520_820_530_830@yahoogroups.com
<mailto:TS-520_820_530_830%40yahoogroups.com> , "dllewiszz" <dllewiszz@>

wrote:
> >
> > Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.
> >
> > The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
> >
> > Thanks for the advice!
> > Dave WA4FXT
> >
> > --- In TS-520_820_530_830@yahoogroups.com <mailto:TS-520_820_530_830%40yahoogroups.com> , "Terry Wagoner" <wagstw46@> wrote:
> > >
> > > Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
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> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com <mailto:TS-520_820_530_830%40yahoogroups.com> , "dllewiszz" <dllewiszz@> wrote:
> > > >
> > > > I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
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> > > >
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com

<mailto:TS-520_820_530_830%40yahoogroups.com> , "Terry Wagoner" <wagstw46@>
wrote:
> > > > >
> > > > > It is possible you have bad ac line filter capacitors.
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> > > > > Did you power transformer on bench before installing?
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> > > > > Did you measure xfmr Primary resistance?
> > > > > >
> > > > > Always good idea to measure the resistances of all windings and
log in a notebook.
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> > > > > Right now with a good fuse installed if you measure resistance
across your 120vac plug with the power switch turned on you should see
something around 2.2 ohms.
> > > > > >
> > > > > Terry K9TW
> > > > > >
> > > > > --- In TS-520_820_530_830@yahoogroups.com
<mailto:TS-520_820_530_830%40yahoogroups.com> , "dllewiszz" <dllewiszz@>
wrote:
> > > > > > >
> > > > > > Well, the old XFMR was indeed bad, and the replacement is wired
according to the schematic. The DC-DC stuff is connected, but there are no
secondary wires connected. As a test, I fired it up and it blew the fuse
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guess I'm gonna have to do that this afternoon.) The fan does run for about
a half second. What am I missing, and what's going on? Is the DC-DC stuff
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[Non-text portions of this message have been removed]

43858. Re: [TS-520_820_530_830] Re: Older TS-820s external audio filter/blanker TYPO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 16:00:47 UTC
From: Mac Haszard
Topic: 43843 Message: 43858

Andrew,

Check out the SCAF-1 filter by LogiKit. I built one and am happy with its performance in reducing much of the background hiss I normally experience with my TS-520S and full wave loop antenna. It goes between your radio audio output and external speaker or headphones and is adjustable.

73,

Mac K6OVI

From: "andrew@tklcorp.com" <andrew@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, August 4, 2013 11:37 PM
Subject: [TS-520_820_530_830] Re: Older TS-820s external audio filter/blanker TYPO

Sorry for the TYPO, BOISE instead of BOSE headphones

All jokes aside, Does any one have suggests for an external audio filter
to cut out the background noise.

Something like modern radios have as standard.

Andrew Schneider
N7EBG
8015293033

[Non-text portions of this message have been removed]

43859. Source for Type (or Class) 1 padder caps??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 16:06:17 UTC
From: Craig Roberts
Topic: 43799 Message: 43859

It is apparent that I need to change the padder caps on the bandswitch wafers in my TS-830's finals cage.

These ceramic discs need to be of the type 1 dielectric RF power capacitor variety in these values:

22 pF 3KV
100 pF 3KV
390 pF 3KV

Has ANYONE found ANY source on this planet for such devices??? I can find type 2 caps with X7R or Y5Pdielectrics easily but, I am told, they will self-destructively snap, crackle and pop. These are, in my experience, unwholesome and unwelcome noises leading to discouragement and inconvenience.

Thanks,

Craig
W3CRR

[Non-text portions of this message have been removed]

43860. Re: Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 16:51:22 UTC
From: Terry Wagoner
Topic: 43814 Message: 43860

If you are talking about the "hash" type background noise then the active and passive audio filters you can build that I am familiar with wont be too effective on SSB as this noise is high frequency. These kinds of filters are typically more effective on CW and depending on what you build may result in some loss of gain and ringing.

Your TS-820 already has a audio circuit that is switched in CW mode to tailor the audio response. You can of course also run with reduced RF gain and not miss too much if have a good antenna.

Very hard to beat the new DSP noise reduction systems. Your audio output is converted to digital signals and then processed. It is amazing how well these work, but at a pretty steep price compared to the simple active and passive designs you can build.

You can go to You Tube and listen to demos and on the DSP filter manufacturers webpages they often have sound bites to let you listen to SSB and CW signals with the filters switched in and out. Search on DSP-599Zx and Gap and will find others as well.

Here is the Gap DSP speaker demo. Very dramatic difference switched in and out. Can hear some distortion, but a lot less fatiguing to listen to.

http://www.youtube.com/watch?v=_228RF5o7NQ

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "schneiderandrew" <andrew@...> wrote:
>
> I have the TS 820s I notice that when I wear headphone by BOISE they cancel most of the constant background noise. does someone make a kit or product that is a Audio noise filter/blanker for consistent background noise, it would plug into the PHONE jack.
>
> I am sure the new, solid state units must have some type of noise blanker built in like I am describing.
>
> Thank you all
>
> Andy N7EBG
>

43861. Re: [TS-520_820_530_830] TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 17:03:14 UTC
From: John Davidson
Topic: 43840 Message: 43861

Simple math.
Provided on the Rig's final stage metering are , roughly the voltage and current for the final tubes plate circuit .
I x E= DC Wattage.
 DC power Watts x Efficiency percentage = RF output power..
.225A x 780V = 175.5 W DC x 50% = 87.75 W. RF .
If you only are getting 72 watts on your Wattmeter,
This means you have gone too far with the loading capacitor and have passed your most efficient point in the tuning process. OR not completely dipped your plate current with the plate tuning capacitor and are out of resonance in the PI network.

From: kk6ezq <kk6ezq@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, August 4, 2013 11:08 PM
Subject: [TS-520_820_530_830] TS-820S Load Power

Hello group,
How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).

The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?

KK6EZQ
Steve

[Non-text portions of this message have been removed]

43862. KENWOOD HYBRID USER NET (August 5th, update)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 17:08:07 UTC
From: mvgilger
Topic: 43862 Message: 43862

The Saturday's net on 40 meter we had 18 stations checking in under good band conditions. We had 6 new check-in, W3CRR, WG4VSP, K2OCW, KC9QPM, W2KS, and W8IJL. Out of those, there was:

2 running TS-520(x)
2 running TS-530(x)
1 running TS-820(x)
5 running TS-830S

I was running my TS-940s. The rest were running non hybrids of one model or another.

The Sunday's net on 20 meter we had 16 stations checking in under good band conditions. We had 7 new check-in, KD5IFN, W0TI, K5HSG, K5GJB, NM5GB, N0NEM, and W5AKS. Out of those, there was:

4 running TS-520(x)
2 running TS-530(x)
1 running TS-820(x)
3 running TS-830S

I was running my TS-940s. The rest were running non hybrids of one model or another.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940's, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins

November 2012, Saturday's, net total = 47, Sundays total = 20
December 2012, Saturday's, net total = 74, Sunday's total = 70
January 2013, Saturday's, net total = 93, Sunday's total = 87
February 2013, Saturday's net total = 103, Sundays total = 87
March 2013, Saturday's, net total = 112, Sunday's total =39

April 2013, Saturday's net total = 52, Sunday's total = 29
May 2013, Saturday's net total = 45, Sunday's total = 50
June 2013, Saturday's net total = 30, Sunday's total = 27
July 2013, Saturday's net total = 63, Sunday's total = 41
August 2013, Saturday's net total = 18, Sunday's total □ 16 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

43863. Re: [TS-520_820_530_830] Re: Older TS-820s external audio filter/blanker

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 17:10:05 UTC
From: John Davidson
Topic: 43814 Message: 43863

Alslo , listening to CW with a SSB width filter is inviting hiss and other noise into the audio. Many ops buy without the optional CW filters to save a few bucks or don't anticipate wanting to get on CW.

From: Terry Wagoner <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 5, 2013 12:51 PM
Subject: [TS-520_820_530_830] Re: Older TS-820s external audio filter/blanker

If you are talking about the "hash" type background noise then the active and passive audio filters you can build that I am familiar with wont be too effective on SSB as this noise is high frequency. These kinds of filters are typically more effective on CW and depending on what you build may result in some loss of gain and ringing.

Your TS-820 already has a audio circuit that is switched in CW mode to tailor the audio response. You can of course also run with reduced RF gain and not miss too much if have a good antenna.

Very hard to beat the new DSP noise reduction systems. Your audio output is converted to digital signals and then processed. It is amazing how well these work, but at a pretty steep price compared to the simple active and passive designs you can build.

You can go to You Tube and listen to demos and on the DSP filter manufacturers webpages they often have sound bites to let you listen to SSB and CW signals with the filters switched in and out. Search on DSP-599Zx and Gap and will find others as well.

Here is the Gap DSP speaker demo. Very dramatic difference switched in and out. Can hear some distortion, but a lot less fatiguing to listen to.

http://www.youtube.com/watch?v=_228RF5o7NQ

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "schneiderandrew" <andrew@...> wrote:
>
> I have the TS 820s I notice that when I wear headphone by BOISE they cancel most of the constant background noise. does someone make a kit or product that is a Audio noise filter/blanker for consistent background noise, it would plug into the PHONE jack.
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> I am sure the new, solid state units must have some type of noise blanker built in like I am describing.
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> Thank you all
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> Andy N7EBG

>

[Non-text portions of this message have been removed]

43864. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 16:11:34 UTC
From: dllewiszz
Topic: 43837 Message: 43864

The switches are the same indeed, but the schematic wiring in the two manuals is definitely different. I'll have to scan those portions of the schematics and expand and mark them to show the differences. Look closely at your schematics and note the way the wiring changes from the 520 to the 520S around the DPDT switch and the way the two primaries are setup. It'll be interesting to see if my problem disappears after I rewire according to the 520S. I removed the old wiring from the switch because it was messy and had been removed/replaced somewhere along the way. Following the 520 schematic seems to be what was blowing my fuses on the primary.

--- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@...> wrote:
>
> I don't see any difference between the TS-520 and the TS-520S primary voltage switch. Both TS-520/TS-520S primary voltage select switches are "DPDT" and both are wired the same. I may be missing something here so where are you seeing the difference in the voltage select switch wiring between the 520 and 520S on the 2 schematics? I don't see any difference.
>
> 73
> Mike W5RKL
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> >
> > I do have the full service manuals for the 520 and the 520S -- and I've just discovered that the 520 schematic differs from the 520S wiring in the Primary side of the XFMR and the 120/240 switch. The manual doesn't really tell me about the internal construction of the 120/240 switch, but the ohmmeter confirms that the center/common is not physically in the middle of the switch. That aside, a close reading of the two schematics reveals the 520S schematic more closely matches the wiring on my old 520, and the 520 schematic is different! I'll rewire according to the 520S manual and report back here with results. (Surely there's a tech note out there somewhere about the error in the 520 schematic?)
> >
> >
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> > --- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@> wrote:
> > >
> > > Do you have the 520 service manual schematic? If you do not then I recommend you download it from Gordon's website
> > >
> > > n6wk.com/kenwood/
> > >
> > > The 520 service manual schematic will answer your question.
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> > > 73
> > > Mike W5RKL

> > >
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > >
> > > > Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.
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> > > > The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
> > > >
> > > > Thanks for the advice!
> > > > Dave WA4FXT
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> > > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > > >
> > > > > Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
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> > > > > Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
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> > > > > > >
> > > > > > > It is possible you have bad ac line filter capacitors.
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> > > > > > > Did you power transformer on bench before installing?
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> > > > > > > Did you measure xfmr Primary resistance?
> > > > > > > >
> > > > > > > > Always good idea to measure the resistances of all windings and log in a notebook.
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> > > > > > > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
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> > > > > > > > Terry K9TW
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> > > > > > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
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> > > > > > > > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
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43865. Re: [TS-520_820_530_830] TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 18:38:29 UTC
From: Dave & Loraine
Topic: 43840 Message: 43865

John,
Shouldn't your 50% efficiency be 60% for Class AB1?
73 Dave f4eyk

[Non-text portions of this message have been removed]

43866. Re: [TS-520_820_530_830] TS-820 question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 18:40:36 UTC
From: Dave & Loraine
Topic: 43855 Message: 43866

Hi Ted,
SG switch up/on?
73 Dave f4eyk

[Non-text portions of this message have been removed]

43867. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 18:53:29 UTC
From: w5rkl
Topic: 43840 Message: 43867

If the transmitter's 780VDC HV and 225ma IP current indications are correct, the 820S DC input power is 175.5 watts (780 x .225 = 175.5).

Since the 820S final amplifier operates in Class AB1 which has a typical efficiency rating of "55%", this would result in an output power at the 820S's antenna SO-239 connector of 96.5 watts (175.5 x .55 = 96.5 or 175.5 - 45% = 96.5) which is normal for a TS-820/820S.

Watt meters tend to fool us from time to time. If the components in the metering circuit are good, within tolerance, and the voltages are correct, then those should be used to determine the input and output power rather than a watt meter. Most watt meters have a percentage of error (see the watt meter's specifications) that must be considered when viewing the meter.

73
Mike W5RKL
.

--- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
>
>
> Simple math.Â
> Provided on the Rig's Â final stage metering are , Â roughly the voltage Â and current Â for the final tubes plate circuit .Â
> I x E= DC Wattage.
> Â DC power Watts x Efficiency percentage =Â RF output power..
> .225A x 780V = 175.5 W DC x 50% = 87.75 Â W. RF .
> If you only are getting 72 watts on your Wattmeter,Â
> This means you have gone too far Â with the loading capacitor and have passed your most efficient point in the tuning process. OR not completely dipped your plate current with the plate tuning capacitor and are out of resonance in the PI network.
>
>
> _____
> From: kk6ezq <kk6ezq@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Sunday, August 4, 2013 11:08 PM
> Subject: [TS-520_820_530_830] TS-820S Load Power
>
>
>
> Â
> Hello group,
> How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60

vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).
>
> The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?
>
> KK6EZQ
> Steve
>
>
>
>
> [Non-text portions of this message have been removed]
>

43868. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 18:56:08 UTC
From: w5rkl
Topic: 43840 Message: 43868

The typical efficiency rating of a Class AB1 amplifier, with all factors operating correctly, is "55%".

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "Dave & Loraine" <dave.crooks@...> wrote:
>
> John,
> Shouldn't your 50% efficiency be 60% for Class AB1?
> 73 Dave f4eyk
>
>
> [Non-text portions of this message have been removed]
>

43869. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 19:06:07 UTC
From: w5rkl
Topic: 43837 Message: 43869

I just printed the TS-520 and TS-520S schematic portions that show the primary winding and voltage select wiring. I looked at them closely and I do not see any difference in the switch wiring. The only difference is the "Fan" wiring in the 520S wired directly to only one of the primary 0/100 windings but in the 520 the fan is wired through the 12 pin socket but still between only one of the 0/100 primary windings.

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@...> wrote:
>
>
> The switches are the same indeed, but the schematic wiring in the two manuals is definitely different. I'll have to scan those portions of the schematics and expand and mark them to show the differences. Look closely at your schematics and note the way the wiring changes from the 520 to the 520S around the DPDT switch and the way the two primaries are setup. It'll be interesting to see if my problem disappears after I rewire according to the 520S. I removed the old wiring from the switch because it was messy and had been removed/replaced somewhere along the way. Following the 520 schematic seems to be what was blowing my fuses on the primary.
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@> wrote:
> >
> > I don't see any difference between the TS-520 and the TS-520S primary voltage switch. Both TS-520/TS-520S primary voltage select switches are "DPDT" and both are wired the same. I may be missing something here so where are you seeing the difference in the voltage select switch wiring between the 520 and 520S on the 2 schematics? I don't see any difference.
> >
> > 73
> > Mike W5RKL
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > >
> > > I do have the full service manuals for the 520 and the 520S -- and I've just discovered that the 520 schematic differs from the 520S wiring in the Primary side of the XFMR and the 120/240 switch. The manual doesn't really tell me about the internal construction of the 120/240 switch, but the ohmmeter confirms that the center/common is not physically in the middle of the switch. That aside, a close reading of the two schematics reveals the 520S schematic more closely matches the wiring on my old 520, and the 520 schematic is different! I'll rewire according to the 520S manual and report back here with results. (Surely there's a tech note out there somewhere about the error in the 520

schematic?)
> > >
> > >
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@> wrote:
> > > >
> > > > Do you have the 520 service manual schematic? If you do not then I recommend you download it from Gordon's website
> > > >
> > > > n6wk.com/kenwood/
> > > >
> > > > The 520 service manual schematic will answer your question.
> > > >
> > > > 73
> > > > Mike W5RKL
> > > >
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > >
> > > > > Sanity check: Is the 120/240 switch designed such that the center (common) contacts are on one side rather than the middle of the switch as you'd normally see in a DPDT switch? That's what I'm seeing with the ohmmeter but just want to be sure.
> > > > >
> > > > > The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
> > > > >
> > > > > Thanks for the advice!
> > > > > Dave WA4FXT
> > > > >
> > > > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > > > >
> > > > > > Not sure why seeing 4 ohms unless as you say not accurate. At least not seeing bolted fault (under 1 ohm).
> > > > > >
> > > > > > Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
> > > > > >
> > > > > > Can unplug the fan leads (never seen a bad fan)
> > > > > >
> > > > > > Can lift the line noise caps (one end) Have seen bad caps and if bad need to replace the old disc ceramics with modern X-Y safety caps. I use X1/Y2 type.
> > > > > >
> > > > > > Terry K9TW
> > > > > >
> > > > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > > > >
> > > > > > > I'm seeing about 4 ohms across the primaries when measuring thru the AC cord as you suggest, or when measuring on the XFMR. This is a cheap VOM so the 4 ohms may not be

especially accurate.
> > > > > > >
> > > > > > > When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.
> > > > > > >
> > > > > > >
> > > > > > >
> > > > > > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > > > > > >
> > > > > > > > It is possible you have bad ac line filter capacitors.
> > > > > > > >
> > > > > > > > Did you power transformer on bench before installing?
> > > > > > > >
> > > > > > > > Did you measure xfmr Primary resistance?
> > > > > > > >
> > > > > > > > Always good idea to measure the resistances of all windings and log in a notebook.
> > > > > > > >
> > > > > > > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
> > > > > > > >
> > > > > > > > Terry K9TW
> > > > > > > >
> > > > > > > > --- In TS-520_820_530_830@yahoogroups.com, "dllewiszz" <dllewiszz@> wrote:
> > > > > > > > >
> > > > > > > > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
> > > > > > > > >
> > > > > > > >
> > > > > > >
> > > > > >
> > > > >
> > > >
> > >
> >
>

43870. Re: [TS-520_820_530_830] TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 20:35:27 UTC
From: John Davidson
Topic: 43840 Message: 43870

My estimate, worse case scenario, old rigs in question. :D

From: Dave & Loraine <dave.crooks@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 5, 2013 2:38 PM
Subject: Re: [TS-520_820_530_830] TS-820S Load Power

John,
Shouldn't your 50% efficiency be 60% for Class AB1?
73 Dave f4eyk

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43871. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 20:38:59 UTC
From: John Davidson
Topic: 43840 Message: 43871

Additionally,
The cathode current where the Kenwood meter is connected also includes the screen current, so that is not part of the plate current we need to consider.

From: w5rkl <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 5, 2013 2:53 PM
Subject: [TS-520_820_530_830] Re: TS-820S Load Power

If the transmitter's 780VDC HV and 225ma IP current indications are correct, the 820S DC input power is 175.5 watts (780 x .225 = 175.5).

Since the 820S final amplifier operates in Class AB1 which has a typical efficiency rating of "55%", this would result in an output power at the 820S's antenna SO-239 connector of 96.5 watts (175.5 x .55 = 96.5 or 175.5 - 45% = 96.5) which is normal for a TS-820/820S.

Watt meters tend to fool us from time to time. If the components in the metering circuit are good, within tolerance, and the voltages are correct, then those should be used to determine the input and output power rather than a watt meter. Most watt meters have a percentage of error (see the watt meter's specifications) that must be considered when viewing the meter.

73
Mike W5RKL
.

--- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
>
>
> Simple math.Â
> Provided on the Rig's Â final stage metering are , Â roughly the voltage Â and current Â for the final tubes plate circuit .Â
> I x E= DC Wattage.
> Â DC power Watts x Efficiency percentage =Â RF output power..
> .225A x 780V = 175.5 W DC x 50% = 87.75 Â W. RF .
> If you only are getting 72 watts on your Wattmeter,Â
> This means you have gone too far Â with the loading capacitor and have passed your most efficient point in the tuning process. OR not completely dipped your plate current with the plate tuning capacitor and are out of resonance in the PI network.
>
>
> ---
> From: kk6ezq <kk6ezq@...>
> To: TS-520_820_530_830@yahoogroups.com

> Sent: Sunday, August 4, 2013 11:08 PM
> Subject: [TS-520_820_530_830] TS-820S Load Power
>
>
>
> Â
> Hello group,
> How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).
>
> The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external measurements?
>
> KK6EZQ
> Steve
>
>
>
>
> [Non-text portions of this message have been removed]
>

[Non-text portions of this message have been removed]

43872. Re: KENWOOD HYBRID USER NET (August 5th, update)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 20:40:12 UTC
From: k5hfg
Topic: 43862 Message: 43872

Hey Mark,
I do believe one of your Sunday callins should be me K5HFG. I do not think there is an active HSG down here. At least I can not find him. I do not get to call in very often so I want credit,hihi You got the rig correct tho. 73, Don

--- In TS-520_820_530_830@yahoogroups.com, "mvgilger" <mgilger@...> wrote:
>
> The Saturday's net on 40 meter we had 18 stations checking in under good band conditions. We had 6 new check-in, W3CRR, WG4VSP, K2OCW, KC9QPM, W2KS, and W8IJL. Out of those, there was:
>
> 2 running TS-520(x)
> 2 running TS-530(x)
> 1 running TS-820(x)
> 5 running TS-830S
>
> I was running my TS-940s. The rest were running non hybrids of one model or another.
>
> The Sunday's net on 20 meter we had 16 stations checking in under good band conditions. We had 7 new check-in, KD5IFN, W0TI, K5HSG, K5GJB, NM5GB, N0NEM, and W5AKS. Out of those, there was:
>
> 4 running TS-520(x)
> 2 running TS-530(x)
> 1 running TS-820(x)
> 3 running TS-830S
>
> I was running my TS-940s. The rest were running non hybrids of one model or another.
>
> We have been having several people checking in regularly with their TS-430, TS-440, and TS-940's, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.
>
> If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.
>
> For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.
>
> His URL is:
> http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>
> To date, we have had the following check-in:
>

> Nov. 2011 ☐ Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins
>
> November 2012, Saturday's, net total = 47, Sundays total = 20
> December 2012, Saturday's, net total = 74, Sunday's total = 70
> January 2013, Saturday's, net total = 93, Sunday's total = 87
> February 2013, Saturday's net total = 103, Sundays total = 87
> March 2013, Saturday's, net total = 112, Sunday's total =39
> April 2013, Saturday's net total = 52, Sunday's total = 29
> May 2013, Saturday's net total = 45, Sunday's total = 50
> June 2013, Saturday's net total = 30, Sunday's total = 27
> July 2013, Saturday's net total = 63, Sunday's total = 41
> August 2013, Saturday's net total = 18, Sunday's total ☐ 16 (Month to date)
>
> Net Info:
> Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
> Sunday: 14.316 @ 1800 UTC following the ICOM net
>
> Web Site:
> http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>
> 73's,
> Mark, WB0IQK
>

43873. RE: [TS-520_820_530_830] Source for Type (or Class) 1 padder caps??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 22:43:43 UTC
From: fpath fpath
Topic: 43799 Message: 43873

Craig,

Have you checked ebay? I just put in a search and found some, didn't check manufacturer. Just had a look what I put in and they are vishay and toshiba, mouser should have some or your local electronics shop can do a special order, will take a couple of days. \

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@...
Date: Mon, 5 Aug 2013 12:06:17 -0400
Subject: [TS-520_820_530_830] Source for Type (or Class) 1 padder caps??

It is apparent that I need to change the padder caps on the bandswitch wafers in my TS-830's finals cage.

These ceramic discs need to be of the type 1 dielectric RF power capacitor variety in these values:

22 pF 3KV
100 pF 3KV
390 pF 3KV

Has ANYONE found ANY source on this planet for such devices??? I can find type 2 caps with X7R or Y5Pdielectrics easily but, I am told, they will self-destructively snap, crackle and pop. These are, in my experience, unwholesome and unwelcome noises leading to discouragement and inconvenience.

Thanks,

Craig
W3CRR

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[Non-text portions of this message have been removed]

43874. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 23:41:02 UTC
From: Terry Wagoner
Topic: 43840 Message: 43874

I dont agree. We are doing back of envelope calcs here.

I never school anyone to subtract out the SG current and make precise calculations. I dont even care if they know it is cathode current or not and how different than plate current. The Operating manuals tell you to set the resting plate current to 60ma they dont tell you to calculate and adjust for the SG current component. They tell you to load to 200ma IP (plate) current. They dont tell you to adjust for the SG component.

These are Kenwood rigs and not Yaesu rigs. You wont see IC on the panel meter.

When Kenwood states 200ma for the TS-820 or 265ma for the TS-830 they are talking about the IP position of the rigs panel meter. They dont expect the owner to know or understand that it is really displaying Cathode current and that you can load the rig 24ma higher.

This ensures if owner loads to the operating manual specified IP limits then they are never in any danger of exceeding 6146 plate dissipation.

Yes for precise calculations would have to take SG current in to consideration, but back of envelope calcs is all we need. Same as using 55% for Class AB1 efficiency. We dont really know what the efficiency is. Same as we dont know what the Pi-network losses are per the given band. Are they 2% or 6%?

What we do know from experience with good tubes, good coilpack and TIF alignment, and spec DC voltages it is typical to be able to get very close to 100 watts output into a 50 ohm dummy load at the recommended IP which we all refer to as Plate Current and not Cathode Current.

If this fellows TS-820 is getting 80 watts output on 160 it is nothing to lose sleep over, but a TS-820 in good trim can do better.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
> Additionally,Â
> The cathode current where the Kenwood meter is connected also includes the screen current, so that is not part of the plate current we need to consider.
>
>
> _____
> From: w5rkl <w5rkl@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Monday, August 5, 2013 2:53 PM
> Subject: [TS-520_820_530_830] Re: TS-820S Load Power
>
>
>

> Â
> If the transmitter's 780VDC HV and 225ma IP current indications are correct, the 820S DC input power is 175.5 watts (780 x .225 = 175.5).
>
> Since the 820S final amplifier operates in Class AB1 which has a typical efficiency rating of "55%", this would result in an output power at the 820S's antenna SO-239 connector of 96.5 watts (175.5 x .55 = 96.5 or 175.5 - 45% = 96.5) which is normal for a TS-820/820S.
>
> Watt meters tend to fool us from time to time. If the components in the metering circuit are good, within tolerance, and the voltages are correct, then those should be used to determine the input and output power rather than a watt meter. Most watt meters have a percentage of error (see the watt meter's specifications) that must be considered when viewing the meter.
>
> 73
> Mike W5RKL
> .
>
> --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@> wrote:
> >
> >
> >
> > Simple math.ÃÂ
> > Provided on the Rig's ÃÂ final stage metering are , ÃÂ roughly the voltage ÃÂ and current ÃÂ for the final tubes plate circuit .ÃÂ
> > I x E= DC Wattage.
> > ÃÂ DC power Watts x Efficiency percentage =ÃÂ RF output power..
> > .225A x 780V = 175.5 W DC x 50% = 87.75 ÃÂ W. RF .
> > If you only are getting 72 watts on your Wattmeter,ÃÂ
> > This means you have gone too far ÃÂ with the loading capacitor and have passed your most efficient point in the tuning process. OR not completely dipped your plate current with the plate tuning capacitor and are out of resonance in the PI network.
> >
> >
> > _____
> > From: kk6ezq <kk6ezq@>
> > To: TS-520_820_530_830@yahoogroups.com
> > Sent: Sunday, August 4, 2013 11:08 PM
> > Subject: [TS-520_820_530_830] TS-820S Load Power
> >
> >
> >
> > ÃÂ
> > Hello group,
> > How do the front panel readings for IP and HV relate to output power? When I tune the XCVR to 2MHz I can adjust for an output of about 80W on my VersaTuner dummy load I checked the voltage across the 50 ohm dummy load and read about 170 Vp-p \ 85 Vp \ or about 60 vrms. Using E^2\R I calculate 72 W , not too far from the VersaTuner 80W reading (the scope has not been calibrated for years).
> >
> > The meter on the TS-820S shows IP= 225mA and HV=780V. Are those readings in agreement with my external

measurements?
> >
> > KK6EZQ
> > Steve
> >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
>
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>
>
> [Non-text portions of this message have been removed]
>

43875. Re: [TS-520_820_530_830] Re: KENWOOD HYBRID USER NET (August 5th, update)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 00:53:58 UTC
From: Mark Gilger
Topic: 43862 Message: 43875

Thanks,
When I get downstairs later, I'll check my log and verify.
Mark

At 04:40 PM 8/5/2013, you wrote:
>
>
>Hey Mark,
>I do believe one of your Sunday callins should
>be me K5HFG. I do not think there is an active
>HSG down here. At least I can not find him. I do
>not get to call in very often so I want
>credit,hihi You got the rig correct tho. 73, Don
>
>--- In
><mailto:TS-520_820_530_830%40yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
>"mvgilger" <mgilger@...> wrote:
> >
> > The Saturday's net on 40 meter we had 18
> stations checking in under good band
> conditions. We had 6 new check-in, W3CRR,
> WG4VSP, K2OCW, KC9QPM, W2KS, and W8IJL. Out of those, there was:
> >
> > 2 running TS-520(x)
> > 2 running TS-530(x)
> > 1 running TS-820(x)
> > 5 running TS-830S
> >
> > I was running my TS-940s. The rest were
> running non hybrids of one model or another.
> >
> > The Sunday's net on 20 meter we had 16
> stations checking in under good band
> conditions. We had 7 new check-in, KD5IFN,
> W0TI, K5HSG, K5GJB, NM5GB, N0NEM, and W5AKS. Out of those, there was:
> >
> > 4 running TS-520(x)
> > 2 running TS-530(x)
> > 1 running TS-820(x)
> > 3 running TS-830S
> >
> > I was running my TS-940s. The rest were
> running non hybrids of one model or another.

> >
> > We have been having several people checking
> in regularly with their TS-430, TS-440, and
> TS-940's, which of course is not a hybrid,
> although over 30+ years old. Everyone is
> welcome as long as they have an interest in the older equipment.
> >
> > If anyone would be interested in filling in
> as a net control station, please send me an
> email. Currently it's just myself, WB2KNR and
> WB0SGA. I would like to get several more. If we
> do, we can alternate so everyone might be on a
> 3-4 week rotation. It's a lot of fun and a good
> way to make sure you station is optimized.
> >
> > For anyone that has not heard, we have a new
> web site that WB4HFN is hosting. He currently
> has a very nice site for Drake, Collins and
> Heathkit and now Kenwood Hybrids. Good quality
> manuals plus sale flyers and brochures will be
> found here, along with user supplied information for all Hybrids.
> >
> > His URL is:
> >
> <http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHome
Page.htm
> >
> > To date, we have had the following check-in:
> >
> > Nov. 2011 ☐ Oct. 2012 Saturday total 754
> check-ins, Sunday total 563 check-ins
> >
> > November 2012, Saturday's, net total = 47, Sundays total = 20
> > December 2012, Saturday's, net total = 74, Sunday's total = 70
> > January 2013, Saturday's, net total = 93, Sunday's total = 87
> > February 2013, Saturday's net total = 103, Sundays total = 87
> > March 2013, Saturday's, net total = 112, Sunday's total =39
> > April 2013, Saturday's net total = 52, Sunday's total = 29
> > May 2013, Saturday's net total = 45, Sunday's total = 50
> > June 2013, Saturday's net total = 30, Sunday's total = 27
> > July 2013, Saturday's net total = 63, Sunday's total = 41
> > August 2013, Saturday's net total = 18, Sunday's total ☐ 16 (Month to date)
> >
> > Net Info:
> > Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
> > Sunday: 14.316 @ 1800 UTC following the ICOM net
> >
> > Web Site:
> >

> <http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
> >
> > 73's,
> > Mark, WB0IQK
> >
>
>

[Non-text portions of this message have been removed]

43876. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 23:04:31 UTC
From: James Scribner
Topic: 43702 Message: 43876

RE: " I remember reading there was a way to check for proper signals into the mixer board."
I surely wish someone could publish ALL the correct input frequencies and signal levels for the DG-1 mixer and also the complete adjustment procedures for the circuits within it. I have researched internet and this site in particular for 'DG-1' display and came away with the cleanest connectors ever after about 862 posts read.
I started with a DG-1 that was totally inop in 2 separate radios. The second DG-1 works fine on either radio. After weeks of strained eyes and resoldered joints the DG-1 reads 88.000.0 on WWV up to 14. 14MHz up to 29.5 reads 99.000.0. If anyone has or knows of the values I should see at the 5 test points or the alignment procedure It seems it would be of a great value to be posted here on this site with all of the posts I have seen here about the DG-1 in particular.
I would like to commend all who take their time on this Group, good job guys! Even in the short time I have been a member I have found the info to get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz) drift over several hours. Way below factory spec. Thanks in advance for any light that may be shed on the DG-1 project.

[Non-text portions of this message have been removed]

43877. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-05 23:20:09 UTC
From: dllewiszz
Topic: 43837 Message: 43877

I may have a very old 520 schematic that has been updated and replaced - perhaps many years ago. Mine is a foldout in a full printed manual with the code number 33912 printed on the back. (Figure 38 in my copy) I haven't downloaded one from an online source, but am just comparing the two printed manuals in my hand. The switch wiring is definitely different on the 520 schematic and when I draw it out I can't see any way it would work. I need to download a copy and compare.

I have now wired my rig per the 520S schematic and am now seeing the 2.2 ohms across the AC line cord. This is because it is now wired correctly -- at least that part is wired correctly because the two primaries are effectively in parallel. When I was seeing 4 ohms, that was because I was wired per the 520 schematic which didn't allow the other primary to be in line correctly.

So, I fired 'er up and I had lamps for about one second, then poof, the 6A fuse blew. Not as fast as before, but still blew. I've double and triple checked my wiring and see nothing that should cause the fuse to blow -- no secondaries connected, but the DC-DC stuff is still there. Guessing I should isolate that completely by disconnecting it also for another test.

--- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@...> wrote:
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> I just printed the TS-520 and TS-520S schematic portions that show the primary winding and voltage select wiring. I looked at them closely and I do not see any difference in the switch wiring. The only difference is the "Fan" wiring in the 520S wired directly to only one of the primary 0/100 windings but in the 520 the fan is wired through the 12 pin socket but still between only one of the 0/100 primary windings.
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> > The switches are the same indeed, but the schematic wiring in the two manuals is definitely different. I'll have to scan those portions of the schematics and expand and mark them to show the differences. Look closely at your schematics and note the way the wiring changes from the 520 to the 520S around the DPDT switch and the way the two primaries are setup. It'll be interesting to see if my problem disappears after I rewire according to the 520S. I removed the old wiring from the switch because it was messy and had been removed/replaced somewhere along the way. Following the 520 schematic seems to be what was blowing my fuses on the primary.
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> > > > I do have the full service manuals for the 520 and the 520S -- and I've just discovered that the 520 schematic differs from the 520S wiring in the Primary side of the XFMR and the 120/240 switch. The manual doesn't really tell me about the internal construction of the 120/240 switch, but the ohmmeter confirms that the center/common is not physically in the middle of the switch. That aside, a close reading of the two schematics reveals the 520S schematic more closely matches the wiring on my old 520, and the 520 schematic is different! I'll rewire according to the 520S manual and report back here with results. (Surely there's a tech note out there somewhere about the error in the 520 schematic?)
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> > > > > > The wiring on the 120/240 switch had been modified by a previous owner, although the rig has been working fine. I cleaned it all up and put it back together and there is a possibility I reversed something and that's what's blowing fuses so fast. Also, I'm only seeing one of the line caps on this rig. Looks like the other one has been removed.
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> > > > > > Thanks for the advice!
> > > > > > Dave WA4FXT
> > > > > > >
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> > > > > > > > Are you 100% sure that all secondaries are completely open and not touching each other or to chassis ground? Do they have pig tail leads on them you have taped or no leads at all?
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> > > > > > > > Can unplug the fan leads (never seen a bad fan)
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> > > > > > > > Can lift the line noise caps (one end) Have seen bad caps and if bad need to replace the old disc ceramics with modern X-Y safety caps. I use X1/Y2 type.
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> > > > > > > > > When I look at the secondaries, I notice lower readings on the mid-group secondaries on the old XFMR, which is to be expected since it smoked and was hit by lightning.
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> > > > > > > > > > Did you power transformer on bench before installing?
> > > > > > > > > >
> > > > > > > > > > Did you measure xfmr Primary resistance?
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> > > > > > > > > > Always good idea to measure the resistances of all windings and log in a notebook.
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> > > > > > > > > > Right now with a good fuse installed if you measure resistance across your 120vac plug with the power switch turned on you should see something around 2.2 ohms.
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> > > > > > > > > > > Well, the old XFMR was indeed bad, and the replacement is wired according to the schematic. The DC-DC stuff is connected, but there are no secondary wires connected. As a test, I fired it up and it blew the fuse after about a half-second. (I don't have the series lamp thing built yet but guess I'm gonna have to do that this afternoon.) The fan does run for about a half second. What am I missing, and what's going on? Is the DC-DC stuff causing this? Can I remove all of that and run OK on 120VAC?
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43878. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 01:37:10 UTC
From: Terry Wagoner
Topic: 43840 Message: 43878

OK I just loaded my personal TS-820S in good trim with pair of 6146B tubes @ 2.0Mhz.

Loaded to 100 watts output indicated on a Drake W4 wattmeter into 50 ohm dummy load. Measured the RF voltage across the 50 ohm resistor with calibrated Boonton 92E to be 70.65 rf volts. Panel meter readings were HV= 805vdc and Ip= 225ma (as well as can interpret these values from the panel meter graduations).

70.65 x 70.65 = 4991.42/50 = 99.83 watts

805 x .225 = 181.13 watts. 181.13 x .55 = 99.62 watts

805 x .204 (Ip minus 20.60 ma SG current measured with BK2712 DMM) = 164.22 watts. 164.22 x .55 = 90.32 watts or 164.22 X .60 = 98.53 watts.

So using Cathode current and 55% efficiency output power should be 90.32 watts. What gives?

So which DC input power calc and Class AB1 efficiency should we use?

Also how accurate are the HV and IP readings. Dependent on the accuracy of the cathode resistors and the HV voltage divider resistor string. Probably at best 5% accurate with new resistors.

In practice all these calcs are academic and hope new owners and newly licensed come to understand them in time, but in the mean time no need to understand them or be able to perform to tell if their rig is operating to "normal" output power.

This is why I like to load using calibrated external wattmeter into 50 ohm non-reactive load. Besides being faster, easier, less stress on finals it tells me when things look right. Can of course use the RF sniffer relative power position of the panel meter, but why not put an actual output power number to it. Easy then to immediately see if things look "normal".

Again to the fellow who asked the question it was not a dumb question and you can see that measuring and calculating the DC input power may or may not equate to the measured rf output power. Several reasons why this occurs which takes too many strokes to explain here including why plate current dip does not always occur at max RF output. Tuning tank to max output power = max tank impedance = max RF voltage swing. This does not always occur where the tank is resistive (resonant)using the old fashioned dip and load method. Tune to max Rf output power without exceeding Kenwoods recommended IP ratings for your particular model.

If you ever graduate to a grid driven tetrode/pentode high power linear amplifier you will learn why your manual list the meters of importance in the loading sequence:
1. Screen Grid Current
2. Control Grid Current
3. RF Output Power
4. Plate Current

Notice where plate current meter is in the pecking order. I dont know of too many amp manufacturers who say much about this meter other than dont exceed 700ma or whatever the max IP is.

Terry K9TW

43879. Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 02:47:17 UTC
From: dllewiszz
Topic: 43837 Message: 43879

And the answer to the question I've been posing along the way is "YES" - the DC-DC stuff can cause fuses to blow when everything else is disconnected!! Pulling the leads from the terminal block, I powered up and had lamps steadily. Then I reconnected the secondaries, did the same, and still looks good. Connected the speaker, tuned WWV, stuck finger in SO239 for antenna, and had the signal.

If I don't intend to use this rig on 12VDC, is there anything I'll miss by having these transistors off line? That may be my preferred course of action rather than replacing one or all, whichever is shorted and killing the rig.

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43880. Re: [TS-520_820_530_830] Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 11:06:57 UTC
From: W5RKL
Topic: 43837 Message: 43880

Good job finding the source of the problem.

I did a check for replacing the 2N4049 and couldn't find the direct replacement but did find the NTE replacement which is an NTE-28. NTE doesn't give their prices, you have to use their RFQ link on their website. Mouser does not sell them, Newark doesn't have them in stock but their price for one is "$111.00". However, "Arcade Electronics" has them in stock for "$110" each.

http://www.arcade-electronics.com/NTE-28-p/nte-28.htm

That's a lot of money to pay for a transistor.

73
Mike W5RKL

On 8/5/2013 9:47 PM, dllewiszz wrote:
>
>
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> > > > The switches are the same indeed, but the schematic wiring in
> the two manuals is definitely different. I'll have to scan those
> portions of the schematics and expand and mark them to show the
> differences. Look closely at your schematics and note the way the
> wiring changes from the 520 to the 520S around the DPDT switch and the
> way the two primaries are setup. It'll be interesting to see if my
> problem disappears after I rewire according to the 520S. I removed the
> old wiring from the switch because it was messy and had been
> removed/replaced somewhere along the way. Following the 520 schematic
> seems to be what was blowing my fuses on the primary.
> > > >
> > > >
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:

> > > > >
> > > > > I don't see any difference between the TS-520 and the TS-520S
> primary voltage switch. Both TS-520/TS-520S primary voltage select
> switches are "DPDT" and both are wired the same. I may be missing
> something here so where are you seeing the difference in the voltage
> select switch wiring between the 520 and 520S on the 2 schematics? I
> don't see any difference.
> > > > > >
> > > > > > 73
> > > > > > Mike W5RKL
> > > > > >
> > > > > >
> > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > > >
> > > > > > > I do have the full service manuals for the 520 and the 520S
> -- and I've just discovered that the 520 schematic differs from the
> 520S wiring in the Primary side of the XFMR and the 120/240 switch.
> The manual doesn't really tell me about the internal construction of
> the 120/240 switch, but the ohmmeter confirms that the center/common
> is not physically in the middle of the switch. That aside, a close
> reading of the two schematics reveals the 520S schematic more closely
> matches the wiring on my old 520, and the 520 schematic is different!
> I'll rewire according to the 520S manual and report back here with
> results. (Surely there's a tech note out there somewhere about the
> error in the 520 schematic?)
> > > > > > >
> > > > > > > >
> > > > > > > >
> > > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > > > > > > > >
> > > > > > > > > Do you have the 520 service manual schematic? If you do
> not then I recommend you download it from Gordon's website
> > > > > > > > > >
> > > > > > > > > > n6wk.com/kenwood/
> > > > > > > > > >
> > > > > > > > > > The 520 service manual schematic will answer your question.
> > > > > > > > > >
> > > > > > > > > > 73
> > > > > > > > > > Mike W5RKL
> > > > > > > > > >
> > > > > > > > > >
> > > > > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > > > > > > >
> > > > > > > > > > > Sanity check: Is the 120/240 switch designed such that
> the center (common) contacts are on one side rather than the middle of

> the switch as you'd normally see in a DPDT switch? That's what I'm
> seeing with the ohmmeter but just want to be sure.
> > > > > > > >
> > > > > > > > > The wiring on the 120/240 switch had been modified by a
> previous owner, although the rig has been working fine. I cleaned it
> all up and put it back together and there is a possibility I reversed
> something and that's what's blowing fuses so fast. Also, I'm only
> seeing one of the line caps on this rig. Looks like the other one has
> been removed.
> > > > > > > > >
> > > > > > > > > Thanks for the advice!
> > > > > > > > > Dave WA4FXT
> > > > > > > > >
> > > > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@> wrote:
> > > > > > > > > >
> > > > > > > > > > Not sure why seeing 4 ohms unless as you say not
> accurate. At least not seeing bolted fault (under 1 ohm).
> > > > > > > > > >
> > > > > > > > > > Are you 100% sure that all secondaries are completely
> open and not touching each other or to chassis ground? Do they have
> pig tail leads on them you have taped or no leads at all?
> > > > > > > > > >
> > > > > > > > > > Can unplug the fan leads (never seen a bad fan)
> > > > > > > > > >
> > > > > > > > > > Can lift the line noise caps (one end) Have seen bad
> caps and if bad need to replace the old disc ceramics with modern X-Y
> safety caps. I use X1/Y2 type.
> > > > > > > > > >
> > > > > > > > > > Terry K9TW
> > > > > > > > > >
> > > > > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > > > > > > >
> > > > > > > > > > > I'm seeing about 4 ohms across the primaries when
> measuring thru the AC cord as you suggest, or when measuring on the
> XFMR. This is a cheap VOM so the 4 ohms may not be especially accurate.
> > > > > > > > > > >
> > > > > > > > > > > When I look at the secondaries, I notice lower
> readings on the mid-group secondaries on the old XFMR, which is to be
> expected since it smoked and was hit by lightning.
> > > > > > > > > > >
> > > > > > > > > > >
> > > > > > > > > > >
> > > > > > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@> wrote:
> > > > > > > > > > > >

> > > > > > > > > > > > It is possible you have bad ac line filter
> capacitors.
> > > > > > > > > > > >
> > > > > > > > > > > > Did you power transformer on bench before installing?
> > > > > > > > > > > >
> > > > > > > > > > > > Did you measure xfmr Primary resistance?
> > > > > > > > > > > >
> > > > > > > > > > > > Always good idea to measure the resistances of all
> windings and log in a notebook.
> > > > > > > > > > > >
> > > > > > > > > > > > Right now with a good fuse installed if you
> measure resistance across your 120vac plug with the power switch
> turned on you should see something around 2.2 ohms.
> > > > > > > > > > > >
> > > > > > > > > > > > Terry K9TW
> > > > > > > > > > > >
> > > > > > > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > > > > > > > >
> > > > > > > > > > > > Well, the old XFMR was indeed bad, and the
> replacement is wired according to the schematic. The DC-DC stuff is
> connected, but there are no secondary wires connected. As a test, I
> fired it up and it blew the fuse after about a half-second. (I don't
> have the series lamp thing built yet but guess I'm gonna have to do
> that this afternoon.) The fan does run for about a half second. What
> am I missing, and what's going on? Is the DC-DC stuff causing this?
> Can I remove all of that and run OK on 120VAC?
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[Non-text portions of this message have been removed]

43881. Padder caps -- a confession

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 13:23:22 UTC
From: Craig Roberts
Topic: 43799 Message: 43881

Ummm.

Okay, yesterday I pleaded for information about where to obtain disc ceramics suitable for use as padder caps on my TS-830S's final amp cage bandswitch wafers. The would-be replacement of the original 3KV C9 (100 pF), C10 (390 pF) and C26 (22 pF) was to realign the plate current dip point on the 160 and 80 meter bands to coincide with the front panel pointer markings under the PLATE control.

Well, as it happens, there is no need for new padder caps after all. There IS a need for me to pay more attention to front panel silk screening. Y'see a very highly respected Kenwood hybrid guru known to us all responded to my plea, very politely pointing out that the silk screened arcs relating to the two lowest bands were actually quite wide. On 160, for instance, the "dip arc" ranges from 9 o'clock to nearly 3 o'clock and was not restricted to that little portion marked "1.5".

Sure enough, my plate current dips fall well within the limits on all bands.

I relate this somewhat embarrassing "mea culpa" for the benefit of fellow hybrid newbies. I'll take the shame bullet for ya, fellas.

Oh, incidentally, Mouser has suitable caps. They're the 3.15KV SL rated ones made by Murata. I had to have that pointed out to me, too.

Well, I can be excused. I've been a ham for only 43 years. I'm still learning.

73,

Craig
W3CRR

43882. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 16:19:50 UTC
From: John Davidson
Topic: 43840 Message: 43882

When someone here starts questioning a few watts difference in their readings I just had to throw out the comment....

From: Terry Wagoner <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 5, 2013 7:41 PM
Subject: [TS-520_820_530_830] Re: TS-820S Load Power

I dont agree. We are doing back of envelope calcs here.

I never school anyone to subtract out the SG current and make precise calculations. I dont even care if they know it is cathode current or not and how different than plate current.

Yes for precise calculations would have to take SG current in to consideration, but back of envelope calcs is all we need. Same as using 55% for Class AB1 efficiency. We dont really know what the efficiency is. Same as we dont know what the Pi-network losses are per the given band. Are they 2% or 6%?

What we do know from exper
If this fellows TS-820 is getting 80 watts output on 160 it is nothing to lose sleep over, but a TS-820 in good trim can do better.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
> Additionally,Â
> The cathode current where the Kenwood meter is connected also includes the screen current, so that is not part of the plate current we need to consider.
>
> , Ã,Â roughly the voltage Ã,Â a
> > How do the front panel readings for IP and HV relate to output power?

[Non-text portions of this message have been removed]

43883. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 16:39:00 UTC
From: Jim S
Topic: 43840 Message: 43883

Oh, come on, John, just how red can we allow those 6146 plates to get?
I never go beyond "dull", myself ! ! !

Just pushing buttons, guys. Smooth down those hackles !

73, Jim AG3Y

On 8/6/2013 12:19 PM, John Davidson wrote:
>
>
>
> When someone here starts questioning a few watts difference in their
> readings I just had to throw out the comment....
>

[Non-text portions of this message have been removed]

43884. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 17:15:44 UTC
From: Terry Wagoner
Topic: 43840 Message: 43884

It isnt about a "few" watts.

80 watts output vs 100 watts output for the same DC input power is 20% low. I would be interested in understanding why any parameter in my radio was off by 20%.

Is it the radio or is the measuring device or measuring technique?

Anyone who has a service bench regardless of how modest or sophisticated is faced with that question. Measuring technique and accuracy is important. Not hard to be fooled into thinking something wrong when it was a measuring error.

The fellow did exactly as he should have and measured with a wattmeter and by measuring RF voltage with an O-scope and applying the math. He had the knowledge of how to make the measurement with his O-scope and how to make the conversion from P-P to rms and to wattage. Makes me smile.

This is a technical hobby, a questioning mans hobby, and a thinking mans hobby.

We all know 80 watts makes little to no difference on the receiving end. However, if you had a new hybrid and it only put out 80 watts would you take it back to dealer and ask for another one or not worry about it? What the heck is a "few" watts.

With an older in service rig when would you investigate and want to return it to its former design spec performance?

I think when it appears that power is down 20% might be good time to think about looking into it. Might be as simple as low emission finals?

Everyones definition of "few" is different. Everyone has different quality standards. Everyone has a different definition of acceptable performance.

I see lot of radios that owners have been living with workarounds for a long time and some have no idea it wasnt working correctly.

Terry K9TW

> When someone Â here starts questioning a few watts difference in their readings I just Â had to throw out Â the comment....

43885. Re: [TS-520_820_530_830] Padder caps -- a confession

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 15:01:35 UTC
From: Don Cunningham
Topic: 43799 Message: 43885

Craig,

Your "confession" only highlights a general problem on email reflectors. I and likely several others should have responded to your problem by suggesting that you you look at the arc on the final control and the different widths of each band. But based on reactions on many reflectors of being flamed for "stupid suggestions", I didn't give a common sense reply. I have certainly made the mistake you did, and MANY other similar errors several times over my 40 years of hamming. I just think that we are indeed "amateurs", hopefully constantly learning, not "professionals" doing this for a living.

Thanks for having the courage to remind us to look around for the simple first.
73,
Don, WB5HAK
On 8/6/2013 8:23 AM, Craig Roberts wrote:
> Ummm.
>
> Okay, yesterday I pleaded for information about where to obtain disc
> ceramics suitable for use as padder caps on my TS-830S's final amp cage
> bandswitch wafers. The would-be replacement of the original 3KV C9 (100
> pF), C10 (390 pF) and C26 (22 pF) was to realign the plate current dip
> point on the 160 and 80 meter bands to coincide with the front panel
> pointer markings under the PLATE control.
>
> Well, as it happens, there is no need for new padder caps after all.
> There IS a need for me to pay more attention to front panel silk
> screening. Y'see a very highly respected Kenwood hybrid guru known to
> us all responded to my plea, very politely pointing out that the silk
> screened arcs relating to the two lowest bands were actually quite wide.
> On 160, for instance, the "dip arc" ranges from 9 o'clock to nearly 3
> o'clock and was not restricted to that little portion marked "1.5".
>
> Sure enough, my plate current dips fall well within the limits on all
> bands.
>
> I relate this somewhat embarrassing "mea culpa" for the benefit of
> fellow hybrid newbies. I'll take the shame bullet for ya, fellas.
>
> Oh, incidentally, Mouser has suitable caps. They're the 3.15KV SL rated
> ones made by Murata. I had to have that pointed out to me, too.
>
> Well, I can be excused. I've been a ham for only 43 years. I'm still
> learning.

>
> 73,
>
> Craig
> W3CRR
>
>
>
>

43886. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 13:48:40 UTC
From: w3drk
Topic: 43702 Message: 43886

I'm not very familiar with the alignment procedure of the DG-1, but I do recall having to peak a signal with two coils although the peek to peek voltage of the test point was WAY above what the service manual called for...I got something like 1 volt from my DG-1 where the manual called for 180mv. I just adjusted for the maximum voltage and called it good.

I still have to replace the temporary choke with the proper value part, I can take some notes on the input values (freq and voltage), and take some captures with the digital storage scope so you can see what the wave forms should look like.

--- In TS-520_820_530_830@yahoogroups.com, James Scribner <swpthg@...> wrote:
>
> â□□RE: " I remember reading there was a way to check for proper signals into
> the mixer board."
> I surely wish someone could publish ALL the correct input frequencies and
> signal levels for the DG-1 mixer and also the complete adjustment
> procedures for the circuits within it. I have researched internet and this
> site in particular for 'DG-1' display and came away with the cleanest
> connectors ever after about 862 posts read.
> I started with a DG-1 that was totally inop in 2 separate radios. The
> second DG-1 works fine on either radio. After weeks of strained eyes and
> resoldered joints the DG-1 reads 88.000.0 on WWV up to 14. 14MHz up to 29.5
> reads 99.000.0. If anyone has or knows of the values I should see at the 5
> test points or the alignment procedure It seems it would be of a great
> value to be posted here on this site with all of the posts I have seen here
> about the DG-1 in particular.
> I would like to commend all who take their time on this Group, good job
> guys! Even in the short time I have been a member I have found the info to
> get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz) drift over
> several hours. Way below factory spec. Thanks in advance for any light that
> may be shed on the DG-1 project.
>
>
> [Non-text portions of this message have been removed]
>

43887. Re: [TS-520_820_530_830] Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 17:51:13 UTC
From: Young Kim
Topic: 43837 Message: 43887

Mike,
You can use this 170W PNP power transistor at $36 per pair at
http://www.oldradiosnstuff.com/2-nos-motorola-2n2158a-high-gain-amplifier-germanium-pnp-transistor-170w

_____
From: W5RKL <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 6, 2013 4:06 AM
Subject: Re: [TS-520_820_530_830] Re: TS-520 Blows Fuses - No Secondaries connected

Good job finding the source of the problem.

I did a check for replacing the 2N4049 and couldn't find the direct
replacement but did find the NTE replacement which is an NTE-28. NTE
doesn't give their prices, you have to use their RFQ link on their
website. Mouser does not sell them, Newark doesn't have them in stock
but their price for one is "$111.00". However, "Arcade Electronics" has
them in stock for "$110" each.

http://www.arcade-electronics.com/NTE-28-p/nte-28.htm

That's a lot of money to pay for a transistor.

73
Mike W5RKL

On 8/5/2013 9:47 PM, dllewiszz wrote:
>
>
> And the answer to the question I've been posing along the way is "YES"
> - the DC-DC stuff can cause fuses to blow when everything else is
> disconnected!! Pulling the leads from the terminal block, I powered up
> and had lamps steadily. Then I reconnected the secondaries, did the
> same, and still looks good. Connected the speaker, tuned WWV, stuck
> finger in SO239 for antenna, and had the signal.
>
> If I don't intend to use this rig on 12VDC, is there anything I'll
> miss by having these transistors off line? That may be my preferred
> course of action rather than replacing one or all, whichever is
> shorted and killing the rig.
>
> --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@...> wrote:

> >
> > I may have a very old 520 schematic that has been updated and
> replaced - perhaps many years ago. Mine is a foldout in a full printed
> manual with the code number 33912 printed on the back. (Figure 38 in
> my copy) I haven't downloaded one from an online source, but am just
> comparing the two printed manuals in my hand. The switch wiring is
> definitely different on the 520 schematic and when I draw it out I
> can't see any way it would work. I need to download a copy and compare.
> >
> > I have now wired my rig per the 520S schematic and am now seeing the
> 2.2 ohms across the AC line cord. This is because it is now wired
> correctly -- at least that part is wired correctly because the two
> primaries are effectively in parallel. When I was seeing 4 ohms, that
> was because I was wired per the 520 schematic which didn't allow the
> other primary to be in line correctly.
> >
> > So, I fired 'er up and I had lamps for about one second, then poof,
> the 6A fuse blew. Not as fast as before, but still blew. I've double
> and triple checked my wiring and see nothing that should cause the
> fuse to blow -- no secondaries connected, but the DC-DC stuff is still
> there. Guessing I should isolate that completely by disconnecting it
> also for another test.
> >
> >
> >
> >
> > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > >
> > > I just printed the TS-520 and TS-520S schematic portions that show
> the primary winding and voltage select wiring. I looked at them
> closely and I do not see any difference in the switch wiring. The only
> difference is the "Fan" wiring in the 520S wired directly to only one
> of the primary 0/100 windings but in the 520 the fan is wired through
> the 12 pin socket but still between only one of the 0/100 primary
> windings.
> > >
> > > 73
> > > Mike W5RKL
> > >
> > >
> > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > >
> > > >
> > > > The switches are the same indeed, but the schematic wiring in
> the two manuals is definitely different. I'll have to scan those
> portions of the schematics and expand and mark them to show the
> differences. Look closely at your schematics and note the way the

> wiring changes from the 520 to the 520S around the DPDT switch and the
> way the two primaries are setup. It'll be interesting to see if my
> problem disappears after I rewire according to the 520S. I removed the
> old wiring from the switch because it was messy and had been
> removed/replaced somewhere along the way. Following the 520 schematic
> seems to be what was blowing my fuses on the primary.
> > > >
> > > >
> > > >
> > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > > > >
> > > > > I don't see any difference between the TS-520 and the TS-520S
> primary voltage switch. Both TS-520/TS-520S primary voltage select
> switches are "DPDT" and both are wired the same. I may be missing
> something here so where are you seeing the difference in the voltage
> select switch wiring between the 520 and 520S on the 2 schematics? I
> don't see any difference.
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> > > > > Mike W5RKL
> > > > >
> > > > >
> > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > >
> > > > > > I do have the full service manuals for the 520 and the 520S
> -- and I've just discovered that the 520 schematic differs from the
> 520S wiring in the Primary side of the XFMR and the 120/240 switch.
> The manual doesn't really tell me about the internal construction of
> the 120/240 switch, but the ohmmeter confirms that the center/common
> is not physically in the middle of the switch. That aside, a close
> reading of the two schematics reveals the 520S schematic more closely
> matches the wiring on my old 520, and the 520 schematic is different!
> I'll rewire according to the 520S manual and report back here with
> results. (Surely there's a tech note out there somewhere about the
> error in the 520 schematic?)
> > > > > >
> > > > > >
> > > > > >
> > > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > > > > > >
> > > > > > > Do you have the 520 service manual schematic? If you do
> not then I recommend you download it from Gordon's website
> > > > > > >
> > > > > > > n6wk.com/kenwood/
> > > > > > >
> > > > > > > The 520 service manual schematic will answer your question.

> > > > > > >
> > > > > > > > 73
> > > > > > > > Mike W5RKL
> > > > > > > >
> > > > > > > >
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> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > > > > >
> > > > > > > > > Sanity check: Is the 120/240 switch designed such that
> the center (common) contacts are on one side rather than the middle of
> the switch as you'd normally see in a DPDT switch? That's what I'm
> seeing with the ohmmeter but just want to be sure.
> > > > > > > > >
> > > > > > > > > The wiring on the 120/240 switch had been modified by a
> previous owner, although the rig has been working fine. I cleaned it
> all up and put it back together and there is a possibility I reversed
> something and that's what's blowing fuses so fast. Also, I'm only
> seeing one of the line caps on this rig. Looks like the other one has
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> > > > > > > > > Thanks for the advice!
> > > > > > > > > Dave WA4FXT
> > > > > > > > >
> > > > > > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@> wrote:
> > > > > > > > > >
> > > > > > > > > > Not sure why seeing 4 ohms unless as you say not
> accurate. At least not seeing bolted fault (under 1 ohm).
> > > > > > > > > >
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> open and not touching each other or to chassis ground? Do they have
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> > > > > > > > > >
> > > > > > > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> <dllewiszz@> wrote:
> > > > > > > > > > >
> > > > > > > > > > > I'm seeing about 4 ohms across the primaries when
> measuring thru the AC cord as you suggest, or when measuring on the
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> > > > > > > > > >
> > > > > > > > > > When I look at the secondaries, I notice lower
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> > > > > > > > > > > Did you power transformer on bench before installing?
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> windings and log in a notebook.
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> <dllewiszz@> wrote:
> > > > > > > > > > > >
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> have the series lamp thing built yet but guess I'm gonna have to do
> that this afternoon.) The fan does run for about a half second. What
> am I missing, and what's going on? Is the DC-DC stuff causing this?
> Can I remove all of that and run OK on 120VAC?
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43888. Re: [TS-520_820_530_830] Re: TS-520 Blows Fuses - No Secondaries connected

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 18:00:05 UTC
From: W5RKL
Topic: 43837 Message: 43888

Thanks for the link. I'm not the one with the DC to DC converter.
However, I'm sure wizz will notice the link.

73
Mike W5RKL

On 8/6/2013 12:51 PM, Young Kim wrote:
>
> Mike,
> You can use this 170W PNP power transistor at $36 per pair at
> http://www.oldradiosnstuff.com/2-nos-motorola-2n2158a-high-gain-amplifier-germanium-pnp-transistor-170w
>
>
> _____
> From: W5RKL <w5rkl@... <mailto:w5rkl%40yahoo.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Tuesday, August 6, 2013 4:06 AM
> Subject: Re: [TS-520_820_530_830] Re: TS-520 Blows Fuses - No
> Secondaries connected
>
>
>
>
> Good job finding the source of the problem.
>
> I did a check for replacing the 2N4049 and couldn't find the direct
> replacement but did find the NTE replacement which is an NTE-28. NTE
> doesn't give their prices, you have to use their RFQ link on their
> website. Mouser does not sell them, Newark doesn't have them in stock
> but their price for one is "$111.00". However, "Arcade Electronics" has
> them in stock for "$110" each.
>
> http://www.arcade-electronics.com/NTE-28-p/nte-28.htm
>
> That's a lot of money to pay for a transistor.
>
> 73
> Mike W5RKL
>
> On 8/5/2013 9:47 PM, dllewiszz wrote:
> >
> >

> > And the answer to the question I've been posing along the way is "YES"
> > - the DC-DC stuff can cause fuses to blow when everything else is
> > disconnected!! Pulling the leads from the terminal block, I powered up
> > and had lamps steadily. Then I reconnected the secondaries, did the
> > same, and still looks good. Connected the speaker, tuned WWV, stuck
> > finger in SO239 for antenna, and had the signal.
> >
> > If I don't intend to use this rig on 12VDC, is there anything I'll
> > miss by having these transistors off line? That may be my preferred
> > course of action rather than replacing one or all, whichever is
> > shorted and killing the rig.
> >
> > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> > <dllewiszz@...> wrote:
> > >
> > > I may have a very old 520 schematic that has been updated and
> > replaced - perhaps many years ago. Mine is a foldout in a full printed
> > manual with the code number 33912 printed on the back. (Figure 38 in
> > my copy) I haven't downloaded one from an online source, but am just
> > comparing the two printed manuals in my hand. The switch wiring is
> > definitely different on the 520 schematic and when I draw it out I
> > can't see any way it would work. I need to download a copy and compare.
> > >
> > > I have now wired my rig per the 520S schematic and am now seeing the
> > 2.2 ohms across the AC line cord. This is because it is now wired
> > correctly -- at least that part is wired correctly because the two
> > primaries are effectively in parallel. When I was seeing 4 ohms, that
> > was because I was wired per the 520 schematic which didn't allow the
> > other primary to be in line correctly.
> > >
> > > So, I fired 'er up and I had lamps for about one second, then poof,
> > the 6A fuse blew. Not as fast as before, but still blew. I've double
> > and triple checked my wiring and see nothing that should cause the
> > fuse to blow -- no secondaries connected, but the DC-DC stuff is still
> > there. Guessing I should isolate that completely by disconnecting it
> > also for another test.
> > >
> > >
> > >
> > >
> > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > > >
> > > > I just printed the TS-520 and TS-520S schematic portions that show
> > the primary winding and voltage select wiring. I looked at them
> > closely and I do not see any difference in the switch wiring. The only
> > difference is the "Fan" wiring in the 520S wired directly to only one
> > of the primary 0/100 windings but in the 520 the fan is wired through
> > the 12 pin socket but still between only one of the 0/100 primary

> > windings.
> > > >
> > > > 73
> > > > Mike W5RKL
> > > > >
> > > > >
> > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> > <dllewiszz@> wrote:
> > > > > >
> > > > > >
> > > > > The switches are the same indeed, but the schematic wiring in
> > the two manuals is definitely different. I'll have to scan those
> > portions of the schematics and expand and mark them to show the
> > differences. Look closely at your schematics and note the way the
> > wiring changes from the 520 to the 520S around the DPDT switch and the
> > way the two primaries are setup. It'll be interesting to see if my
> > problem disappears after I rewire according to the 520S. I removed the
> > old wiring from the switch because it was messy and had been
> > removed/replaced somewhere along the way. Following the 520 schematic
> > seems to be what was blowing my fuses on the primary.
> > > > > >
> > > > > >
> > > > > >
> > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > > > > > >
> > > > > > I don't see any difference between the TS-520 and the TS-520S
> > primary voltage switch. Both TS-520/TS-520S primary voltage select
> > switches are "DPDT" and both are wired the same. I may be missing
> > something here so where are you seeing the difference in the voltage
> > select switch wiring between the 520 and 520S on the 2 schematics? I
> > don't see any difference.
> > > > > > >
> > > > > > > 73
> > > > > > > Mike W5RKL
> > > > > > > >
> > > > > > > >
> > > > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "dllewiszz"
> > <dllewiszz@> wrote:
> > > > > > > > >
> > > > > > > > I do have the full service manuals for the 520 and the 520S
> > -- and I've just discovered that the 520 schematic differs from the
> > 520S wiring in the Primary side of the XFMR and the 120/240 switch.
> > The manual doesn't really tell me about the internal construction of
> > the 120/240 switch, but the ohmmeter confirms that the center/common
> > is not physically in the middle of the switch. That aside, a close
> > reading of the two schematics reveals the 520S schematic more closely
> > matches the wiring on my old 520, and the 520 schematic is different!

> > I'll rewire according to the 520S manual and report back here with
> > results. (Surely there's a tech note out there somewhere about the
> > error in the 520 schematic?)
> > > > > > >
> > > > > > > >
> > > > > > > > >
> > > > > > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "w5rkl" <w5rkl@> wrote:
> > > > > > > > >
> > > > > > > > > > Do you have the 520 service manual schematic? If you do
> > not then I recommend you download it from Gordon's website
> > > > > > > > >
> > > > > > > > > > n6wk.com/kenwood/
> > > > > > > > > >
> > > > > > > > > > The 520 service manual schematic will answer your question.
> > > > > > > > >
> > > > > > > > > > 73
> > > > > > > > > > Mike W5RKL
> > > > > > > > >
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> > <dllewiszz@> wrote:
> > > > > > > > >
> > > > > > > > > > Sanity check: Is the 120/240 switch designed such that
> > the center (common) contacts are on one side rather than the middle of
> > the switch as you'd normally see in a DPDT switch? That's what I'm
> > seeing with the ohmmeter but just want to be sure.
> > > > > > > >
> > > > > > > > > The wiring on the 120/240 switch had been modified by a
> > previous owner, although the rig has been working fine. I cleaned it
> > all up and put it back together and there is a possibility I reversed
> > something and that's what's blowing fuses so fast. Also, I'm only
> > seeing one of the line caps on this rig. Looks like the other one has
> > been removed.
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> > > > > > > > > > Thanks for the advice!
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> > <wagstw46@> wrote:
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> > > > > > > > > > Can unplug the fan leads (never seen a bad fan)
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> > > > > > > > > > --- In mailto:TS-520_820_530_830%40yahoogroups.com
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> > > > > > > > > > Right now with a good fuse installed if you
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43889. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 18:25:11 UTC
From: John Davidson
Topic: 43840 Message: 43889

Many types of Resistors go high in value as they age. Maybe checking for low voltages in final screen and driver supply lines would help track down 20 % shift in output ?

From: Terry Wagoner <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 6, 2013 1:15 PM
Subject: [TS-520_820_530_830] Re: TS-820S Load Power

It isnt about a "few" watts.

80 watts output vs 100 watts output for the same DC input power is 20% low. I would be interested in understanding why any parameter in my radio was off by 20%.

Is it the radio or is the measuring device or measuring technique?

Anyone who has a service bench regardless of how modest or sophisticated is faced with that question. Measuring technique and accuracy is important. Not hard to be fooled into thinking something wrong when it was a measuring error.

The fellow did exactly as he should have and measured with a wattmeter and by measuring RF voltage with an O-scope and applying the math. He had the knowledge of how to make the measurement with his O-scope and how to make the conversion from P-P to rms and to wattage. Makes me smile.

This is a technical hobby, a questioning mans hobby, and a thinking mans hobby.

We all know 80 watts makes little to no difference on the receiving end. However, if you had a new hybrid and it only put out 80 watts would you take it back to dealer and ask for another one or not worry about it? What the heck is a "few" watts.

With an older in service rig when would you investigate and want to return it to its former design spec performance?

I think when it appears that power is down 20% might be good time to think about looking into it. Might be as simple as low emission finals?

Everyones definition of "few" is different. Everyone has different quality standards. Everyone has a different definition of acceptable performance.

I see lot of radios that owners have been living with workarounds for a long time and some have no idea it wasnt working correctly.

Terry K9TW

> When someone Â here starts questioning a few watts difference in their readings I just Â had to throw out Â the comment....

[Non-text portions of this message have been removed]

43890. Re: [TS-520_820_530_830] Padder caps -- a confession

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 18:34:00 UTC
From: John Davidson
Topic: 43799 Message: 43890

I could point out that the freq range spread on 160M is 10 %,
 80M is 12.5 %,
and on, for instance,
 12 M it's only 0.4 % of the frequency.

From: Don Cunningham <donc@martineer.net>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 6, 2013 11:01 AM
Subject: Re: [TS-520_820_530_830] Padder caps -- a confession

Craig,

Your "confession" only highlights a general problem on email
reflectors. I and likely several others should have responded to your
problem by suggesting that you you look at the arc on the final control
and the different widths of each band.
 was to realign the plate current dip
> point on the 160 and 80 meter bands to coincide with the front panel
> pointer markings under the PLATE control.
>
> very politely pointing out that the silk
> screened arcs relating to the two lowest bands were actually quite wide.
> On 160, for instance, the "dip arc" ranges from 9 o'clock to nearly 3
> o'clock and was not restricted to that little portion marked "1.5".
>
> Sure enough, my plate current dips fall well within the limits on all
> bands.
>
> Craig
> W3CRR
>
>
>
>

[Non-text portions of this message have been removed]

43891. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 18:40:31 UTC
From: John Davidson
Topic: 43840 Message: 43891

When I got my first full time job in Chicago the chief engr. took me for a tour of the station and showed me the AM main transmitter, I looked in the window at the pair of 833 tubes and my jaw dropped because they had a nice orange blush on the plates. I must have looked upset because my new boss laughed and said "don't worry, they have run like that for the last ten years" !

From: Jim S <jimstan@myactv.net>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 6, 2013 12:39 PM
Subject: Re: [TS-520_820_530_830] Re: TS-820S Load Power

Oh, come on, John, just how red can we allow those 6146 plates to get?
I never go beyond "dull", myself ! ! !

Just pushing buttons, guys. Smooth down those hackles !

73, Jim AG3Y

On 8/6/2013 12:19 PM, John Davidson wrote:
>
>
>
> When someone here starts questioning a few watts difference in their
> readings I just had to throw out the comment....
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43892. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 19:00:41 UTC
From: Wes Will
Topic: 43840 Message: 43892

On 08/06/2013 01:40 PM, John Davidson wrote:

> a nice orange blush on the plates. I must have looked upset because my

Anyone -else- ever had an old tube diode give out with that
"bluish-purple" colour?? (Usually just before a catastrophic arc-over,
of course. BZZZZT! POP!)

--
Wes Will
N9KDY

Join the "Campaign to Trim Out Irrelevant Parts of Previous Posts When
Replying" in the Kenwood Hybrid E-Mail List. It's only proper
Netiquette, after all.....

43893. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 19:46:22 UTC
From: John Davidson
Topic: 43840 Message: 43893

Gas leaks always cause grief. Especially the intestinal kind.
Gas in a vacuum tube is nice and colorful. Ionized nitrogen is a nice blue color.

From: Wes Will <wwill@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 6, 2013 3:00 PM
Subject: Re: [TS-520_820_530_830] Re: TS-820S Load Power

On 08/06/2013 01:40 PM, John Davidson wrote:

> a nice orange blush on the plates. I must have looked upset because my

Anyone -else- ever had an old tube diode give out with that
"bluish-purple" colour?? (Usually just before a catastrophic arc-over,
of course. BZZZZT! POP!)

--
Wes Will
N9KDY

Join the "Campaign to Trim Out Irrelevant Parts of Previous Posts When
Replying" in the Kenwood Hybrid E-Mail List. It's only proper
Netiquette, after all.....

[Non-text portions of this message have been removed]

43894. Re: [TS-520_820_530_830] Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 20:54:44 UTC
From: Jim S
Topic: 43840 Message: 43894

Here is a fine web page showing a BC1-T from scrap heap to total restoration. You will see a set of four 833s in full glory as you scroll down the page. Sorry to derail the thread, again, but it is just too much FUN to look at these pictures, and remember when. And also to praise those fellows who have the time, patience and talent to take on such a task. Admirable !

http://www.k7jrl.com/projects/bc1t/

On 8/6/2013 2:40 PM, John Davidson wrote:
>
> When I got my first full time job in Chicago the chief engr. took me
> for a tour of the station and showed me the AM main transmitter, I
> looked in the window at the pair of 833 tubes and my jaw dropped
> because they had a nice orange blush on the plates. I must have looked
> upset because my new boss laughed and said "don't worry, they have run
> like that for the last ten years" !
>
> _____
> From: Jim S <jimstan@... <mailto:jimstan%40myactv.net>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Tuesday, August 6, 2013 12:39 PM
> Subject: Re: [TS-520_820_530_830] Re: TS-820S Load Power
>
>
>
> Oh, come on, John, just how red can we allow those 6146 plates to get?
> I never go beyond "dull", myself ! ! !
>
> Just pushing buttons, guys. Smooth down those hackles !
>
> 73, Jim AG3Y
>

[Non-text portions of this message have been removed]

43895. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-06 23:31:26 UTC
From: kk6ezq
Topic: 43840 Message: 43895

Terry,

Your post and those of John Davidson, Wes Will and Jim S, have provided some interesting ideas and facts - and I am greatful for the info.

I continued to run tests in my lab (the garage) to try to determine which meters I can rely on - if any. Seems with frequency and temperature changes the electronics (passive and active) perform somewhat differently. For example, the DUMMY LOAD resistor in the MFJ shows about 15% difference in resistance (42 ohms cold, 48.4 ohms hot) that would cause a little over 15% difference in computed output power (100^2 \ 48.4 vs 100^2 \ 42).

I will use the data I have gathered, along with the groups input, to compare to data after replacing the driver, replacing the PA tubes and equalizing.

Thanks again for the support. Your recent and past posts provide a wealth of info for new hams like me - something not available at school, in the books or even on GOOGLE (HI HI).

Kind Regards,

Steve
KK6EZQ

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> It isnt about a "few" watts.
>
> 80 watts output vs 100 watts output for the same DC input power is 20% low. I would be interested in understanding why any parameter in my radio was off by 20%.
>

43896. Re: [TS-520_820_530_830] Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-07 04:14:40 UTC
From: James Scribner
Topic: 43702 Message: 43896

Thanks Deiter, You are right on as it calls for 0.1v-0.2v and mine measured 2.60V. The coils T1 & T2 had no effect on the voltage adjustment at all. I have resoldered so much I started looking for a shorted trace or ?? Am going to try the first 103 cap in the circuit tomorrow as it acts like it is high resistance but it's still on board. Would appreciate any thing you might forward as once I get this voltage down I see no other help in the manual so far as other voltage specs or adjusting T3 & T4.
Actually what I do know at this stage is the 1 meg crystal is working and adjusted correctly. I spent most of this evening making sure all volts and freqs to the mixer connector were present and adjusted to spec from the radio so I could consintrate on the DG-1 and not keep rechecking radio specs. Thanks for the response.
73
Jim

On Tue, Aug 6, 2013 at 8:48 AM, w3drk <dieter.kedrowitsch@gmail.com> wrote:

> **
>
>
> I'm not very familiar with the alignment procedure of the DG-1, but I do
> recall having to peak a signal with two coils although the peek to peek
> voltage of the test point was WAY above what the service manual called
> for...I got something like 1 volt from my DG-1 where the manual called for
> 180mv. I just adjusted for the maximum voltage and called it good.
>
> I still have to replace the temporary choke with the proper value part, I
> can take some notes on the input values (freq and voltage), and take some
> captures with the digital storage scope so you can see what the wave forms
> should look like.
>
> --- In TS-520_820_530_830@yahoogroups.com, James Scribner <swpthg@...>
> wrote:
> >
> > â€‹RE: " I remember reading there was a way to check for proper signals
> into
>
> > the mixer board."
> > I surely wish someone could publish ALL the correct input frequencies and
> > signal levels for the DG-1 mixer and also the complete adjustment
> > procedures for the circuits within it. I have researched internet and
> this
> > site in particular for 'DG-1' display and came away with the cleanest
> > connectors ever after about 862 posts read.

> > I started with a DG-1 that was totally inop in 2 separate radios. The
> > second DG-1 works fine on either radio. After weeks of strained eyes and
> > resoldered joints the DG-1 reads 88.000.0 on WWV up to 14. 14MHz up to
> 29.5
> > reads 99.000.0. If anyone has or knows of the values I should see at the
> 5
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> > value to be posted here on this site with all of the posts I have seen
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> > get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz) drift
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> that
> > may be shed on the DG-1 project.
> >
> >
> > [Non-text portions of this message have been removed]
> >
>
>
>

[Non-text portions of this message have been removed]

43897. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-07 10:53:15 UTC
From: Terry Wagoner
Topic: 43840 Message: 43897

Steve:

I am not familiar with the MFJ dummy load. All dummy loads have a duty cycle and a de-rate curve. Also the internal resistors will have a tolerance, but not common to see it listed. I think the replacement ones in MFJ catalog have tolerance of 10%.

My Heath Cantenna with original carborundum (carbon film on ceramic rod)oil immersed resistor measures cold at 49.6 ohms.

My CelWave 250 watt dry type measures 50.3 ohms.

I have never measured them after "heavy" use.

You might look in MFJ manual to see if it has derate/duty cycle curve and resistor tolerance specs listed.

You can perform Driver Tube test by placing SG off, rig in CW, heaters on, flip to Send, peak the drive and set the ALC indication to exactly full scale with the Car Level pot and leave keyed a few seconds. Should be able to get full scale deflection (FSD) and stay there without drifting off. Leave keyed for a few seconds. Do this on all bands and let 12BY7A rest a minute or two between each band. Should get FSD that does not drift off with Car pot between 0900 and 1200 max. If you can do this nothing wrong with driver tube.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
>
> Terry,
>
> Your post and those of John Davidson, Wes Will and Jim S, have provided some interesting ideas and facts - and I am greatful for the info.
>
> I continued to run tests in my lab (the garage) to try to determine which meters I can rely on - if any. Seems with frequency and temperature changes the electronics (passive and active) perform somewhat differently. For example, the DUMMY LOAD resistor in the MFJ shows about 15% difference in resistance (42 ohms cold, 48.4 ohms hot) that would cause a little over 15% difference in computed output power (100^2 \ 48.4 vs 100^2 \ 42).
>
> I will use the data I have gathered, along with the groups input, to compare to data after replacing the driver, replacing the PA tubes and equalizing.
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> Thanks again for the support. Your recent and past posts provide a wealth of info for new hams like me - something not available at school, in the books or even on GOOGLE (HI HI).
>
> Kind Regards,
>
> Steve

> KK6EZQ
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > It isnt about a "few" watts.
> >
> > 80 watts output vs 100 watts output for the same DC input power is 20% low. I would be interested in understanding why any parameter in my radio was off by 20%.
> >
>

43898. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-07 12:16:30 UTC
From: Terry Wagoner
Topic: 43702 Message: 43898

First you cannot have 2.6rms rf volts at TP-2. I suspect you are measuring Q3 DC emitter voltage?

All TP measurements are RF signal voltages.

I have been on side lines hoping an experienced DG-1 person would jump in. Perhaps all on vacation? I am not an expert. I will give you readings from my notes. All measured with Boonton 92E. Can measure with standard RF probe and VTVM/DMM or O-scope and convert to RMS:

You need the following inputs to the Counter Mixer board:
1. DC power 14vdc and 5vdc
2. 9vdc diode switching bias voltage for LPF B1-B4 (8.4vdc)
3. Carrier Oscillator CCR
4. VCO Oscillator CVC

Suggest you make sure you have correct Carrier Osc input to IF board first. This is commonly mis-adjusted as Service Manual says to set to 50mv. This is wrong. CA-2 should be 300mv. Then adjust for 100mv to 150mv CCR level at Pin 7 Counter Mix board connector.

Next make sure you have good VCO level at Pin 1 = 900mv

Here are approx RF signal levels (rms) from my notes working backwards from Cin output:

1. Cin Output to the Display board = 1.0v
2. TP-5 Output of low pass filters and input to wide band amplifier = 200mv
3. TP-4 Output of Mixer IC1 adjusted by T3 = 270mv to 300mv
4. TP-3 RF Input to Mixer IC1 = ? I dont see this listed.

What I do have is the actual RF input level at Pin 11 of IC-1. Measure Pin 11 to floating ground Pin 4 = 10mv to 30mv of VCO signal. I also have LO input to Pin 5 measured from Pin 5 to Pin 4 = 210mv.

5. TP-2 Carrier Oscillator 7.830 Mhz (LO) = 220mv adjusted by T1/T2.
6. TP-1 1Mhz clock = 200mv (same for CL-1)

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, James Scribner <swpthg@...> wrote:
>
> Thanks Deiter, You are right on as it calls for 0.1v-0.2v and mine measured
> 2.60V. The coils T1 & T2 had no effect on the voltage adjustment at all. I
> have resoldered so much I started looking for a shorted trace or ?? Am
> going to try the first 103 cap in the circuit tomorrow as it acts like it
> is high resistance but it's still on board. Would appreciate any thing you
> might forward as once I get this voltage down I see no other help in the
> manual so far as other voltage specs or adjusting T3 & T4.
> Actually what I do know at this stage is the 1 meg crystal is working and

> adjusted correctly. I spent most of this evening making sure all volts and
> freqs to the mixer connector were present and adjusted to spec from the
> radio so I could consintrate on the DG-1 and not keep rechecking radio
> specs. Thanks for the response.
> 73
> Jim
>
> On Tue, Aug 6, 2013 at 8:48 AM, w3drk <dieter.kedrowitsch@...> wrote:
>
> > **
> >
> >
> > I'm not very familiar with the alignment procedure of the DG-1, but I do
> > recall having to peak a signal with two coils although the peek to peek
> > voltage of the test point was WAY above what the service manual called
> > for...I got something like 1 volt from my DG-1 where the manual called for
> > 180mv. I just adjusted for the maximum voltage and called it good.
> >
> > I still have to replace the temporary choke with the proper value part, I
> > can take some notes on the input values (freq and voltage), and take some
> > captures with the digital storage scope so you can see what the wave forms
> > should look like.
> >
> > --- In TS-520_820_530_830@yahoogroups.com, James Scribner <swpthg@>
> > wrote:
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> > > Ã¢â□¬â□¹RE: " I remember reading there was a way to check for proper signals
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> > > I started with a DG-1 that was totally inop in 2 separate radios. The
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> > > reads 99.000.0. If anyone has or knows of the values I should see at the
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> > > get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz) drift
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> > >
> > > [Non-text portions of this message have been removed]
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>

43899. Re: [TS-520_820_530_830] Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-08 04:34:41 UTC
From: James Scribner
Topic: 43702 Message: 43899

Hi Terry,
First let me say Thank You! I copied and pasted this post for safe keeping. Have been trying to compile a Service Manual with correct info. This has been frustrating to say the least as I make a correction only to find it too is incorrect. :>D IE the car osc volts?
This Group has been invaluable in correcting such things as the RF Speech Processor alignment and such. I have to go out of town on family business but anticipate better results when I get back and can settle down to some good trouble shooting with the voltages you have posted here. I have an 820, 820D, and a 820S all operative. The 820 has run 24-7 for almost a year with good receive and excellent audio reports. (Kenwood audio U know!) Enough, Again thks
very much and hope to be back on here in a week or so with a better report or at least with less doubts:>(
73
Jim
W5SWM
On Wed, Aug 7, 2013 at 7:16 AM, Terry Wagoner <wagstw46@...> wrote:

> **
>
>
> First you cannot have 2.6rms rf volts at TP-2. I suspect you are measuring
> Q3 DC emitter voltage?
>
> All TP measurements are RF signal voltages.
>
> I have been on side lines hoping an experienced DG-1 person would jump in.
> Perhaps all on vacation? I am not an expert. I will give you readings from
> my notes. All measured with Boonton 92E. Can measure with standard RF probe
> and VTVM/DMM or O-scope and convert to RMS:
>
> You need the following inputs to the Counter Mixer board:
> 1. DC power 14vdc and 5vdc
> 2. 9vdc diode switching bias voltage for LPF B1-B4 (8.4vdc)
> 3. Carrier Oscillator CCR
> 4. VCO Oscillator CVC
>
> Suggest you make sure you have correct Carrier Osc input to IF board
> first. This is commonly mis-adjusted as Service Manual says to set to 50mv.
> This is wrong. CA-2 should be 300mv. Then adjust for 100mv to 150mv CCR
> level at Pin 7 Counter Mix board connector.
>
> Next make sure you have good VCO level at Pin 1 = 900mv

>
> Here are approx RF signal levels (rms) from my notes working backwards
> from Cin output:
>
> 1. Cin Output to the Display board = 1.0v
> 2. TP-5 Output of low pass filters and input to wide band amplifier = 200mv
> 3. TP-4 Output of Mixer IC1 adjusted by T3 = 270mv to 300mv
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>
> What I do have is the actual RF input level at Pin 11 of IC-1. Measure Pin
> 11 to floating ground Pin 4 = 10mv to 30mv of VCO signal. I also have LO
> input to Pin 5 measured from Pin 5 to Pin 4 = 210mv.
>
> 5. TP-2 Carrier Oscillator 7.830 Mhz (LO) = 220mv adjusted by T1/T2.
> 6. TP-1 1Mhz clock = 200mv (same for CL-1)
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, James Scribner <swpthg@...>
> wrote:
> >
> > Thanks Deiter, You are right on as it calls for 0.1v-0.2v and mine
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> > 2.60V. The coils T1 & T2 had no effect on the voltage adjustment at all.
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> > Jim
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> > On Tue, Aug 6, 2013 at 8:48 AM, w3drk <dieter.kedrowitsch@...> wrote:
> >
> > > **
> > >
> > >
> > > I'm not very familiar with the alignment procedure of the DG-1, but I
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> > > >
> > > >
> > > > [Non-text portions of this message have been removed]
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> >
> > [Non-text portions of this message have been removed]
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>

[Non-text portions of this message have been removed]

43900. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-08 10:27:51 UTC
From: Terry Wagoner
Topic: 43702 Message: 43900

OK Jim:

I just thought when I saw you state T1/T2 had no effect on the signal level at TP-2 and that you had 2.6volts that you might be taking DC voltages and not RF signal voltages.

When troubleshooting it is always best if a unit will power up to perform ac signal tracing/signal injection and when you find the signal is low or missing then revert to dc voltage measurements at the active devices (transistors, mosfets, ICs). Kenwood did pretty good giving us the CBE and DSG voltages and they did pretty good giving us the required "goes-ins" and "goes-out".

In my experience the Counter Mixer board seldom has any failures of active devices and the service manual gives a pretty good block diagram so you can figure out the mixing scheme. So if you go to the chart on Page 73 you will see the frequencies you should have at Cin at each band switch position. Just place your rf probe/scope and freq counter there and flip thru the bandswitch and should see these frequencies and approx 1.0rms rf volts level (may vary a little around 1.0 volts). Then go to the Counter board and repeat to see if Cin path between the two boards is good. Can also go to IC5 pins 12 or 13 and validate that you have Cin there. Just be careful measuring on pins of ICs not to slip and short them.

Yes something really bad happened with the development of the 820 service manual. It has taken me years to mark mine up and take notes and probably havent found all the problems. Worse case is when it provides the wrong test point, wrong adjustment point, and wrong acceptance criteria in same step.

If you have some missing signals at Cin then go to B1-B4 and make sure you have 8.4vdc diode switching voltages being provided by the bandswitch. The chart on pg 73 shows you which frequencies are involved with B1-B4 under LPF band column.

73s
Terry K9TW

43901. Re: [TS-520_820_530_830] Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-08 22:04:39 UTC
From: Jim Showker
Topic: 43702 Message: 43901

Terry,
Well, I am an experienced DG-1 person, but no expert. I have worked on these things until I am blue in the face. We have gotten to the point that if they come in working, we do not even open them when doing a recap. Disturbing the board at all can lead to problems. If they don't work...

IT IS ALWAYS A COLD SOLDER JOINT. Troubleshooting is a waste of time, in my opinion. I suppose if you can trace down the problem, it might tell you where to do some more soldering. When you look on the tops of the boards, some pads appear to have no solder whatsoever. A wonder that some of them ever worked at all. I don't know if the holes are through plated or what. Resolder everything on top that you can get to. This has eventually fixed everyone so far. When you test it, be sure to screw the boards down to the case and the case to the chassis, as the ground is important.

Jim KE7OAY

On 8/7/2013 5:16 AM, Terry Wagoner wrote:
>
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> measuring Q3 DC emitter voltage?
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> All TP measurements are RF signal voltages.
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> Terry K9TW
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> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, James Scribner
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> > On Tue, Aug 6, 2013 at 8:48 AM, w3drk <dieter.kedrowitsch@...> wrote:
> >
> > > **
> > >
> > >
> > > I'm not very familiar with the alignment procedure of the DG-1,
> but I do

> > > recall having to peak a signal with two coils although the peek to
> peek
> > > voltage of the test point was WAY above what the service manual called
> > > for...I got something like 1 volt from my DG-1 where the manual
> called for
> > > 180mv. I just adjusted for the maximum voltage and called it good.
> > >
> > > I still have to replace the temporary choke with the proper value
> part, I
> > > can take some notes on the input values (freq and voltage), and
> take some
> > > captures with the digital storage scope so you can see what the
> wave forms
> > > should look like.
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, James Scribner <swpthg@>
> > > wrote:
> > > >
> > > > Ã¢â‚¬â€EUR¹RE: " I remember reading there was a way to check for
> proper signals
> > > into
> > > >
> > > > the mixer board."
> > > > I surely wish someone could publish ALL the correct input
> frequencies and
> > > > signal levels for the DG-1 mixer and also the complete adjustment
> > > > procedures for the circuits within it. I have researched
> internet and
> > > this
> > > > site in particular for 'DG-1' display and came away with the
> cleanest
> > > > connectors ever after about 862 posts read.
> > > > I started with a DG-1 that was totally inop in 2 separate
> radios. The
> > > > second DG-1 works fine on either radio. After weeks of strained
> eyes and
> > > > resoldered joints the DG-1 reads 88.000.0 on WWV up to 14. 14MHz
> up to
> > > 29.5
> > > > reads 99.000.0. If anyone has or knows of the values I should
> see at the
> > > 5
> > > > test points or the alignment procedure It seems it would be of a
> great
> > > > value to be posted here on this site with all of the posts I
> have seen
> > > here
> > > > about the DG-1 in particular.
> > > > I would like to commend all who take their time on this Group,

> good job
> > > > guys! Even in the short time I have been a member I have found
> the info
> > > to
> > > > get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz)
> drift
> > > over
> > > > several hours. Way below factory spec. Thanks in advance for any
> light
> > > that
> > > > may be shed on the DG-1 project.
> > > >
> > > >
> > > > [Non-text portions of this message have been removed]
> > > >
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> >
> >
> > [Non-text portions of this message have been removed]
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43902. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-08 22:59:09 UTC
From: Terry Wagoner
Topic: 43702 Message: 43902

Jim:

Yes the vias or plated thru holes can be a problem and find it best to install small wire jumpers thru and solder on each side. I agree and never touch one that is working. My personal one has not been re-soldered or jumper wires installed and I have never had any intermittent display issues and I have not cleaned and re-torqued the ground plane to chassis. Now I am jinxed!

I have had pretty good luck troubleshooting the Counter Mixer board. It is actually pretty simple mixing scheme. Pretty easy to check the Mixers RF and LO inputs and the outputs. I always make sure have correct Carrier Osc, VCO, DC voltages, and bandswitch diode switching bias to the board first. Missing these or low in level it is pointless to signal trace or solder anything on the board.

I then go to Cin output and validate have all the band related frequencies at 1.0v rf. If any of these are missing almost always not getting the Low Pass Filters switched in and the bandswitch is the problem. Then go to Cin at Counter/Display input and if missing there you know Cin path is open between the two boards (bad solder). Now time to start re-soldering.

Now my track record with the Counter board is not as good as I do not understand the multiplexing aspect as well as I should. I built a few counters in the 70s that used the 7490/7475/7447 chips of that time, but havent worked on many counters over the years.

This fellow had adjusted several of the Counter Mixer board tuned circuits and needed to know what levels he is looking for to get them back to spec. Re-soldering wouldnt do that for him. That is what I gave him. He may end up having to do some re-soldering but to tell him to just heat everything he sees has an element of risk to it that wont undo what he has done. May end up there eventually, but not what I would recommend until he knows where he has lost his signal.

I am an odd bird. I like to understand how all the hybrid circuits work so I spend a lot of time studying and taking as found parameters on working units. Has paid off in spades for me having this data in my notes.

I understand you are looking at bench time so can see why you wouldnt want to spend too much time troubleshooting especially if your experience says resolder fixes 95% of all problems.

Terry K9TW

43903. Hi!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 02:09:02 UTC
From: technudge
Topic: 43903 Message: 43903

To be honest, I'm a Yaesu freak. I have about 15 of the beasts spreading across almost 40 years. Yesterday, the USPS delivered a Kenwood TS-820S from an eBay seller. It's my first Kenwood ever

It was a horrible out of box experience.

It wouldn't RX or TX, just got horrible splash. and the display wasn't functioning. I was bummed.

Let me take a moment to apologize to you ham guys out there. In a moment of adult insanity, I actually sat down and RTFM. Good thing. It was there I found out about the 9-pin external VFO sorting plug. I found it back in the shipping box, partially covered by some small-bubble bubble wrap. It had not survived the trip well and I spent about a half hour straightening pins before it would fit in.

OMG!! This radio is incredible. It's everything my Yaesu FT-901DM is (and a little more) and it cost me only about 2/3 as much. So I'm here to learn.

43904. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 12:05:21 UTC
From: Bill
Topic: 43702 Message: 43904

I have a ts530s that had trouble with the display not working on all bands. Also had drop outs on other bands. Cleaning the band switches on the RF board helped for awhile and was acting up again shortly. Traced it to the band switch itself. Moisture had taken it toll from storage of 10 years. Had to disassemble the RF board and the band switch segments and solder all the terminals of the switch as it seems that they had a high resistance on the circuit board. Reassembled everything and has been working great ever since. That was 5 years ago. This rig still has the S2001A finals that it came with 33 years ago and the output is about 85 - 90 watts depending on the band. I know, the book says 100 watts out. Big deal, 10 - 15 watts is not going to make a hill of beans on the other end. If you can hear them, you can work them. If the band conditions are right, you can work the world on 5 watts.
Bill WD8OSJ

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Jim:
>
> Yes the vias or plated thru holes can be a problem and find it best to install small wire jumpers thru and solder on each side. I agree and never touch one that is working. My personal one has not been re-soldered or jumper wires installed and I have never had any intermittent display issues and I have not cleaned and re-torqued the ground plane to chassis. Now I am jinxed!
>
> I have had pretty good luck troubleshooting the Counter Mixer board. It is actually pretty simple mixing scheme. Pretty easy to check the Mixers RF and LO inputs and the outputs. I always make sure have correct Carrier Osc, VCO, DC voltages, and bandswitch diode switching bias to the board first. Missing these or low in level it is pointless to signal trace or solder anything on the board.
>
> I then go to Cin output and validate have all the band related frequencies at 1.0v rf. If any of these are missing almost always not getting the Low Pass Filters switched in and the bandswitch is the problem. Then go to Cin at Counter/Display input and if missing there you know Cin path is open between the two boards (bad solder). Now time to start re-soldering.
>
> Now my track record with the Counter board is not as good as I do not understand the multiplexing aspect as well as I should. I built a few counters in the 70s that used the 7490/7475/7447 chips of that time, but havent worked on many counters over the years.
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> This fellow had adjusted several of the Counter Mixer board tuned circuits and needed to know what levels he is looking for to get them back to spec. Re-soldering wouldnt do that for him. That is what I gave him. He may end up having to do some re-soldering but to tell him to just heat everything he sees has an element of risk to it that wont undo what he has done. May end up there eventually, but not what I would recommend until he knows where he has lost his signal.
>

> I am an odd bird. I like to understand how all the hybrid circuits work so I spend a lot of time studying and taking as found parameters on working units. Has paid off in spades for me having this data in my notes.
>
> I understand you are looking at bench time so can see why you wouldnt want to spend too much time troubleshooting especially if your experience says resolder fixes 95% of all problems.
>
> Terry K9TW
>

43905. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 11:45:09 UTC
From: Bill
Topic: 43840 Message: 43905

Yepper, Popped a few of the 5y3s and 5u4s in my day.

--- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
>
> On 08/06/2013 01:40 PM, John Davidson wrote:
>
> > a nice orange blush on the plates. I must have looked upset because my
>
> Anyone -else- ever had an old tube diode give out with that
> "bluish-purple" colour?? (Usually just before a catastrophic arc-over,
> of course. BZZZZT! POP!)
>
> --
> Wes Will
> N9KDY
>
> Join the "Campaign to Trim Out Irrelevant Parts of Previous Posts When
> Replying" in the Kenwood Hybrid E-Mail List. It's only proper
> Netiquette, after all.....
>

43906. Re: TS-820S Load Power

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 12:53:08 UTC
From: w5rkl
Topic: 43840 Message: 43906

Rectifier tubes, excluding the Mercury Vapor Rectifier tubes, that are showing color on the plate(s) can also cause damage to the power transformer.

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "Bill" <paw_paw44036@...> wrote:
>
>
> Yepper, Popped a few of the 5y3s and 5u4s in my day.
>
> --- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@> wrote:
> >
> > On 08/06/2013 01:40 PM, John Davidson wrote:
> >
> > > a nice orange blush on the plates. I must have looked upset because my
> >
> > Anyone -else- ever had an old tube diode give out with that
> > "bluish-purple" colour?? (Usually just before a catastrophic arc-over,
> > of course. BZZZZT! POP!)
> >
> > --
> > Wes Will
> > N9KDY
> >
> > Join the "Campaign to Trim Out Irrelevant Parts of Previous Posts When
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> >
>

43907. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 14:20:27 UTC
From: Terry Wagoner
Topic: 43702 Message: 43907

Bill:

Well not always band switch, but pretty common if missing Cin output at the Counter Mixer board.

I assume your TS530 is a Trio? Not sure when they transitioned to 6146Bs and do not know why. I believe the operating and service manuals of the time showed both S2001A and 6146B finals.

Without a little testing no way to know why output is down. My bet would be combination of things including rf drive being down assuming you are running originally 12BY7A. Easy to test that when you decide there is a need.

If finals cathode emission wasnt down a little on your 33 year old S2201A tubes then it would mean rig must have been used primarily as a receiver all those years. Have to assume yours has seen its share of filament on time. Clearly they dont owe you anything and you will be hard pressed to find any NOS replacements when you decide to return to as new.

Agree nothing to worry about at this time but hopefully you have thought about and procured replacements for when the time comes.

Not likely will get that kind of life out of finals available to us today unless the Chinese can get their act together.

I still see rigs come across the bench with S2001 and S2001A Matsushita Electric Industrial Co. finals from time to time that produce near spec output. Once had one that when I opened PA cage found that one of the S2001 envelopes got so hot it sucked the glass in. Obviously not a tube defect. (QRO mod)

Wish someone would make them again today to same quality standards that Matsushita apparently did.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Bill" <paw_paw44036@...> wrote:
>
> I have a ts530s that had trouble with the display not working on all bands. Also had drop outs on other bands. Cleaning the band switches on the RF board helped for awhile and was acting up again shortly. Traced it to the band switch itself. Moisture had taken it toll from storage of 10 years. Had to disassemble the RF board and the band switch segments and solder all the terminals of the switch as it seems that they had a high resistance on the circuit board. Reassembled everything and has been working great ever since. That was 5 years ago. This rig still has the S2001A finals that it came with 33 years ago and the output is about 85 - 90 watts depending on the band. I know, the book says 100 watts out. Big deal, 10 - 15 watts is not going to make a hill of beans on the other end. If you can hear them, you can work them. If the band conditions are right, you can work the world on 5 watts.

> Bill WD8OSJ
>

43908. SCOPE / METER PROBES FOR SALE.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 15:02:11 UTC
From: nb9g73
Topic: 43908 Message: 43908

I have noticed a lot of chatter about building RF probes on here lately.
I recently found two EICO model "DP" probe kit's,unbuilt.
They are "direct" probe kit's, however the internal PCB has no foil on it, and could easily be adapted for use as an RF or any other style of probe you would like to build up.
One kit is complete in the package, the other is missing the instruction sheet, and ground wire/clip.
I would sell these cheap to members.
Contact me off site if interested.
Thank's.
73
NB9G

43909. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 18:59:10 UTC
From: Bill
Topic: 43702 Message: 43909

Yes, it is a Kenwood TS530S. This rig has seen a few days of hard work as it has been to 7 field day events in the past. It went in to storage because of a mentally ill wife that I had to take care of until she passed. Two years ago I brought this out of storage as I didn't like the way my Ten Tec Jupiter preformed. The Kenwood has always been low in power since the day I bought it. One reason is ME.
I keep the plate current down around 200 ma. That is about 85-90 watts output. I had to repair the RF board as mentioned and it has worked fine until last week. We had some storms got through and we got a power surge here which blew out some light bulbs. The rig got some of it also. I had to replace the antenna relay as it was welded.
Got that fixed and found that I had a very bad hum on transmit audio, but receive was fine. I had to replace the screen caps on the IF board and I am still waiting for the power supply caps to come in. Should be here by Tuesday. I put it back on the air last night and everyone said it sounded fine. Not a whole lot of s-units, but the audio was clean. I did notice that the s-meter does respond as it did, so I will dig a little deeper. Maybe another bad cap. It don't take a lot to destroy 33 year old caps. These old caps were only expected to last 10 -15 years as it was. Love this rig and as long as I can find parts, I will keep it going. I may just order a complete recap kit for it and work it over good.
Bill WD8OSJ

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Bill:
>
> Well not always band switch, but pretty common if missing Cin output at the Counter Mixer board.
>
> I assume your TS530 is a Trio? Not sure when they transitioned to 6146Bs and do not know why. I believe the operating and service manuals of the time showed both S2001A and 6146B finals.
>
> Without a little testing no way to know why output is down. My bet would be combination of things including rf drive being down assuming you are running originally 12BY7A. Easy to test that when you decide there is a need.
>
> If finals cathode emission wasnt down a little on your 33 year old S2201A tubes then it would mean rig must have been used primarily as a receiver all those years. Have to assume yours has seen its share of filament on time. Clearly they dont owe you anything and you will be hard pressed to find any NOS replacements when you decide to return to as new.
>
> Agree nothing to worry about at this time but hopefully you have thought about and procured replacements for when the time comes.
>
> Not likely will get that kind of life out of finals available to us today unless the Chinese can get their act together.
>

> I still see rigs come across the bench with S2001 and S2001A Matsushita Electric Industrial Co. finals from time to time that produce near spec output. Once had one that when I opened PA cage found that one of the S2001 envelopes got so hot it sucked the glass in. Obviously not a tube defect. (QRO mod)
>
> Wish someone would make them again today to same quality standards that Matsushita apparently did.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Bill" <paw_paw44036@> wrote:
> >
> > I have a ts530s that had trouble with the display not working on all bands. Also had drop outs on other bands. Cleaning the band switches on the RF board helped for awhile and was acting up again shortly. Traced it to the band switch itself. Moisture had taken it toll from storage of 10 years. Had to disassemble the RF board and the band switch segments and solder all the terminals of the switch as it seems that they had a high resistance on the circuit board. Reassembled everything and has been working great ever since. That was 5 years ago. This rig still has the S2001A finals that it came with 33 years ago and the output is about 85 - 90 watts depending on the band. I know, the book says 100 watts out. Big deal, 10 - 15 watts is not going to make a hill of beans on the other end. If you can hear them, you can work them. If the band conditions are right, you can work the world on 5 watts.
> > Bill WD8OSJ
> >
>

43910. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 22:54:27 UTC
From: Terry Wagoner
Topic: 43702 Message: 43910

Very lucky didnt lose L41 ant transformer and Q1 RF amp. Sometimes after a surge like that you dont discover all that was hurt in the house for awhile.

Hard to come by original TR relay and pain to unsolder and replace.

Is your Marker signal same level as it was before lightning? Should be very close to S9 on 20 meters.

Might want to look at 9vdc and RF-1 to make sure they are still to spec.

Terry K9TW

43911. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-09 23:03:37 UTC
From: w3drk
Topic: 43702 Message: 43911

I hate to disagree Jim but in my case I spent WAY too much time resolidering everything only to find out that 5 minutes of troubleshooting could have saved me some frustration since my problem turned out to be an open choke in the DG-1. If you haven't already, see 2nd post of this thread.

I realize I'm just splitting hairs...but it apparently isn't ALWAYS poor soldiering. :)

Dieter

--- In TS-520_820_530_830@yahoogroups.com, Jim Showker <jshowker@...> wrote:
>
> Terry,
> Well, I am an experienced DG-1 person, but no expert. I have worked
> on these things until I am blue in the face. We have gotten to the
> point that if they come in working, we do not even open them when doing
> a recap. Disturbing the board at all can lead to problems. If they
> don't work...
>
> IT IS ALWAYS A COLD SOLDER JOINT. Troubleshooting is a waste of
> time, in my opinion. I suppose if you can trace down the problem, it
> might tell you where to do some more soldering. When you look on the
> tops of the boards, some pads appear to have no solder whatsoever. A
> wonder that some of them ever worked at all. I don't know if the holes
> are through plated or what. Resolder everything on top that you can
> get to. This has eventually fixed everyone so far. When you test it,
> be sure to screw the boards down to the case and the case to the
> chassis, as the ground is important.
>
> Jim KE7OAY
>
>
> On 8/7/2013 5:16 AM, Terry Wagoner wrote:
> >
> > First you cannot have 2.6rms rf volts at TP-2. I suspect you are
> > measuring Q3 DC emitter voltage?
> >
> > All TP measurements are RF signal voltages.
> >
> > I have been on side lines hoping an experienced DG-1 person would jump
> > in. Perhaps all on vacation? I am not an expert. I will give you
> > readings from my notes. All measured with Boonton 92E. Can measure
> > with standard RF probe and VTVM/DMM or O-scope and convert to RMS:
> >
> > You need the following inputs to the Counter Mixer board:
> > 1. DC power 14vdc and 5vdc
> > 2. 9vdc diode switching bias voltage for LPF B1-B4 (8.4vdc)

> > 3. Carrier Oscillator CCR
> > 4. VCO Oscillator CVC
> >
> > Suggest you make sure you have correct Carrier Osc input to IF board
> > first. This is commonly mis-adjusted as Service Manual says to set to
> > 50mv. This is wrong. CA-2 should be 300mv. Then adjust for 100mv to
> > 150mv CCR level at Pin 7 Counter Mix board connector.
> >
> > Next make sure you have good VCO level at Pin 1 = 900mv
> >
> > Here are approx RF signal levels (rms) from my notes working backwards
> > from Cin output:
> >
> > 1. Cin Output to the Display board = 1.0v
> > 2. TP-5 Output of low pass filters and input to wide band amplifier =
> > 200mv
> > 3. TP-4 Output of Mixer IC1 adjusted by T3 = 270mv to 300mv
> > 4. TP-3 RF Input to Mixer IC1 = ? I dont see this listed.
> >
> > What I do have is the actual RF input level at Pin 11 of IC-1. Measure
> > Pin 11 to floating ground Pin 4 = 10mv to 30mv of VCO signal. I also
> > have LO input to Pin 5 measured from Pin 5 to Pin 4 = 210mv.
> >
> > 5. TP-2 Carrier Oscillator 7.830 Mhz (LO) = 220mv adjusted by T1/T2.
> > 6. TP-1 1Mhz clock = 200mv (same for CL-1)
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, James Scribner
> > <swpthg@> wrote:
> > >
> > > Thanks Deiter, You are right on as it calls for 0.1v-0.2v and mine
> > measured
> > > 2.60V. The coils T1 & T2 had no effect on the voltage adjustment at
> > all. I
> > > have resoldered so much I started looking for a shorted trace or ?? Am
> > > going to try the first 103 cap in the circuit tomorrow as it acts
> > like it
> > > is high resistance but it's still on board. Would appreciate any
> > thing you
> > > might forward as once I get this voltage down I see no other help in the
> > > manual so far as other voltage specs or adjusting T3 & T4.
> > > Actually what I do know at this stage is the 1 meg crystal is
> > working and
> > > adjusted correctly. I spent most of this evening making sure all
> > volts and
> > > freqs to the mixer connector were present and adjusted to spec from the
> > > radio so I could consintrate on the DG-1 and not keep rechecking radio
> > > specs. Thanks for the response.

> > > 73
> > > Jim
> > >
> > > On Tue, Aug 6, 2013 at 8:48 AM, w3drk <dieter.kedrowitsch@> wrote:
> > >
> > > > **
> > > >
> > > >
> > > > I'm not very familiar with the alignment procedure of the DG-1,
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> > > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, James Scribner <swpthg@>
> > > > wrote:
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> > > > > Ã¢â‚¬â€RE: " I remember reading there was a way to check for
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> > > > > the mixer board."
> > > > > I surely wish someone could publish ALL the correct input
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> > > > > signal levels for the DG-1 mixer and also the complete adjustment
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> > > > > site in particular for 'DG-1' display and came away with the
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> > > > > I started with a DG-1 that was totally inop in 2 separate
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> > > > > second DG-1 works fine on either radio. After weeks of strained
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> > > > > reads 99.000.0. If anyone has or knows of the values I should
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> > > > > > value to be posted here on this site with all of the posts I
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> > > > > here
> > > > > > about the DG-1 in particular.
> > > > > > I would like to commend all who take their time on this Group,
> > good job
> > > > > > guys! Even in the short time I have been a member I have found
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> > > > > to
> > > > > > get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz)
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> > > > > over
> > > > > > several hours. Way below factory spec. Thanks in advance for any
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> > > > > > [Non-text portions of this message have been removed]
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> > > > [Non-text portions of this message have been removed]
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43912. Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 14:56:09 UTC
From: Terry Wagoner
Topic: 43912 Message: 43912

I have had several requests off list to explain how I selected the MOV to provide screen grid protection. I thought I had provided this previously but cant find the message number or anything in the files so here it is. Again must emphasize I have not had anyone with formal EE education validate my methodology.

From experience I can tell you it wont hurt your rig, but cannot guarantee it will provide the protection it is intended for.

Objectives:
1. Limit SG voltage to approx 300vdc in event of tube arc over.
2. Have no MOV clamping action at screen grid voltages encountered in receive mode:

How sized:
1. Measure Screen Grid dc voltage in receive mode.
2. Multiply that value by 10% to allow for 120vac line voltage variations.
3. Add result from 2 to 1.
4. From Littlefuse or other MOV catalogs select Vnom value. This is the dc voltage where the MOV transitions to clamping resistance value under high current. In this case I selected 20vdc
5. Add Vnom (20vdc) to Step 3 results
6. From Littlefuse or other MOV catalog select a MOV that is close to the total VDC arrived at in Step 5.

Note: You will have a choice of Joule ratings. I made no attempt to estimate the joules of energy for assumed fault current. I picked a physical size that was practical and did not consider paralleling MOVs.

My calcs based on measuring Screen Grid voltage on 2 TS-830S radios:
1. 265vdc
2. 265 x 10% = 26.5vdc
3. 265vdc + 26.5vdc = 291.5vdc
4. 20vdc = Vnom
5. 291.5vdc + 20vdc = 311.5vdc

Select a MOV that has approx 310vdc rating.

With this value of MOV connected from Screen Grid to chassis ground there should be no dc current flow with maximum screen grid voltage levels at maximum line voltage variation in receive mode.

Lastly, it is imperative that you have the proper size fuse protecting your radio. If you have never checked it suggest you do that and make sure no one has substituted higher amperage or automotive type fuse.

Remember the 520s and 820 use a 3AG 4 amp and the 530/830 use a 3AG 6 amp due to higher dc input power rating.

Terry K9TW

43913. Re: [TS-520_820_530_830] Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 15:48:34 UTC
From: Dave & Loraine
Topic: 43912 Message: 43913

Hi Terry,

"Remember the 520s and 820 use a 3AG 4 amp and the 530/830 use a 3AG 6 amp due to higher dc input power rating."

My 820 op manual indicates '120V 6A, 220V 4A fuses @ 160W input power CW'.
What's the 830 input power on CW?

Thanks
73 Dave f4eyk

[Non-text portions of this message have been removed]

43914. Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 16:43:12 UTC
From: Terry Wagoner
Topic: 43912 Message: 43914

Dave: Good Catch! So much for priding myself on attention to detail.

You are correct I looked at page 14 Item 9 where it states 3AG 4Amp. I failed to read top of next paragraph. Also, all the Hybrids have labels on the rear panels at the fuse holder that shows fuse amperage rating. I should have remembered that as well.

But hopefully my error wont spoil the message. Make sure you have the correct fuse amperage and fuse type installed.

The point I was trying to make is the glitch resistor, meter diode string, MOV wont do any good if you have placed a "penny in the fuse box." Have to have lived in the 50s with two fuses and 30amp service to the house!

Idea is for these protective devices to shunt the voltage to ground and be able to withstand the current flow to allow fuse time to act and clear the fault. Fuse should be sacrificial element and not radio components. Installing bigger fuses or fuses with different fault clearing characteristics could negate the protection devices action.

The TS530 and TS830 are rated at 180watts dc input CW mode. That is why CW mode Ip level is higher for them.

The TS820S primary wattage is approx max of 292 watts in TX mode. 292/120 = 2.43 amps. I supposes they use a 6 amp primary fuse to allow for initial current surge during power on?

The TS830S primary wattage is approx max of 295 watts in TX mode. 295/120 = 2.46 amps.

I have never placed a clamp-on ammeter on the line cord when key down into dummy load at 100 watts. Might try that one of these days.

So if you look at ac wattage the TS820S and TS830S ratings are very close.

Interesting that one is rated 160 watts dc input and the other 180 watts dc input. I have to think primary limiting factor was the final tube dissipation ratings, but as I have mentioned here before I have never seen a Matsushita S2001A data sheet.

I think 6146B were originally installed in the TS-820S, but dont know that for certain. Have seen them come across bench with S2001A installed. If both tubes were issued with 6146B then I have no idea why they have different CW dc input power ratings. Perhaps the VA rating of the power transformer was slightly less for the TS-820???

Again glad to see someone is reading and thanks for the catch. I appreciate that.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Dave & Loraine" <dave.crooks@...> wrote:
>
> Hi Terry,
>

>
> "Remember the 520s and 820 use a 3AG 4 amp and the 530/830 use a 3AG 6 amp due to higher dc input power rating."
>
> My 820 op manual indicates '120V 6A, 220V 4A fuses @ 160W input power CW'.
> What's the 830 input power on CW?
>
> Thanks
> 73 Dave f4eyk
>
> [Non-text portions of this message have been removed]
>

43915. Re: [TS-520_820_530_830] Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 20:36:07 UTC
From: Dave & Loraine
Topic: 43912 Message: 43915

Terry,
Your focus is solid as ever.

The fuse rating also depends on the mains AC rms voltage applied to the rig.
For TS-820S 220U operation, 292W / 220U = 1.33A.(4 A fuse.)

My 820 transformer is part no.L01-1056-05 from the Service Manual.
Is the 830 use the same part no. / interchangeable?

My 820 has original S2001As and my Op.Manual specifies the same.

Thanks Terry for your interesting info on rig protection.

To All,
A quick heads-up on DeOxit.
Lots of previous posts call for evaporation of the solvent carrier befor energising.
I just 'repaired' a house fan and used DeOxit to free a sticky sintered bearing.
Switched on too early and BANG! Nice explosion and carbon film deposits.
The warnings are real!
This is not a new thread. No responses required.

Cheers
Dave f4eyk

[Non-text portions of this message have been removed]

43916. Re: [TS-520_820_530_830] Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 20:38:16 UTC
From: Dave & Loraine
Topic: 43912 Message: 43916

Sorry Terry. Repeating myself!
Dave

[Non-text portions of this message have been removed]

43917. Adapter from MFJ 434B to Kenwood

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 16:10:04 UTC
From: kevin
Topic: 43917 Message: 43917

Is anyone aware of adapter to connect an MFJ-434B Voice Keyer which has 8 pin Mic connections to the 4 pin Hybrid mic connections?
Kevin/XV2KM

43918. TS 820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 19:36:19 UTC
From: ken_186604
Topic: 22907 Message: 43918

Hello all

Have kenwood ts820s - works fine on all bands - except 10 meters i am only getting 50 watts out . I am thinking alignment - Any other ideas ?

Ken

43919. Re: [TS-520_820_530_830] Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 21:13:35 UTC
From: W5RKL
Topic: 43912 Message: 43919

Dave,

Dave, I hope you, your family, and your house/home were not injured in the explosion. I'm also glad you posted your experience, albeit a bad experience, using DeoXit D5 contact cleaner. We can all learn from this, pay attention, take the time to read the warning labels on the cleaner cans, don't be in a hurry, and adhere to those warnings! As Dave said, the warning labels are there for a purpose!

73
Mike W5RKL

On 8/10/2013 3:36 PM, Dave & Loraine wrote:
>
>
> To All,
> A quick heads-up on DeOxit.
> Lots of previous posts call for evaporation of the solvent carrier
> befor energising.
> I just 'repaired' a house fan and used DeOxit to free a sticky
> sintered bearing.
> Switched on too early and BANG! Nice explosion and carbon film deposits.
> The warnings are real!
> This is not a new thread. No responses required.
>
> Cheers
> Dave f4eyk
>
>
>
>

[Non-text portions of this message have been removed]

43920. Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 21:57:30 UTC
From: Terry Wagoner
Topic: 43912 Message: 43920

Road the tractor and mowed the ranch. Thought about the approx 295 watts @ 120vac draw in Hybrid TX mode as I mowed. Lines not so straight now! 295 watts consumed to make 100 watts?

If I am paying my utility for 300 watts why am I only getting out 100 watts?

I dont think very many of us ever give any thought to what the ac line current to our rigs is or what wattage is being consumed. Hard to remember that these grey boxes are really just energy conversion devices that take 120vac at 50/60 hz from the wall receptacle and converts it to 71rf volts at 14.2 mhz. I guess last time I thought about it was when I needed that 220vac line run to shack for that "Full Gallon" converter device.

Very seldom think about that our Hybrids present approx 300 watt load to our KWH meter on the house. Lets see 100 watts out at 14.2mhz divided by 300 watts in at 60hz = 33.34% efficiency. So the overall conversion cycle efficiency isnt all that good or is it?

We all talk in terms of the PA efficiency in Class AB1 config at approx 55% efficiency. We are talking about the tube converting the HV DC power supply 800vdc at 200ma to RF and not the entire conversion process. 800vdc X 200ma = 160 watts DC input. Where is the rest being consumed or lost at?

Well lots of places come to mind. Pilot lamps, fan motor, power transformer hysteresis, eddy currents, and copper losses, 14 vdc choke losses from same reasons as the transformer, Pi-network losses (probably 3% to 6% depending on the band), 9vdc and 12vdc linear series pass regulator transistors etc. All being lost as heat.

All energy conversion schemes have losses. What about what is on the other end of that 120vac receptacle on the wall. Utility uses Coal, Oil, Natural Gas, and Nuclear fuels in their power plants for energy conversion. They use these fuels as sources of heat to boil water to make steam to turn a turbine to turn a generator. If we think of Coal which is where bulk of our 120vac comes from here is the efficiency cycle.

The maximum theoretical efficiency of a coal fired plant is 61% (Rankine cycle). Energy leaving the plant divided by Coal consumed by the plant = 61%. Actual efficiency is considerably less averaging approx 34%. We have seen that number before. Most is lost as rejected heat from the Steam Turbine Condenser to the river, lake, ocean, or cooling tower. Auxiliary systems like precipitators and scrubbers consume a lot of power.

Coal plants talk in terms of Heat Rate. Average heat rate for coal plants is approx 10,400BTU/KWH and very best plants are around 8,500BTU/KWH. A ton of coal(2000lbs) has approx 20 million BTUs. One pound lump of coal has approx 10,000 BTUs and can produce approx 1KWH of electricity. The utility also sees losses after the energy leaves the plant. These are primarily due to step up and step down transformer losses and the losses in the miles and miles of transmission lines and distribution network. I dont know what the total cycle loss is from lump of coal to your KWH meter on the house is.

So we take this black lump of carbon out of the ground and burn it and convert it to 120vac at 60hz for our Kenwood Hybrids which in turn converts the 120VAC to 71rf volts at 14.2mhz.

We buy 295 watts from the utility to produce 100 watts. Doesnt sound to bad if we say that we can run the rig in TX mode key down for 3 hours on a 1 pound lump of coal. Gives a whole different meaning to placing a brick on the key!

Fun to think about that black lump of coal in one hand and 100 watts of RF out the SO-239 connector in the other. Now think about the gallon of fuel oil or that cu ft of natural gas or those enriched uranium pellets in a fuel rod. I remember when Nuclear power came on line in the 70s and heard that it was going to be too cheap to meter! I dont think that has exactly worked out. Sure seems like a lot of trouble for 34% efficiency, but a lot of fun for us.

Sorry for the tangent. Nearly 40 years in utility business hard to get out of your system.

Terry K9TW

43921. Re: TS 820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-10 22:26:58 UTC
From: Otis McCoy
Topic: 22907 Message: 43921

Did you read the manual

43922. Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 00:26:33 UTC
From: Terry Wagoner
Topic: 43912 Message: 43922

Dave:

The TS-520S and TS-820S have the same power transformer by part number. The TS-530 and TS-830 have different part number L01-8105-15.

I assume that the VA rating for the TS530/TS830 is higher. I have no idea about core dimensions or weight. I believe that the bolt centers are different so the TS530/TS830S transformer will not interchange with the TS520S/TS820S.

Bob Mansker could tell you for certain.

Rough rules of thumb for estimating E/I lamination transformer VA rating includes using 10 watts/pound and (5.58 X Core Area)^2 = VA.

There is a voltage droop test using dummy load power resistors you can also perform that will allow you to estimate the transformer VA. I have never performed it.

I have never compared Core area dimensions or weighed either transformer.

Any time I needed a replacement transformer I would contact Bob Mansker to get an exact replacement and that should not be very often.

Terry K9TW

43923. Re: TS 820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 00:33:51 UTC
From: Terry Wagoner
Topic: 22907 Message: 43923

Did it previously get more output on 10 meters while you owned and operated it?

Try new 12BY7A Driver Tube first and then do a good Coil Pack alignment for starters.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "ken_186604" <k1ken@...> wrote:
>
> Hello all
>
> Have kenwood ts820s - works fine on all bands - except 10 meters i am only getting 50 watts out . I am thinking alignment - Any other ideas ?
>
> Ken
>

43924. Re: TS 820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 01:10:32 UTC
From: roberteleazer@rocketmail.com
Topic: 22907 Message: 43924

Ken:

Just be sure you don't do what I have done - and more than once:

I.E., Tune up on 10M and marvel that the power out is so much lower - but without trying to turn up the carrier level on CW or mike level on SSB.

It is normal to have to turn up the mike or carrier levels on 10M, even though you may not have to touch them on all the lower bands.

I have sworn on here that I only got 20W on 10M - and then had a thought, went back to the rig, turned up the carrier or mike gain and got 100W.

Good luck!

Robert
WB5WSV

--- In TS-520_820_530_830@yahoogroups.com, "ken_186604" <k1ken@...> wrote:
>
> Hello all
>
> Have kenwood ts820s - works fine on all bands - except 10 meters i am only getting 50 watts out . I am thinking alignment - Any other ideas ?
>
> Ken
>

43925. Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 02:23:40 UTC
From: James
Topic: 43925 Message: 43925

I just got a Kenwood TS-520S and and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking.

43926. Kenwood TS-530S Has fallen ill

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 00:02:21 UTC
From: Todd Wilson
Topic: 43926 Message: 43926

My 530 has fallen ill and was wondering if the group could point me in the right direction on
fixing it due to past experiences.

Radio was working perfect with full power. Fired it up the next night and the HV is about half
of what it was sitting around 400volts. Its down on power now.

Any ideas?

Thanks

Todd - N0UNI

43927. Re: [TS-520_820_530_830] Kenwood TS-530S Has fallen ill

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 03:20:23 UTC
From: Don Cunningham
Topic: 43926 Message: 43927

Todd,

I have seen that be one of the high voltage supply capacitors that has
given up the ghost. Let one of the "guru's" check in though, as there
are likely other causes. In either case, be VERY working around the
high voltage supply if you have not done so before. Discharge the
capacitors and observe proper high voltage precautions.
73,
Don, WB5HAK
On 8/10/2013 7:02 PM, Todd Wilson wrote:
> My 530 has fallen ill and was wondering if the group could point me in the right
direction on
> fixing it due to past experiences.
>
> Radio was working perfect with full power. Fired it up the next night and the HV is about
half
> of what it was sitting around 400volts. Its down on power now.
>
> Any ideas?
>
>
> Thanks
>
> Todd - N0UNI
>

43928. Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 04:10:45 UTC
From: Craig Roberts
Topic: 43926 Message: 43928

I have just acquired a very nice AT-230 antenna tuner. As a tuner it works great. As a wattmeter, however, it's not so good. At the 100 watt level (225 mA / dummy load) it reads about 15 watts below my lab calibrated Bird 43 and Drake W-4. This hurts nothing really, but it'd be nice to have the Kenwood reading properly, too.

So, does anyone know the calibration routine for the AT230's bridge? It looks as if you'd null VR1 then adjust VR2 (100W) and VR3 (20W) for proper readings against a known measurement (like my other wattmeters).

Anybody done this?

Thanks and 73,

Craig
W3CRR

[Non-text portions of this message have been removed]

43929. Re: [TS-520_820_530_830] Re: Screen Grid Protection MOV specs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 09:27:11 UTC
From: Dave & Loraine
Topic: 43912 Message: 43929

Terry

Very interesting.
It would be nice to turn back the clock and see how these design decisions were made.
(di-lithium crystals and flux capacitors on eBay)
Thanks again,
Dave f4eyk

[Non-text portions of this message have been removed]

43930. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 11:03:37 UTC
From: Terry Wagoner
Topic: 43925 Message: 43930

Do you have another mic to try?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
> I just got a Kenwood TS-520S and and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking.
>

43931. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 12:24:51 UTC
From: Terry Wagoner
Topic: 43926 Message: 43931

Craig:

I have never seen a service manual for an AT-230. Question comes to mind how would directional coupler get out of cal unless someone had tweaked the trim pots? Hopefully no one attempted to put more than 200 watts thru it.

I think I would take a look at L1 and L2 windings to see if any signs of discoloration or overheating. I would also measure R1 and R2.

If this looks good I would try this:
1. On 14.200 mhz load to 100 watts into 50 ohm dummy load.
2. Place in SWR Forward and adjust Cal control for full scale deflection (cal position). (Just as manual tells you to do)
3. Flip to Reflected power and adjust VR-1 trim pot for zero on the meter (or whatever reflected your Bird is indicating)
4. Now switch to 200 watts and adjust VR-2 for 100 watts indicated (match what your Bird is showing)
5. Now reduce CAR Level pot for 20 watts indicated on the Bird meter.
6. Now switch AT-230 to 20 watts range and adjust VR-3 for 20 watts indicated (match what your Bird is showing).
7. Repeat until AT-230 matches your Bird.

Would be nice to have several other dummy load values to check VSWR. If you have couple of 50 ohm dummy loads can place in parallel or series to get a 2:1 test load.

This is educated guess and not from AT-230 experience. Only follow if no one else can provide you with the Kenwood alignment procedure.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@...> wrote:
>
> I have just acquired a very nice AT-230 antenna tuner. As a tuner it
> works great. As a wattmeter, however, it's not so good. At the 100 watt
> level (225 mA / dummy load) it reads about 15 watts below my lab
> calibrated Bird 43 and Drake W-4. This hurts nothing really, but it'd be
> nice to have the Kenwood reading properly, too.
>
> So, does anyone know the calibration routine for the AT230's bridge? It
> looks as if you'd null VR1 then adjust VR2 (100W) and VR3 (20W) for
> proper readings against a known measurement (like my other wattmeters).
>
> Anybody done this?
>
> Thanks and 73,
>
> Craig

> W3CRR
>
>
>
> [Non-text portions of this message have been removed]
>

43932. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 15:55:58 UTC
From: James
Topic: 43925 Message: 43932

I tried another mic that did not help.
I am going to replace the tube to see id that helps.
Do the final tube have to be matched
Jim
--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Do you have another mic to try?
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> >
> > I just got a Kenwood TS-520S and and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking.
> >
>

43933. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 16:20:34 UTC
From: Terry Wagoner
Topic: 43925 Message: 43933

Jim:

No you dont need matched finals.

No disrespect but the tubes will have nothing to do with having zero output in SSB mode if you have good output in CW mode.

Have you tried running mic gain full CW?

Is VOX turned off?

Do you get any ALC indication (meter switch in ALC position) when you speak into the mic?

Does it have zero output in both LSB and USB?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
> I tried another mic that did not help.
> I am going to replace the tube to see id that helps.
> Do the final tube have to be matched
> Jim
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Do you have another mic to try?
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> > >
> > > I just got a Kenwood TS-520S and and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking.
> > >
> >
>

43934. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 16:58:10 UTC
From: Wes Will
Topic: 43925 Message: 43934

On 08/11/2013 11:20 AM, Terry Wagoner wrote:
> Jim:
>
> No you dont need matched finals.

But just in case you go ahead and swap them anyway (KEEP the original ones, they're very likely still good and you can use them as spares when you get the thing running.) against Terry's advice, they DO need to be neutralized.

If you will dig into the archives of this list, you might notice the name "Terry Wagoner" popping up A LOT on posts, with really REALLY good step-by-step instructions on how to troubleshoot Kenwood Hybrid gear (and to learn to troubleshoot about any electronic device if you apply the principles on your own), followed shortly by a reply, "It works now, thanks!"

And several others here. They're better than good, they are a great resource for these rigs. If you will carefully follow Terry's directions, sending the information back which he asks for AND KEEPING GOOD NOTES for yourself, you will quite probably get a working rig out of the bargain.

Not being snide or rude or disrespectful here, but you've been offered help that you couldn't possibly pay for, be you as rich as Croesus, and an education in hybrid ham gear troubleshooting in the bargain.

REALLY recommend you give his way a try, and see what happens. Nobody wins 'em all, but Terry and this crew have a lot higher batting average than anyone in the majors. And they don't charge for it.

(I'm picking on Terry here particularly, only because - of all the knowledgeable people who help folks repair their rigs on this mailing list - he jumped in first. He isn't the only wizard in here.)

--
Wes Will
N9KDY

43935. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 17:23:05 UTC
From: k5hfg
Topic: 43926 Message: 43935

Craig,
Good afternoon. I have no experience with the AT-230 but I do have a service manual and schematic. I think you should have a copy if you are going to put this piece into service. Terry is pretty well on the mark with the adjustments and I have used that method on various tuner meters over the years so you would be safe doing it that way. It is not much different than the manual instructions and pretty straight forward. I can attempt to scan what I have and put it in the files section if you desire. The manual is only 2 pages and includes the schematic so you know it is not overflowing with info. Let me know if you would like to see it in the files section and I will put it there. If anyone else would like to see it and Craig does not respond, let me know.
73 and enjoy,
Don K5HFG
>
> Craig:
>
> I have never seen a service manual for an AT-230. Question comes to mind how would directional coupler get out of cal unless someone had tweaked the trim pots? Hopefully no one attempted to put more than 200 watts thru it.
>
> I think I would take a look at L1 and L2 windings to see if any signs of discoloration or overheating. I would also measure R1 and R2.
>
> If this looks good I would try this:
> 1. On 14.200 mhz load to 100 watts into 50 ohm dummy load.
> 2. Place in SWR Forward and adjust Cal control for full scale deflection (cal position). (Just as manual tells you to do)
> 3. Flip to Reflected power and adjust VR-1 trim pot for zero on the meter (or whatever reflected your Bird is indicating)
> 4. Now switch to 200 watts and adjust VR-2 for 100 watts indicated (match what your Bird is showing)
> 5. Now reduce CAR Level pot for 20 watts indicated on the Bird meter.
> 6. Now switch AT-230 to 20 watts range and adjust VR-3 for 20 watts indicated (match what your Bird is showing).
> 7. Repeat until AT-230 matches your Bird.
>
> Would be nice to have several other dummy load values to check VSWR. If you have couple of 50 ohm dummy loads can place in parallel or series to get a 2:1 test load.
>
> This is educated guess and not from AT-230 experience. Only follow if no one else can provide you with the Kenwood alignment procedure.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@> wrote:
> >

> > I have just acquired a very nice AT-230 antenna tuner. As a tuner it
> > works great. As a wattmeter, however, it's not so good. At the 100 watt
> > level (225 mA / dummy load) it reads about 15 watts below my lab
> > calibrated Bird 43 and Drake W-4. This hurts nothing really, but it'd be
> > nice to have the Kenwood reading properly, too.
> >
> > So, does anyone know the calibration routine for the AT230's bridge? It
> > looks as if you'd null VR1 then adjust VR2 (100W) and VR3 (20W) for
> > proper readings against a known measurement (like my other wattmeters).
> >
> > Anybody done this?
> >
> > Thanks and 73,
> >
> > Craig
> > W3CRR
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
>

43936. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 17:26:44 UTC
From: Bob Lazarow
Topic: 43925 Message: 43936

James. Not sure if you have been asked this before, and no insult is intended. Do you have a manual,and if so, have you thoroughly read it? Do you have or have access to the proper test equipment? Are you experienced working with LETHAL levels of high voltage?
So, as a first step, ask yourself all of those questions, and then let the group know your answers so that they will know how to help you.

One common theme expressed here constantly by Terry and the other experienced guys is that these are OLD and somewhat fragile radios...so you can do more damage sometimes by the simple act of replacing a tube, using a modern DMM instead of a true VTVM, and, THE WRONG VERSION OF THE MANUAL...it appears that there have been many many typos, bad diagrams, etc.
Hope this helps,

Bob/WA2JAJ

On 8/11/2013 11:55 AM, James wrote:
>
> I tried another mic that did not help.
> I am going to replace the tube to see id that helps.
> Do the final tube have to be matched
> Jim
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@...> wrote:
> >
> > Do you have another mic to try?
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "James" <w0ppa_jd@> wrote:
> > >
> > > I just got a Kenwood TS-520S and and figuring out how to work it.
> I have got the tuning down, I am using K4EAA procudures. The problem
> is that some times I will transmit on SSB and some time it will not. I
> will transmit on CW alway but not on SSB. The meter on the 520 does
> show some movement but the extenal meter I have show nothing. I can
> hear the relay in side clicking.
> > >
> > >
>
>
>

> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6569 - Release Date: 08/11/13
>

[Non-text portions of this message have been removed]

43937. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 17:44:24 UTC
From: Terry Wagoner
Topic: 43925 Message: 43937

Terry is retired with health issues so sitting long hours at computer trying to help folks is way he gives back and exercises his brain and hopefully will stave off "old timers" disease!

Not a wizard just have the interest, the aptitude and been doing this a long time and certainly fallible.

Must admit that having to play "twenty questions" does get a little old at times.

Other options include making video series, compiling notes into a operating and maintenance manual,or posting white papers, procedures, and FAQs on a website. Lots of work to do both.

Real goal is to try to develop new folks to hold up the tent poles when old timers are gone. I guess fellows like me and Mike W5RKL qualify as we came up in the hobby many years ago in a very different manner.

Terry K9TW

43938. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 17:46:11 UTC
From: Terry Wagoner
Topic: 43926 Message: 43938

Maybe Gordon can post the Service Manual on his website as well?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "k5hfg" <dlbowders@...> wrote:
>
> Craig,
> Good afternoon. I have no experience with the AT-230 but I do have a service manual and schematic. I think you should have a copy if you are going to put this piece into service. Terry is pretty well on the mark with the adjustments and I have used that method on various tuner meters over the years so you would be safe doing it that way. It is not much different than the manual instructions and pretty straight forward. I can attempt to scan what I have and put it in the files section if you desire. The manual is only 2 pages and includes the schematic so you know it is not overflowing with info. Let me know if you would like to see it in the files section and I will put it there. If anyone else would like to see it and Craig does not respond, let me know.
> 73 and enjoy,
> Don K5HFG
> >
> > Craig:
> >
> > I have never seen a service manual for an AT-230. Question comes to mind how would directional coupler get out of cal unless someone had tweaked the trim pots? Hopefully no one attempted to put more than 200 watts thru it.
> >
> > I think I would take a look at L1 and L2 windings to see if any signs of discoloration or overheating. I would also measure R1 and R2.
> >
> > If this looks good I would try this:
> > 1. On 14.200 mhz load to 100 watts into 50 ohm dummy load.
> > 2. Place in SWR Forward and adjust Cal control for full scale deflection (cal position). (Just as manual tells you to do)
> > 3. Flip to Reflected power and adjust VR-1 trim pot for zero on the meter (or whatever reflected your Bird is indicating)
> > 4. Now switch to 200 watts and adjust VR-2 for 100 watts indicated (match what your Bird is showing)
> > 5. Now reduce CAR Level pot for 20 watts indicated on the Bird meter.
> > 6. Now switch AT-230 to 20 watts range and adjust VR-3 for 20 watts indicated (match what your Bird is showing).
> > 7. Repeat until AT-230 matches your Bird.
> >
> > Would be nice to have several other dummy load values to check VSWR. If you have couple of 50 ohm dummy loads can place in parallel or series to get a 2:1 test load.
> >
> > This is educated guess and not from AT-230 experience. Only follow if no one else can

provide you with the Kenwood alignment procedure.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@> wrote:
> > >
> > > I have just acquired a very nice AT-230 antenna tuner. As a tuner it
> > > works great. As a wattmeter, however, it's not so good. At the 100 watt
> > > level (225 mA / dummy load) it reads about 15 watts below my lab
> > > calibrated Bird 43 and Drake W-4. This hurts nothing really, but it'd be
> > > nice to have the Kenwood reading properly, too.
> > >
> > > So, does anyone know the calibration routine for the AT230's bridge? It
> > > looks as if you'd null VR1 then adjust VR2 (100W) and VR3 (20W) for
> > > proper readings against a known measurement (like my other wattmeters).
> > >
> > > Anybody done this?
> > >
> > > Thanks and 73,
> > >
> > > Craig
> > > W3CRR
> > >
> > >
> > >
> > > [Non-text portions of this message have been removed]
> > >
> >
>

43939. Re: [TS-520_820_530_830] Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 17:56:47 UTC
From: Wes Will
Topic: 43926 Message: 43939

> see it in the files section and I will put it there. If anyone else
> would like to see it and Craig does not respond, let me know.

If nobody else pops up, I'd love to see it in some archive or other. I see these come up for sale once in awhile and have wondered if getting one (close match for the 520 and other hybrids in looks, on purpose I'd suspect) might not be a bad idea.

The more manuals available, the better, say I. So if it wouldn't be too much trouble, please? Scan it in at the best resolution you can get, and thank you for doing it.

--
Wes Will
N9KDY

43940. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 18:15:10 UTC
From: Terry Wagoner
Topic: 43925 Message: 43940

Bob:

Good counsel. That old Burns adage about "the gift he gave us to see ourselves as others see us" comes to mind.

This forum is a great resource, but 90% of folks who post provide no biographical info so all we can do is form an opinion based on our initial impressions from the read.

Command of the language comes in to play. Grammar, sentence structure, use of correct terminology and technical parlance gives us a clue. In fairness we simply do not know anything about the poster.

It usually takes two or three exchanges and we can pretty much tell about knowledge and experience level.

Regards the Fatal voltages Mike W5RKL and I have discussed our concerns about this and have considered posting a disclaimer regards using any advice provided on the forum.

Having to be wary of hurting feelings is not my strong suit. I would rather hurt feelings than see some one physically hurt or worse.

You also make a good point about these old radios. I never recommend to anyone as a routine step to remove and clean boards or unplug and clean and re-plug every molex connector etc. Very easy to induce new faults in these old radios. Some new faults will be evident if you break something or pull a molex connector off a board and others will be latent (wont show up until some time later perhaps as an intermittent). For example it is easy to crack a trace rocking molex connectors back and forth.

So giving a short bio that includes telling what documentation you have and what test equipment you have available in your initial post would be a big help and appreciated.

73s
Terry K9TW

43941. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 18:29:47 UTC
From: k5hfg
Topic: 43926 Message: 43941

Hi Terry,

I just checked Gordon's site and the operating manual is there. After you inquired I thought I had seen it and went to check. So, I am saved the embarrassment of trying my hand at computer aided graphic arts. Any how, What you told Craig I have done on quite a few old tuners and It works fine. Some of these things get a bit off from sitting for years in non climate controlled atmospheres but most I have reworked were tampered with at some time in there life. I adjust everything to my Bird 43 with proper slug inserted and at least I am looking at the same reading all around. Unless the meter is non responsive to begin with it never amounts to that much difference in my experience. I will have to go back and re-read Craigs post. I can not remember his exact problem.

Everyone should check there TS 530 service manual if they have original KW document. Mine is from 1983 and it includes the VFO 240 and AT 230.

73, Don K5HFG

--- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
>
>
> > see it in the files section and I will put it there. If anyone else
> > would like to see it and Craig does not respond, let me know.
>
> If nobody else pops up, I'd love to see it in some archive or other. I
> see these come up for sale once in awhile and have wondered if getting
> one (close match for the 520 and other hybrids in looks, on purpose I'd
> suspect) might not be a bad idea.
>
> The more manuals available, the better, say I. So if it wouldn't be too
> much trouble, please? Scan it in at the best resolution you can get,
> and thank you for doing it.
>
> --
> Wes Will
> N9KDY
>

43942. Re: [TS-520_820_530_830] Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 18:41:31 UTC
From: <pmarkavage@...>
Topic: 43926 Message: 43942

There is no actual Kenwood AT-230 service manual. I created it from the AT-230 service information that is in the TS-830 manual. This was in response several years ago from some of my customers who picked up AT-230's at flea markets and didn't want to spend the money for the entire TS830 service manual.

Pete, wa2cwa
http://www.manualman.com

On Sun, 11 Aug 2013 17:46:11 -0000 "Terry Wagoner" <wagstw46@...> writes:
> Maybe Gordon can post the Service Manual on his website as well?
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "k5hfg" <dlbowders@...>
> wrote:
> >
> > Craig,
> > Good afternoon. I have no experience with the AT-230 but I do have
> a service manual and schematic. I think you should have a copy if
> you are going to put this piece into service. Terry is pretty well
> on the mark with the adjustments and I have used that method on
> various tuner meters over the years so you would be safe doing it
> that way. It is not much different than the manual instructions and
> pretty straight forward. I can attempt to scan what I have and put
> it in the files section if you desire. The manual is only 2 pages
> and includes the schematic so you know it is not overflowing with
> info. Let me know if you would like to see it in the files section
> and I will put it there. If anyone else would like to see it and
> Craig does not respond, let me know.
> > 73 and enjoy,
> > Don K5HFG
> > >
> > > Craig:
> > >
> > > I have never seen a service manual for an AT-230. Question comes
> to mind how would directional coupler get out of cal unless someone
> had tweaked the trim pots? Hopefully no one attempted to put more
> than 200 watts thru it.
> > >
> > > I think I would take a look at L1 and L2 windings to see if any
> signs of discoloration or overheating. I would also measure R1 and
> R2.
> > >

> > > If this looks good I would try this:
> > > 1. On 14.200 mhz load to 100 watts into 50 ohm dummy load.
> > > 2. Place in SWR Forward and adjust Cal control for full scale
> deflection (cal position). (Just as manual tells you to do)
> > > 3. Flip to Reflected power and adjust VR-1 trim pot for zero on
> the meter (or whatever reflected your Bird is indicating)
> > > 4. Now switch to 200 watts and adjust VR-2 for 100 watts
> indicated (match what your Bird is showing)
> > > 5. Now reduce CAR Level pot for 20 watts indicated on the Bird
> meter.
> > > 6. Now switch AT-230 to 20 watts range and adjust VR-3 for 20
> watts indicated (match what your Bird is showing).
> > > 7. Repeat until AT-230 matches your Bird.
> > >
> > > Would be nice to have several other dummy load values to check
> VSWR. If you have couple of 50 ohm dummy loads can place in parallel
> or series to get a 2:1 test load.
> > >
> > > This is educated guess and not from AT-230 experience. Only
> follow if no one else can provide you with the Kenwood alignment
> procedure.
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, Craig Roberts
> <crgrbrts@> wrote:
> > > >
> > > > I have just acquired a very nice AT-230 antenna tuner. As a
> tuner it
> > > > works great. As a wattmeter, however, it's not so good. At the
> 100 watt
> > > > level (225 mA / dummy load) it reads about 15 watts below my
> lab
> > > > calibrated Bird 43 and Drake W-4. This hurts nothing really,
> but it'd be
> > > > nice to have the Kenwood reading properly, too.
> > > >
> > > > So, does anyone know the calibration routine for the AT230's
> bridge? It
> > > > looks as if you'd null VR1 then adjust VR2 (100W) and VR3
> (20W) for
> > > > proper readings against a known measurement (like my other
> wattmeters).
> > > >
> > > > Anybody done this?
> > > >
> > > > Thanks and 73,
> > > >
> > > > Craig
> > > > W3CRR

> > > >
> > > >
> > > >
> > > > [Non-text portions of this message have been removed]
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> Yahoo! Groups Links
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43943. KENWOOD HYBRID USER NET (August 11th, update)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 19:14:05 UTC
From: mvgilger
Topic: 43943 Message: 43943

The Saturday's net on 40 meter was run by Jimmy, WB2KNR. He had 21 stations checking in under good band conditions. We had 6 new check-in, WA2RVJ, WA1RWN, W4SOH, and K1TSW. Out of those, there was:

4 running TS-520(x)
2 running TS-530(x)
2 running TS-820(x)
4 running TS-830S
1 running TS-900

I was running my TS-940s. The rest were running non hybrids of one model or another.

The Sunday's net on 20 meter we had 11 stations checking in under good band conditions. We had 3 new check-in KD0JQF, N0KAB, and KD0TWV Out of those, there was:

3 running TS-520(x)
0 running TS-530(x)
2 running TS-820(x)
4 running TS-830S

I was running my TS-940s. The rest were running non hybrids of one model or another.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940's, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins

November 2012, Saturday's, net total = 47, Sundays total = 20
December 2012, Saturday's, net total = 74, Sunday's total = 70
January 2013, Saturday's, net total = 93, Sunday's total = 87
February 2013, Saturday's net total = 103, Sundays total = 87
March 2013, Saturday's, net total = 112, Sunday's total =39

April 2013, Saturday's net total = 52, Sunday's total = 29
May 2013, Saturday's net total = 45, Sunday's total = 50
June 2013, Saturday's net total = 30, Sunday's total = 27
July 2013, Saturday's net total = 63, Sunday's total = 41
August 2013, Saturday's net total = 40, Sunday's total = 27 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

43944. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 19:31:20 UTC
From: k5hfg
Topic: 43926 Message: 43944

Thanks Pete,
I uploaded a file with the adjustment info on it from the TS-530 Service Manual. The File service is at max so it would not let me load
any more files. This along with what is on Gordon's web site should give you the info you need, Craig.
Don K5HFG

--- In TS-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> There is no actual Kenwood AT-230 service manual. I created it from the
> AT-230 service information that is in the TS-830 manual. This was in
> response several years ago from some of my customers who picked up
> AT-230's at flea markets and didn't want to spend the money for the
> entire TS830 service manual.
>
> Pete, wa2cwa
> http://www.manualman.com

43945. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 20:02:24 UTC
From: Terry Wagoner
Topic: 43926 Message: 43945

Don:

I knew that Gordon had the Operating manual which just tells you hands off on the wattmeter cal trimmers.

I forgot that the TS-530 Service Manual has the AT-230 in it. I also did not think about swapping the dummy load and input cable connections to do the reverse trimmer adjust.

Some wattmeters with reflected power positions have you disconnect the output coax from the dummy load and make the adjustment with the transmitter output opened ended. That makes you nervous and need to make sure have transmitter tank tuned to resonance. First time I encountered that one I had to think about it for awhile before I got brave enough to try it. Operating your transmitter without a load is something would not want to do for very long time.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "k5hfg" <dlbowders@...> wrote:
>
> Hi Terry,
>
> I just checked Gordon's site and the operating manual is there. After you inquired I thought I had seen it and went to check. So, I am saved the embarrassment of trying my hand at computer aided graphic arts. Any how, What you told Craig I have done on quite a few old tuners and It works fine. Some of these things get a bit off from sitting for years in non climate controlled atmospheres but most I have reworked were tampered with at some time in there life. I adjust everything to my Bird 43 with proper slug inserted and at least I am looking at the same reading all around. Unless the meter is non responsive to begin with it never amounts to that much difference in my experience. I will have to go back and re-read Craigs post. I can not remember his exact problem.
>
> Everyone should check there TS 530 service manual if they have original KW document. Mine is from 1983 and it includes the VFO 240 and AT 230.
>
> 73, Don K5HFG
>
> --- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@> wrote:
> >
> >
> > > see it in the files section and I will put it there. If anyone else
> > > would like to see it and Craig does not respond, let me know.
> >
> > If nobody else pops up, I'd love to see it in some archive or other. I
> > see these come up for sale once in awhile and have wondered if getting
> > one (close match for the 520 and other hybrids in looks, on purpose I'd
> > suspect) might not be a bad idea.

> >
> > The more manuals available, the better, say I. So if it wouldn't be too
> > much trouble, please? Scan it in at the best resolution you can get,
> > and thank you for doing it.
> >
> > --
> > Wes Will
> > N9KDY
> >
>

43946. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 20:22:17 UTC
From: k5hfg
Topic: 43926 Message: 43946

Terry,
Yep, I never do that. Don't trust myself to remember where I am. But,like I said ,Unless the unit has been badly mistreated I never find much adjustment needed. but I like to have every thing I use in my shack calibrated to my known Bird. I even hook them up in tandem with my tuners now and then just to check.(talk about anal!)I could only load the one PDF file into the files section because space was all used up. I think I will send the files to Gordon if he wants to put them in with existing files. I will let him decide.
Don K5HFG

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Don:
>
> I knew that Gordon had the Operating manual which just tells you hands off on the wattmeter cal trimmers.
>
> I forgot that the TS-530 Service Manual has the AT-230 in it. I also did not think about swapping the dummy load and input cable connections to do the reverse trimmer adjust.
>
> Some wattmeters with reflected power positions have you disconnect the output coax from the dummy load and make the adjustment with the transmitter output opened ended. That makes you nervous and need to make sure have transmitter tank tuned to resonance. First time I encountered that one I had to think about it for awhile before I got brave enough to try it. Operating your transmitter without a load is something would not want to do for very long time.
>
> Terry K9TW

43947. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 22:12:15 UTC
From: Terry Wagoner
Topic: 43926 Message: 43947

Don:

No need to load anything as we all have access to AT-230, TS-530 and TS-830 manuals on Gordon N6WK, Ron WB4HFN, and Dick W0NTA websites. I thought you had a Kenwood produced and published AT-230 Service Manual which I had never seen before and that piqued my interest.

Pete cleared that up for us by confirming that none exists.

Thanks
Terry

43948. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 22:38:48 UTC
From: k5hfg
Topic: 43926 Message: 43948

Terry, sorry for the confusion.
Don K5HFG
-- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Don:
>
> No need to load anything as we all have access to AT-230, TS-530 and TS-830 manuals on Gordon N6WK, Ron WB4HFN, and Dick W0NTA websites. I thought you had a Kenwood produced and published AT-230 Service Manual which I had never seen before and that piqued my interest.
>
> Pete cleared that up for us by confirming that none exists.
>
> Thanks
> Terry
>

43949. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 22:39:23 UTC
From: k5hfg
Topic: 43926 Message: 43949

Terry, sorry for the confusion.
Don K5HFG
-- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Don:
>
> No need to load anything as we all have access to AT-230, TS-530 and TS-830 manuals on Gordon N6WK, Ron WB4HFN, and Dick W0NTA websites. I thought you had a Kenwood produced and published AT-230 Service Manual which I had never seen before and that piqued my interest.
>
> Pete cleared that up for us by confirming that none exists.
>
> Thanks
> Terry
>

43950. Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 22:39:35 UTC
From: k5hfg
Topic: 43926 Message: 43950

Terry, sorry for the confusion.
Don K5HFG
-- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Don:
>
> No need to load anything as we all have access to AT-230, TS-530 and TS-830 manuals on Gordon N6WK, Ron WB4HFN, and Dick W0NTA websites. I thought you had a Kenwood produced and published AT-230 Service Manual which I had never seen before and that piqued my interest.
>
> Pete cleared that up for us by confirming that none exists.
>
> Thanks
> Terry
>

43951. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 22:17:36 UTC
From: James
Topic: 43925 Message: 43951

This problem is intemitent when it works my external meter show output but I have not made a contact yet
--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Jim:
>
> No you dont need matched finals.
>
> No disrespect but the tubes will have nothing to do with having zero output in SSB mode if you have good output in CW mode.
>
> Have you tried running mic gain full CW?
Yes that did not help
>
> Is VOX turned off
Yes
>
> Do you get any ALC indication (meter switch in ALC position) when you speak into the mic
No When I key the mic them meter goes to zero
>
> Does it have zero output in both LSB and USB?
Yes

I tried to clean the relay but that did not help

Jim
W0PPA
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> >
> > I tried another mic that did not help.
> > I am going to replace the tube to see id that helps.
> > Do the final tube have to be matched
> > Jim
> > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > >
> > > Do you have another mic to try?
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> > > >
> > > > I just got a Kenwood TS-520S and and figuring out how to work it. I have got the

tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking.
> > > >
> > >
> >
>

43952. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-11 22:23:45 UTC
From: James
Topic: 43925 Message: 43952

--- In TS-520_820_530_830@yahoogroups.com, Bob Lazarow <r_lazarow@...> wrote:
>
> James. Not sure if you have been asked this before, and no insult is
> intended. Do you have a manual,and if so, have you thoroughly read it?
I have the manual scanned by Ward Willats I also have what I asume is the original that came with the rig

> Do you have or have access to the proper test equipment?
No
Are you experienced working with LETHAL levels of high voltage.
No
Can any body direct me to someone in the Minneapolis MN area that can look at my 520?

> So, as a first step, ask yourself all of those questions, and then let
> the group know your answers so that they will know how to help you.
>
> One common theme expressed here constantly by Terry and the other
> experienced guys is that these are OLD and somewhat fragile radios...so
> you can do more damage sometimes by the simple act of replacing a tube,
> using a modern DMM instead of a true VTVM, and, THE WRONG VERSION OF THE
> MANUAL...it appears that there have been many many typos, bad diagrams, etc.
> Hope this helps,
>
> Bob/WA2JAJ
>
>
>
> On 8/11/2013 11:55 AM, James wrote:
> >
> > I tried another mic that did not help.
> > I am going to replace the tube to see id that helps.
> > Do the final tube have to be matched
> > Jim
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> > <wagstw46@> wrote:
> > >
> > > Do you have another mic to try?
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "James" <w0ppa_jd@> wrote:
> > > >
> > > > I just got a Kenwood TS-520S and and figuring out how to work it.

> > I have got the tuning down, I am using K4EAA procudures. The problem
> > is that some times I will transmit on SSB and some time it will not. I
> > will transmit on CW alway but not on SSB. The meter on the 520 does
> > show some movement but the extenal meter I have show nothing. I can
> > hear the relay in side clicking.
> > > >
> > >
> >
> >
> >
> > No virus found in this message.
> > Checked by AVG - www.avg.com <http://www.avg.com>
> > Version: 2013.0.3392 / Virus Database: 3211/6569 - Release Date: 08/11/13
> >
>
>
>
> [Non-text portions of this message have been removed]
>

43953. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 00:05:33 UTC
From: Terry Wagoner
Topic: 43925 Message: 43953

Jim:

Are you saying sometimes you do have rf output in SSB mode displayed on your external wattmeter for a long enough time period that you could make a contact?

So when it is working in SSB and you have coax jumper from rig connected to a dummy load is this what you see:
1. Meter in ALC position
2. Mic Gain at 1200
3. Mode switch either LSB or USB
4. Push the mic PTT and speak into the mic. The meter indicator swings within the black rectangular ALC box printed on the meter face.
5. Your external wattmeter reads approx 25 to 30 watts maximum on voice peaks.

Is this correct?

It would be very good if you have a local club close to you that you could ask if there is an experienced Kenwood or boatanchor transmitter person who could help you. No shame in that at all. Always helps when someone can explain and demonstrate.

Lastly when you said you cleaned the relay do you mean you cleaned both relays and/or swapped them? How did you clean them?

This is beginning to sound like missing ALC bus voltage via the AGL line which is switched by your aux relay. No ALC bus voltage means no TIF amp signal from the IF board. This may not mean much to you now but if you look at block diagram for transmit and read circuit description can see how SSB signal is produced.

Common cause of intermittent operation is AuX relay contacts. Cleaning may not fix it.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
>
> This problem is intemitent when it works my external meter show output but I have not made a contact yet

43954. Re: [TS-520_820_530_830] Re: Calibrating AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 00:30:10 UTC
From: Craig Roberts
Topic: 43926 Message: 43954

Thanks to all. I have downloaded the AT-230 user manual and had forgotten that a section of the 530S manual contains info on the tuner (and external VFO).

At any rate, shortly after I posted my message last night I just went ahead and tweaked the tuner. Piece 'o cake -- just touched up the "do not disturb" trimmers with my dummy load and Bird 43 as a reference. The AT-230 now matches the Bird on all bands, forward and reflected.

The tuner shows no signs of unpleasantness, but a previous owner apparently invaded it at some point as evidenced by the bunged up case screws. Why? Who knows.

Thanks again,

Craig
W3CRR

43955. Abbreviations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 03:56:27 UTC
From: Don D
Topic: 43955 Message: 43955

Terry

Lots of the abbreviation's i know and lots i don't know regarding the connector pins layout on the schematic.
Maybe if you get time you could compile a list of them.
Example,Alc is a easy one,but ones like,mo,me,ss [short stop hi hi] ste,av1.nbi, just to name a few would be nice to know
Glossary definitions for those terms would be handy to reference to

73
Don/Ve2ud

43956. Re: [TS-520_820_530_830] Abbreviations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 05:06:35 UTC
From: Joseph Stiles
Topic: 43955 Message: 43956

Don,

  G'day. I have found it helpful to look at fold-out page 62 of the TS-830S service manual. It lists specific connector numbers and terminals which are specific to the 830...but I have found that the descriptions(abbreviations) seems to be standard usage by Kenwood

   cheers

73 Joe
WB7UQU

From: Don D <ve2ud@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, August 11, 2013 8:56 PM
Subject: [TS-520_820_530_830] Abbreviations

Terry

Lots of the abbreviation's i know and lots i don't know regarding the connector pins layout on the schematic.
Maybe if you get time you could compile a list of them.
Example,Alc is a easy one,but ones like,mo,me,ss [short stop hi hi] ste,av1.nbi, just to name a few would be nice to know
Glossary definitions for those terms would be handy to reference to

73
Don/Ve2ud

[Non-text portions of this message have been removed]

43957. kenwood 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 04:40:03 UTC
From: big_zipper11
Topic: 12761 Message: 43957

Need a 520 and a FT 101E TUNED UP AND ALIGNED. Anyone around echuca.vic?
Please get in touch aT big_zipper11@...

43958. 820 fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 06:22:42 UTC
From: km5wx@bellsouth.net
Topic: 43958 Message: 43958

Hi gang, How often should the fan on my 820 & 530 run? I didn't see anything in the manual. I'm not having any long qso's so maybe the rig isn't hot enough for it to come on. Or should it be running always and isn't. Thanks for the help as usual. Richard KM5WX

43959. Re: [TS-520_820_530_830] 820 fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 11:19:20 UTC
From: Dave & Loraine
Topic: 43958 Message: 43959

Hi Richard,
The fan must run continuously while the POWER switch is ON.
Check the connecting plug.
73 Dave f4eyk

[Non-text portions of this message have been removed]

43960. Re: Abbreviations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 12:12:37 UTC
From: Terry Wagoner
Topic: 43955 Message: 43960

Don:

I have never seen a list published. Your service manual has a page of Schematic Abbreviations that generally describes the terminals but not necessarily the exact definitions that Kenwood had in mind.

If you study this list and the schematic can pretty well figure them out. Some folks may translate them slightly different. For example SS is most likely Stand-by Switch, but nothing wrong with calling it Send Switch.

More important that you understand the abbreviation function.

STE would be Side Tone Enable but I once saw a fellow call is Side Tone Emitter because it grounds the emitters.

MO = Marker Output or Monitor Output (depends on what board/connector)

AV1 = Audio Volume 1 which is the top terminal of the Audio Volume pot but OK to call it Audio Gain pot.

AV2 = The wiper of the Audio Gain pot. I guess translation would be Audio Volume 2.

If you get stuck on any really cryptic ones ask here and someone should be able to help.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Don D" <ve2ud@...> wrote:
>
> Terry
>
> Lots of the abbreviation's i know and lots i don't know regarding the connector pins layout on the schematic.
> Maybe if you get time you could compile a list of them.
> Example,Alc is a easy one,but ones like,mo,me,ss [short stop hi hi] ste,av1.nbi, just to name a few would be nice to know
> Glossary definitions for those terms would be handy to reference to
>
> 73
> Don/Ve2ud
>

43961. Re: 820 fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 12:15:57 UTC
From: Terry Wagoner
Topic: 43958 Message: 43961

Do you think it is not running because you cannot hear it or because you have looked and it is not spinning?

By design the fan is run on reduced voltage so if bushings are free and lubed it runs whisper quiet.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "km5wx@..." <km5wx@...> wrote:
>
> Hi gang, How often should the fan on my 820 & 530 run? I didn't see anything in the manual. I'm not having any long qso's so maybe the rig isn't hot enough for it to come on. Or should it be running always and isn't. Thanks for the help as usual. Richard KM5WX
>

43962. Re: [TS-520_820_530_830] Abbreviations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 12:33:55 UTC
From: Don
Topic: 43955 Message: 43962

HI Joe

Your right Joe,as i did not read the back pages,mainly due to i use the pdf file schematic all the time
as i can blow them up to more easily read it as the eye's are not the greatest anymore.
Guess i should take more time to read the manual front to back,so i don't have egg on my face hi hi
I also could not survive with out a mag light to troubleshoot my rigs.
I can see a airplane 30,000 ft in the air,but i cannot read small print,without glasses and my mag lamp

73
Don/Ve2ud

On 12/08/2013 1:06 AM, Joseph Stiles wrote:
>
> Don,
>
> G'day. I have found it helpful to look at fold-out page 62 of the
> TS-830S service manual. It lists specific connector numbers and
> terminals which are
> specific to the 830...but I have found that the
> descriptions(abbreviations) seems to be standard usage by Kenwood
>
> cheers
>
>
> 73 Joe
> WB7UQU
>
> _____
> From: Don D <ve2ud@... <mailto:ve2ud%40travel-net.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Sunday, August 11, 2013 8:56 PM
> Subject: [TS-520_820_530_830] Abbreviations
>
>
>
> Terry
>
> Lots of the abbreviation's i know and lots i don't know regarding the
> connector pins layout on the schematic.
> Maybe if you get time you could compile a list of them.
> Example,Alc is a easy one,but ones like,mo,me,ss [short stop hi hi]

> ste,av1.nbi, just to name a few would be nice to know
> Glossary definitions for those terms would be handy to reference to
>
> 73
> Don/Ve2ud
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

43963. cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 13:19:00 UTC
From: Craig Roberts
Topic: 43958 Message: 43963

After installing accessory CW filters in my TS-830S, I decided to finish my extensive refurbishing of this fine and fully operational radio with a final cleaning of cracks, crevices, nooks and crannies with the aid of my nifty air compressor. I did this outdoors and, in full sunlight, observed a disturbing sight. Tiny but numerous rivulets of liquid emerged from secret hiding places on my RF Board. Now, I had cleaned the bandswitch contacts with DeoxIT as a first step in the "get it going" stage of the radio's service (it was pretty much dead as delivered). However, I had applied the cleaner sparingly using a tiny brush and a syringe on the individual contacts. I had done no wholesale spraying of the red stuff. Apparently, however, a previous proprietor had showered the board with a contact cleaner of some sort (given its color, seemingly not DeoxIT).

I would like to flush this stuff off the board along with the congealed dust slurry it's formed. I was able to remove some of the mess with compressed air and Q-Tips, but much remains tucked away amongst the densely packed board components. Is there ANY way using ANY agent that would allow me to safely flush the top side of the RF Board while it is in place? Yes, I know I could remove it, soak in in a mild detergent solution, blow dry it and let it sit in the sun for 7 months, but -- honestly -- I hate to disturb something that's working by removing and replacing if there's a safe and efficient alternative.

Has anyone performed such an operation?

Thanks again,

Craig
W3CRR

43964. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 13:27:31 UTC
From: roberteleazer@rocketmail.com
Topic: 43925 Message: 43964

Terry:

We have discussed here the need to rewrite the TS-820 Operating Manual and the Service manual, but each time that ends up sounding suspicioulsy like a lot of work. And as someone who is at least theoretically a professional writer (who would theoretically starve) I can confirm that impression.

Maybe a still useful but much easier task would be to publish a new set of "service bulletins." Take those old Kenwood Service Bulletins, vet and clarify those that that are verified or at least seem reasonable, and add some new ones.

Then direct newcomers asking questions to first look those service bulletins up in the group files and and run through them, even before studying the manual. When I started working on my first TS-520 and my TS-820S I studied the Service Bulletins and implemented some fixes based on them - some of which were not needed. But it was easier to first look at the Service Bulletins than to plough through those confusing manuals, which I got to eventually.

Best Regards,

Robert
WB5WSV

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Terry is retired with health issues so sitting long hours at computer trying to help folks is way he gives back and exercises his brain and hopefully will stave off "old timers" disease!
>
> Not a wizard just have the interest, the aptitude and been doing this a long time and certainly fallible.
>
> Must admit that having to play "twenty questions" does get a little old at times.
>
> Other options include making video series, compiling notes into a operating and maintenance manual,or posting white papers, procedures, and FAQs on a website. Lots of work to do both.
>
> Real goal is to try to develop new folks to hold up the tent poles when old timers are gone. I guess fellows like me and Mike W5RKL qualify as we came up in the hobby many years ago in a very different manner.
>
> Terry K9TW
>

43965. Re: 820 fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 13:50:49 UTC
From: Bob
Topic: 43958 Message: 43965

Very easy to pull off of back panel & clean (be sure power is off)..
The bushings have a small hole for oil, also a felt material inside to hold the oil...
I use Amsoil Synthetic & a small injection needle to oil...
Fan should spin freely when spun with your finger...
DON'T stick your finger into the fan hole as it takes a little time for the bleeder resisters to bleed off the voltage on the finals...
Bob
****

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Do you think it is not running because you cannot hear it or because you have looked and it is not spinning?
>
> By design the fan is run on reduced voltage so if bushings are free and lubed it runs whisper quiet.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "km5wx@" <km5wx@> wrote:
> >
> > Hi gang, How often should the fan on my 820 & 530 run? I didn't see anything in the manual. I'm not having any long qso's so maybe the rig isn't hot enough for it to come on. Or should it be running always and isn't. Thanks for the help as usual. Richard KM5WX
> >
>

43966. Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 14:46:26 UTC
From: Don D
Topic: 43966 Message: 43966

Terry

If you recall i mentioned i was getting a unseen parts radio to use for parts on that Ebay special we were working on[Ebay special on hold for now and more on that later]
I have gotten the parts in from a Ebay seller for the Ebay special as the Hybrid store did not answer my email regarding parts.[think he was doing maintenance on his site?]
I got the parts radio last week and to my surprise it was in real nice condition inside and out.I got the radio for the price of a set of tubes.
The owner had told me it did not transmit very well and he had replaced the coupler,and did the coil adjustments.
He even sent a small box of parts he got from Ken,RK-53 and FR-100 not installed plus a driver tube.
This radio was too nice to become a parts radio,so i fired it up and only found that 40 meters was not working,on transmit and very poor rec.
I removed the driver tube and reinstalled another one and bingo i had a good signal on 40 meters.
When i went to load the rig and hit the send switch the signal would disappear.
I would reinstall the driver tube and i had the signal back,as every time i hit the send switch the signal would disappear on the band i was trying to load,not just 40 meters.
So i am thinking maybe bad solder joints on the driver socket,or a relay problem
I did not realize that the lower and upper side bands relay would not work with the vox gain turned off as i could not hear them click in,so they were fine after i turned it on.
Good way to save wear and tear on the relay if you listen more than operate.
I decided to redo the coils packs[5 times] and they were out of adjustment and to my surprise all bands were working,except ten meters,good rec but little output.
As you say it's nice to have a good working rig to compare to another one.
The maker signal gives me about S7 To S8 compared to my good one that read S9 or better.
The only way i can get output on ten meter[about 40 watts] is to load it in RF meter position only as i have no Alc and little ip reading.
I can peak the rec coils,but not the driver coil as no reading.
Seems to be a common problem as per other posts you have made regarding ten meters
Would the kit Ken sells help,HV-22 as when i test the bus line it drops from 335 Vdc to 282 Vdc with a load on them

73
Don/Ve2ud

43968. Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 17:12:09 UTC
From: roberteleazer@rocketmail.com
Topic: 43958 Message: 43968

Craig:

Well, first, DO NOT USE CRC Electro Motive cleaner for this purpose. It's impressive stuff, but is designed for motors and such. On WWII vintage equipment, it's probably fine; at least, I had no problem with it on BC-348's. On anything later than about 1960 its a death sentence for the radio.

And I would not use WD-40, either. Although it might dissolve the goop, and is designed as a cleaner, it was meant for keeping Atlas missile skins corrosion free, not for electronics.

I'd use CRC QD Electronic Cleaner, or the marine version of it. Some ACE hardware stores and possibly even Wal Mart sells it.

Good luck!

Robert

--- In TS-520_820_530_830@yahoogroups.com, Craig Roberts <crgrbrts@...> wrote:
>
> After installing accessory CW filters in my TS-830S, I decided to finish
> my extensive refurbishing of this fine and fully operational radio with
> a final cleaning of cracks, crevices, nooks and crannies with the aid of
> my nifty air compressor. I did this outdoors and, in full sunlight,
> observed a disturbing sight. Tiny but numerous rivulets of liquid
> emerged from secret hiding places on my RF Board. Now, I had cleaned
> the bandswitch contacts with DeoxIT as a first step in the "get it
> going" stage of the radio's service (it was pretty much dead as
> delivered). However, I had applied the cleaner sparingly using a tiny
> brush and a syringe on the individual contacts. I had done no wholesale
> spraying of the red stuff. Apparently, however, a previous proprietor
> had showered the board with a contact cleaner of some sort (given its
> color, seemingly not DeoxIT).
>
> I would like to flush this stuff off the board along with the congealed
> dust slurry it's formed. I was able to remove some of the mess with
> compressed air and Q-Tips, but much remains tucked away amongst the
> densely packed board components. Is there ANY way using ANY agent that
> would allow me to safely flush the top side of the RF Board while it is
> in place? Yes, I know I could remove it, soak in in a mild detergent
> solution, blow dry it and let it sit in the sun for 7 months, but --
> honestly -- I hate to disturb something that's working by removing and
> replacing if there's a safe and efficient alternative.
>
> Has anyone performed such an operation?
>

> Thanks again,
>
> Craig
> W3CRR
>

43969. Re: [TS-520_820_530_830] Abbreviations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 17:18:27 UTC
From: Joseph Stiles
Topic: 43955 Message: 43969

Don

Glad I could help you out a bit. I use real bright light and a BIG magnifier myself..

  gettin' old sucks!

cheers.............

73 Joe
WB7UQU

From: Don <ve2ud@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 12, 2013 5:33 AM
Subject: Re: [TS-520_820_530_830] Abbreviations

HI Joe

Your right Joe,as i did not read the back pages,mainly due to i use the
pdf file schematic all the time
as i can blow them up to more easily read it as the eye's are not the
greatest anymore.
Guess i should take more time to read the manual front to back,so i
don't have egg on my face hi hi
I also could not survive with out a mag light to troubleshoot my rigs.
I can see a airplane 30,000 ft in the air,but i cannot read small
print,without glasses and my mag lamp

73
Don/Ve2ud

On 12/08/2013 1:06 AM, Joseph Stiles wrote:
>
> Don,
>
> G'day. I have found it helpful to look at fold-out page 62 of the
> TS-830S service manual. It lists specific connector numbers and
> terminals which are
> specific to the 830...but I have found that the
> descriptions(abbreviations) seems to be standard usage by Kenwood
>
> cheers
>
>
> 73 Joe
> WB7UQU

>
> _____
> From: Don D <ve2ud@... <mailto:ve2ud%40travel-net.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Sunday, August 11, 2013 8:56 PM
> Subject: [TS-520_820_530_830] Abbreviations
>
>
>
> Terry
>
> Lots of the abbreviation's i know and lots i don't know regarding the
> connector pins layout on the schematic.
> Maybe if you get time you could compile a list of them.
> Example,Alc is a easy one,but ones like,mo,me,ss [short stop hi hi]
> ste,av1.nbi, just to name a few would be nice to know
> Glossary definitions for those terms would be handy to reference to
>
> 73
> Don/Ve2ud
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43970. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 17:27:19 UTC
From: Terry Wagoner
Topic: 43925 Message: 43970

Robert:

What you suggest is certainly something that is needed in addition to service manual rewrite. Agree a one page bulletin much easier to digest than a service manual.

I always tell new folks to gather all the documentation they can find for their rig and that includes whatever is being presented as a factory service bulletin, mods etc. However I always caution them not to rush off and start performing any of them without coming to this forum and asking especially after reviewing it just doesnt make good sense.

I just hate it when I see things like "If Receiver gain is down or Receiver is dead replace Q1 mosfet on RF board". You will see one line entry after one line entry giving a list of components to replace to correct no receive condition. This isnt troubleshooting. Might be what you get at auto dealership today just put on new parts until it is fixed. No one in right mind would do that with their hybrid. The existing service bulletins abound with that kind of advice.

I wish some of us lived closer and we could form a working group and rewrite the 820 service manual and the service bulletins.

I guess with computer we dont have to be in same room or local.

I wanted to see a service manual that each step started out with very brief description of what the step was intended to accomplish. Then list the required test equipment or alternate means if that gear wasnt available. Then list pre-conditions such as the control settings. Then list the test points, the adjustment points, and the acceptance criteria. Maybe list results in terms of dBm,dBu, Uv etc. Then list any Cautions personal safety or otherwise just before performing a step.Then the performance steps sequence. Then maybe what to do if you dont get expected results.

Probably too much detail. I think that all service manuals start with premise that the tech using them has a certain reading level and a certain knowledge and experience level. Cant teach them how to use a Rf sig gen and step attenuator

Maybe use the matrix format like the TS-530/830 but expand upon it. A good tech writer would be big help once format was established and then couple of experienced TS-820 techs to serve as Subject Matter Experts.

I think agreeing on a format would be first big hurdle.

Maybe you and I could work together to produce a "straw man" to present for critque? Maybe start on page one of the service manual and rewrite it in the TS-830 format? I could provide any corrections that I have in my notes.

Or as you say pick a Service Bulletin (No 21?) and rewrite it?

I am not a procedure writer and not very computer literate. Would serve better as an SME. I have been spoiled by Nuke power plant play script style procedures.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@..." <roberteleazer@...> wrote:
>
> Terry:
>
> We have discussed here the need to rewrite the TS-820 Operating Manual and the Service manual, but each time that ends up sounding suspicioulsy like a lot of work. And as someone who is at least theoretically a professional writer (who would theoretically starve) I can confirm that impression.
>
> Maybe a still useful but much easier task would be to publish a new set of "service bulletins." Take those old Kenwood Service Bulletins, vet and clarify those that that are verified or at least seem reasonable, and add some new ones.
>
> Then direct newcomers asking questions to first look those service bulletins up in the group files and and run through them, even before studying the manual. When I started working on my first TS-520 and my TS-820S I studied the Service Bulletins and implemented some fixes based on them - some of which were not needed. But it was easier to first look at the Service Bulletins than to plough through those confusing manuals, which I got to eventually.
>
> Best Regards,
>
> Robert
> WB5WSV
>
>
>

43971. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 18:17:04 UTC
From: Wes Will
Topic: 43966 Message: 43971

> I got the parts radio last week and to my surprise it was in real nice
> condition inside and out.I got the radio for the price of a set of tubes.

Okay. I finally just gotta ask:

HOW DO YOU ---DO--- THAT????

I keep hearing how so-and-so has nineteen rigs in pristine condition
that they never even use; such-and-such other person got a really sweet
rig for peanuts; or who's-it was given a new-in-the-box gadget by a
little old lady they met on the street; or old-what's-his-name found a
perfect dingus worth a small fortune, in a box at a garage sale for a
dollar, and so on.

HOW DO YOU MANAGE TO DO THAT? AND CAN YOU TEACH ME?????

I look, I browse, I dig around in piles of schmutter looking for usable
bits. I schmooze with other hams, I haunt junk shops, and all I ever
find are pieces, bits, and much-too-broken half-burned JUNK.... For
BRAND-NEW money (which they don't get because I don't HAVE that sort of
expendable cash, and know better than to buy garbage anyway).

I spent <mumble-mumble-too-many!> clams on this 520SE, supposedly in
perfect condition, from what I thought was a reputable local ham, and it
has YET to even power up.

(Eventually, maybe. Had to stop with the radio for a bit, I'm now
working on the V7A Heathkit VTVM, so I can work on my O-scope and signal
genny, so I can work on the 520.... Making the tool to make the tool to
make the tool to fix the other thing is starting to really get me down.
Oh, and my old grid dipper is now hors de combat, too. All the magic
smoke came out last week. It's probably not worth trying to resurrect,
considering the cost and that there are now other, better, options.)

I wish I knew how y'all do it. I truly do.

Sorry, probably sounds like sour grapes. It's truly not.

It's sheer admiration, with a small touch of envy, admittedly.

It has to be some sort of skill, or something, or it wouldn't keep
happening to the same people all the time. (The "nineteen rigs" number
was NOT picked out of the air.)

Me hat's off to you. Hope the new "parts rig" keeps working for another
thirty years for you after you tighten the one solder joint or whatever
is actually wrong with it.

--
Wes Will
N9KDY

43972. Re: [TS-520_820_530_830] Abbreviations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 18:20:07 UTC
From: Don
Topic: 43955 Message: 43972

Joe
I found a local company that can make a glossy schematic for ten bucks[
2x3 or bigger]
Yes getting old does suck as what use to take me five minutes takes me
all day now hi hi

73
Don/Ve2ud

On 12/08/2013 1:18 PM, Joseph Stiles wrote:
>
> Don
>
> Glad I could help you out a bit. I use real bright light and a BIG
> magnifier myself..
>
> gettin' old sucks!
>
> cheers.............
>
>
> 73 Joe
> WB7UQU
>
> _________________________________
> From: Don <ve2ud@... <mailto:ve2ud%40travel-net.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Monday, August 12, 2013 5:33 AM
> Subject: Re: [TS-520_820_530_830] Abbreviations
>
>
>
> HI Joe
>
> Your right Joe,as i did not read the back pages,mainly due to i use the
> pdf file schematic all the time
> as i can blow them up to more easily read it as the eye's are not the
> greatest anymore.
> Guess i should take more time to read the manual front to back,so i
> don't have egg on my face hi hi
> I also could not survive with out a mag light to troubleshoot my rigs.
> I can see a airplane 30,000 ft in the air,but i cannot read small
> print,without glasses and my mag lamp
>

> 73
> Don/Ve2ud
>
> On 12/08/2013 1:06 AM, Joseph Stiles wrote:
> >
> > Don,
> >
> > G'day. I have found it helpful to look at fold-out page 62 of the
> > TS-830S service manual. It lists specific connector numbers and
> > terminals which are
> > specific to the 830...but I have found that the
> > descriptions(abbreviations) seems to be standard usage by Kenwood
> >
> > cheers
> >
> >
> > 73 Joe
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> >
> > _____
> > From: Don D <ve2ud@... <mailto:ve2ud%40travel-net.com>
> <mailto:ve2ud%40travel-net.com>>
> > To: TS-520_820_530_830@yahoogroups.com
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> > <mailto:TS-520_820_530_830%40yahoogroups.com>
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> >
> >
> > Terry
> >
> > Lots of the abbreviation's i know and lots i don't know regarding the
> > connector pins layout on the schematic.
> > Maybe if you get time you could compile a list of them.
> > Example,Alc is a easy one,but ones like,mo,me,ss [short stop hi hi]
> > ste,av1.nbi, just to name a few would be nice to know
> > Glossary definitions for those terms would be handy to reference to
> >
> > 73
> > Don/Ve2ud
> >
> > [Non-text portions of this message have been removed]
> >
> >
>
> [Non-text portions of this message have been removed]
>
> [Non-text portions of this message have been removed]
>

>

[Non-text portions of this message have been removed]

43973. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 18:24:06 UTC
From: richard radke
Topic: 43966 Message: 43973

thanks for the smiles Wes?we've all been there

Rick
W9WS

On Aug 12, 2013, at 1:17 PM, Wes Will <wwill@...> wrote:

>
> > I got the parts radio last week and to my surprise it was in real nice
> > condition inside and out.I got the radio for the price of a set of tubes.
>
> Okay. I finally just gotta ask:
>
> HOW DO YOU ---DO--- THAT????
>
> I keep hearing how so-and-so has nineteen rigs in pristine condition
> that they never even use; such-and-such other person got a really sweet
> rig for peanuts; or who's-it was given a new-in-the-box gadget by a
> little old lady they met on the street; or old-what's-his-name found a
> perfect dingus worth a small fortune, in a box at a garage sale for a
> dollar, and so on.
>
> HOW DO YOU MANAGE TO DO THAT? AND CAN YOU TEACH ME?????
>
> I look, I browse, I dig around in piles of schmutter looking for usable
> bits. I schmooze with other hams, I haunt junk shops, and all I ever
> find are pieces, bits, and much-too-broken half-burned JUNK.... For
> BRAND-NEW money (which they don't get because I don't HAVE that sort of
> expendable cash, and know better than to buy garbage anyway).
>
> I spent <mumble-mumble-too-many!> clams on this 520SE, supposedly in
> perfect condition, from what I thought was a reputable local ham, and it
> has YET to even power up.
>
> (Eventually, maybe. Had to stop with the radio for a bit, I'm now
> working on the V7A Heathkit VTVM, so I can work on my O-scope and signal
> genny, so I can work on the 520.... Making the tool to make the tool to
> make the tool to fix the other thing is starting to really get me down.
> Oh, and my old grid dipper is now hors de combat, too. All the magic
> smoke came out last week. It's probably not worth trying to resurrect,
> considering the cost and that there are now other, better, options.)
>
> I wish I knew how y'all do it. I truly do.
>
> Sorry, probably sounds like sour grapes. It's truly not.
>

> It's sheer admiration, with a small touch of envy, admittedly.
>
> It has to be some sort of skill, or something, or it wouldn't keep
> happening to the same people all the time. (The "nineteen rigs" number
> was NOT picked out of the air.)
>
> Me hat's off to you. Hope the new "parts rig" keeps working for another
> thirty years for you after you tighten the one solder joint or whatever
> is actually wrong with it.
>
> --
> Wes Will
> N9KDY
>

[Non-text portions of this message have been removed]

43974. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 18:40:58 UTC
From: Don
Topic: 43966 Message: 43974

Wes
It's all skill hi hi
I have learned one thing in life is that never rush to buy or overpay
for something as there is always another one
Had a fellow send me a Heathkit HW9 just for the shipping cost as he
could not get it going and all it was,was a diode
Think he paid $150 for it.Told him i fixed it and would he want it back
and he said no.
Just had a ham sell me all his test equipment for a $100,well worth 2k
as he got remarried and sold all his ham stuff.He will be sorry.
Hate to tell you what i paid for a mint TS 830 and matching vfo both
with KB-1deluxe vfo knobs.

If i break even in life i figure i have done well

73
Don/Ve2ud

On 12/08/2013 2:17 PM, Wes Will wrote:
>
>
> > I got the parts radio last week and to my surprise it was in real nice
> > condition inside and out.I got the radio for the price of a set of
> tubes.
>
> Okay. I finally just gotta ask:
>
> HOW DO YOU ---DO--- THAT????
>
> I keep hearing how so-and-so has nineteen rigs in pristine condition
> that they never even use; such-and-such other person got a really sweet
> rig for peanuts; or who's-it was given a new-in-the-box gadget by a
> little old lady they met on the street; or old-what's-his-name found a
> perfect dingus worth a small fortune, in a box at a garage sale for a
> dollar, and so on.
>
> HOW DO YOU MANAGE TO DO THAT? AND CAN YOU TEACH ME?????
>
> I look, I browse, I dig around in piles of schmutter looking for usable
> bits. I schmooze with other hams, I haunt junk shops, and all I ever
> find are pieces, bits, and much-too-broken half-burned JUNK.... For
> BRAND-NEW money (which they don't get because I don't HAVE that sort of
> expendable cash, and know better than to buy garbage anyway).
>
> I spent <mumble-mumble-too-many!> clams on this 520SE, supposedly in
> perfect condition, from what I thought was a reputable local ham, and it

> has YET to even power up.
>
> (Eventually, maybe. Had to stop with the radio for a bit, I'm now
> working on the V7A Heathkit VTVM, so I can work on my O-scope and signal
> genny, so I can work on the 520.... Making the tool to make the tool to
> make the tool to fix the other thing is starting to really get me down.
> Oh, and my old grid dipper is now hors de combat, too. All the magic
> smoke came out last week. It's probably not worth trying to resurrect,
> considering the cost and that there are now other, better, options.)
>
> I wish I knew how y'all do it. I truly do.
>
> Sorry, probably sounds like sour grapes. It's truly not.
>
> It's sheer admiration, with a small touch of envy, admittedly.
>
> It has to be some sort of skill, or something, or it wouldn't keep
> happening to the same people all the time. (The "nineteen rigs" number
> was NOT picked out of the air.)
>
> Me hat's off to you. Hope the new "parts rig" keeps working for another
> thirty years for you after you tighten the one solder joint or whatever
> is actually wrong with it.
>
> --
> Wes Will
> N9KDY
>
>

[Non-text portions of this message have been removed]

43975. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 18:43:12 UTC
From: Craig Roberts
Topic: 43966 Message: 43975

Now, now, Will. It's not skill or even luck that presents certain individuals with widow--down-the-street gifts of late husbands' new-in-the-crate-still-smeared-with-Cosmoline Collins KWS-1s with spare finals. ("I hear you like to tinker with old radios, so you can have Ralph's old thingamabob if you can get it out of the basement...")

It's karma, Will. You -- and I -- were apparently very, very bad people in previous lives.

Craig
W3CRR

[Non-text portions of this message have been removed]

43977. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 18:54:38 UTC
From: n6wk@...
Topic: 43966 Message: 43977

Best deal I ever made was a fellow emailed me several years ago and said
he had a non-working TS-830 to sell me.
Asked if I would pay $175.00 for it with shipping. I said YES!
When it arrived, included was a MC-60 Mic, VFO-230, AT-230 and the
TS-830S. I could NOT believe it!
When I opened up the 830, I found it had ALL the filters installed and
was in pristine condition.
It took very little to get the 830 going and served me well for many years.
Like I said, it was a once in a lifetime deal!

73,
Gordon

On 8/12/2013 11:40 AM, Don wrote:
>
> Wes
> It's all skill hi hi
> I have learned one thing in life is that never rush to buy or overpay
> for something as there is always another one
> Had a fellow send me a Heathkit HW9 just for the shipping cost as he
> could not get it going and all it was,was a diode
> Think he paid $150 for it.Told him i fixed it and would he want it back
> and he said no.
> Just had a ham sell me all his test equipment for a $100,well worth 2k
> as he got remarried and sold all his ham stuff.He will be sorry.
> Hate to tell you what i paid for a mint TS 830 and matching vfo both
> with KB-1deluxe vfo knobs.
>
> If i break even in life i figure i have done well
>
> 73
> Don/Ve2ud
>
> On 12/08/2013 2:17 PM, Wes Will wrote:
> >
> >
> > > I got the parts radio last week and to my surprise it was in real nice
> > > condition inside and out.I got the radio for the price of a set of
> > tubes.
> >
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> >
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> > little old lady they met on the street; or old-what's-his-name found a
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> > dollar, and so on.
> >
> > HOW DO YOU MANAGE TO DO THAT? AND CAN YOU TEACH ME?????
> >
> > I look, I browse, I dig around in piles of schmutter looking for usable
> > bits. I schmooze with other hams, I haunt junk shops, and all I ever
> > find are pieces, bits, and much-too-broken half-burned JUNK.... For
> > BRAND-NEW money (which they don't get because I don't HAVE that sort of
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> > I spent <mumble-mumble-too-many!> clams on this 520SE, supposedly in
> > perfect condition, from what I thought was a reputable local ham, and it
> > has YET to even power up.
> >
> > (Eventually, maybe. Had to stop with the radio for a bit, I'm now
> > working on the V7A Heathkit VTVM, so I can work on my O-scope and signal
> > genny, so I can work on the 520.... Making the tool to make the tool to
> > make the tool to fix the other thing is starting to really get me down.
> > Oh, and my old grid dipper is now hors de combat, too. All the magic
> > smoke came out last week. It's probably not worth trying to resurrect,
> > considering the cost and that there are now other, better, options.)
> >
> > I wish I knew how y'all do it. I truly do.
> >
> > Sorry, probably sounds like sour grapes. It's truly not.
> >
> > It's sheer admiration, with a small touch of envy, admittedly.
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> > happening to the same people all the time. (The "nineteen rigs" number
> > was NOT picked out of the air.)
> >
> > Me hat's off to you. Hope the new "parts rig" keeps working for another
> > thirty years for you after you tighten the one solder joint or whatever
> > is actually wrong with it.
> >
> > --
> > Wes Will
> > N9KDY
> >
> >
>
> [Non-text portions of this message have been removed]
>
>

--

[Non-text portions of this message have been removed]

43978. Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 19:05:05 UTC
From: Don Allen
Topic: 43958 Message: 43978

The best I've found for this application is Techspray Precision V
Plastic-Safe Universal Cleaner. Not inexpensive, but an excellent
commercial cleaner. Techspray's Blue Shower cleaner is also very good,
but not totally 100% safe for all plastics.

I did exactly what you are considering on one of my hybrids, and it came
out perfect with no residue remaining.

73
Don W9CW

> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Craig Roberts
> <crgrbrts@...> wrote:
> >
> > After installing accessory CW filters in my TS-830S, I decided to
> finish
> > my extensive refurbishing of this fine and fully operational radio with
> > a final cleaning of cracks, crevices, nooks and crannies with the
> aid of
> > my nifty air compressor. I did this outdoors and, in full sunlight,
> > observed a disturbing sight. Tiny but numerous rivulets of liquid
> > emerged from secret hiding places on my RF Board. Now, I had cleaned
> > the bandswitch contacts with DeoxIT as a first step in the "get it
> > going" stage of the radio's service (it was pretty much dead as
> > delivered). However, I had applied the cleaner sparingly using a tiny
> > brush and a syringe on the individual contacts. I had done no wholesale
> > spraying of the red stuff. Apparently, however, a previous proprietor
> > had showered the board with a contact cleaner of some sort (given its
> > color, seemingly not DeoxIT).
> >
> > I would like to flush this stuff off the board along with the congealed
> > dust slurry it's formed. I was able to remove some of the mess with
> > compressed air and Q-Tips, but much remains tucked away amongst the
> > densely packed board components. Is there ANY way using ANY agent that
> > would allow me to safely flush the top side of the RF Board while it is
> > in place? Yes, I know I could remove it, soak in in a mild detergent
> > solution, blow dry it and let it sit in the sun for 7 months, but --
> > honestly -- I hate to disturb something that's working by removing and
> > replacing if there's a safe and efficient alternative.
> >
> > Has anyone performed such an operation?
> >
> > Thanks again,
> >
> > Craig

> > W3CRR
> >
>
>

[Non-text portions of this message have been removed]

43979. Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 19:40:21 UTC
From: Craig Roberts
Topic: 43958 Message: 43979

Excellent! Thanks very much for the specific recommendation -- and the pioneering effort, Don.

73!

Craig
W3CRR

43980. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 19:58:05 UTC
From: Les Zwiebel WB6ORZ
Topic: 43966 Message: 43980

Hi Gordon. Nice.
   Have you made parole yet? (hi)
   I once stumbled on a gent opening his car trunk to set up at the fleas. I saw a Collins 32V-2 and Hammarlund HQ-180A in clearly Excellent shape. Helped him unload, and when he quoted me $80 and $50, I (feeling some guilt) asked, "are you sure"? He told me he had a list in the car, so I waited. Producing the list, he said yes, there they are." I did the deal and have cared for and used them, as found, for 15 years.
   Last year I heard a report about a new TS-520S in my neighborhood.
She said it was bought new for the ex, who used it once, to listen for 10 minutes. He never got his ticket, and it had been sitting, covered at her place ever since. Gladly paid the $225. Worked 100% and still does. Only needed VFO exercised. Appears to be Mint.
   (((73)))
   Les

-------- Original message --------
From: n6wk@...
Date: 08/12/2013 11:54 AM (GMT-08:00)
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Parts radio

Best deal I ever made was a fellow emailed me several years ago and said
he had a non-working TS-830 to sell me.
Asked if I would pay $175.00 for it with shipping. I said YES!
When it arrived, included was a MC-60 Mic, VFO-230, AT-230 and the
TS-830S. I could NOT believe it!
When I opened up the 830, I found it had ALL the filters installed and
was in pristine condition.
It took very little to get the 830 going and served me well for many years.
Like I said, it was a once in a lifetime deal!

73,
Gordon

On 8/12/2013 11:40 AM, Don wrote:
>
> Wes
> It's all skill hi hi
> I have learned one thing in life is that never rush to buy or overpay
> for something as there is always another one
> Had a fellow send me a Heathkit HW9 just for the shipping cost as he
> could not get it going and all it was,was a diode
> Think he paid $150 for it.Told him i fixed it and would he want it back
> and he said no.
> Just had a ham sell me all his test equipment for a $100,well worth 2k
> as he got remarried and sold all his ham stuff.He will be sorry.
> Hate to tell you what i paid for a mint TS 830 and matching vfo both

> with KB-1deluxe vfo knobs.
>
> If i break even in life i figure i have done well
>
> 73
> Don/Ve2ud
>
> On 12/08/2013 2:17 PM, Wes Will wrote:
> >
> >
> > > I got the parts radio last week and to my surprise it was in real nice
> > > condition inside and out.I got the radio for the price of a set of
> > tubes.
> >
> > Okay. I finally just gotta ask:
> >
> > HOW DO YOU ---DO--- THAT????
> >
> > I keep hearing how so-and-so has nineteen rigs in pristine condition
> > that they never even use; such-and-such other person got a really sweet
> > rig for peanuts; or who's-it was given a new-in-the-box gadget by a
> > little old lady they met on the street; or old-what's-his-name found a
> > perfect dingus worth a small fortune, in a box at a garage sale for a
> > dollar, and so on.
> >
> > HOW DO YOU MANAGE TO DO THAT? AND CAN YOU TEACH ME?????
> >
> > I look, I browse, I dig around in piles of schmutter looking for usable
> > bits. I schmooze with other hams, I haunt junk shops, and all I ever
> > find are pieces, bits, and much-too-broken half-burned JUNK.... For
> > BRAND-NEW money (which they don't get because I don't HAVE that sort of
> > expendable cash, and know better than to buy garbage anyway).
> >
> > I spent <mumble-mumble-too-many!> clams on this 520SE, supposedly in
> > perfect condition, from what I thought was a reputable local ham, and it
> > has YET to even power up.
> >
> > (Eventually, maybe. Had to stop with the radio for a bit, I'm now
> > working on the V7A Heathkit VTVM, so I can work on my O-scope and signal
> > genny, so I can work on the 520.... Making the tool to make the tool to
> > make the tool to fix the other thing is starting to really get me down.
> > Oh, and my old grid dipper is now hors de combat, too. All the magic
> > smoke came out last week. It's probably not worth trying to resurrect,
> > considering the cost and that there are now other, better, options.)
> >
> > I wish I knew how y'all do it. I truly do.
> >
> > Sorry, probably sounds like sour grapes. It's truly not.
> >
> > It's sheer admiration, with a small touch of envy, admittedly.

> >
> > It has to be some sort of skill, or something, or it wouldn't keep
> > happening to the same people all the time. (The "nineteen rigs" number
> > was NOT picked out of the air.)
> >
> > Me hat's off to you. Hope the new "parts rig" keeps working for another
> > thirty years for you after you tighten the one solder joint or whatever
> > is actually wrong with it.
> >
> > --
> > Wes Will
> > N9KDY
> >
> >
>
> [Non-text portions of this message have been removed]
>
>

--

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43981. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 20:12:01 UTC
From: Craig Roberts
Topic: 43966 Message: 43981

Now see what you've done, Will? These guys are going to torture us with their "...found a mint condition Signal One Mil-Spec in a neighbor's recycling bin..." stories for next eight to ten hours now.

Hrrrumph!

Craig
W3CRR

43982. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 20:31:03 UTC
From: William Houghton
Topic: 43966 Message: 43982

Should I spare you all my Viking Valiant story?

73,
Bill

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 12, 2013 1:12 PM
Subject: Re: [TS-520_820_530_830] Parts radio

Now see what you've done, Will? These guys are going to torture us with their "...found a mint condition Signal One Mil-Spec in a neighbor's recycling bin..." stories for next eight to ten hours now.

Hrrrumph!

Craig
W3CRR

[Non-text portions of this message have been removed]

43983. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 20:34:00 UTC
From: Don
Topic: 43966 Message: 43983

Nice to see some humor on the board for a change
Think i found the problem on my new old parts rig.
I went back to ten meters were i had half the output and no alc reading
As i pushed down hard on the driver tube the watts went up to 90 watts
out and i had a Alc reading[grounding ???]
I do not want to remove the board so i am going to spray some cleaner
into the socket [after it cools down]
and blow it out with a straw as that's all i have on hand hi hi
As now i don't have a parts rig to fix my Ebay special,i am now on the
hunt again,if the price is right.
WTG Don

73
Don/Ve2ud

On 12/08/2013 4:12 PM, Craig Roberts wrote:
>
> Now see what you've done, Will? These guys are going to torture us with
> their "...found a mint condition Signal One Mil-Spec in a neighbor's
> recycling bin..." stories for next eight to ten hours now.
>
> Hrrrumph!
>
> Craig
> W3CRR
>
>

[Non-text portions of this message have been removed]

43984. Re: Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 20:37:46 UTC
From: adrian.langford@ymail.com
Topic: 43966 Message: 43984

Don I had same conundrum of how to peak the 10m driver coil with no ALC reading.

On my 520SE - as with your parts rig - all bands were fine apart from 10m. Inspecting the coil pack I could see the 10m driver ferrite core was deep down in former, not at top where theservice manual says it should be. Once I unscrewed the slug to near top of driver coil forme,r ALC sprang to life.

I now get full scale ALC on all bands with fairly modest carrier level. 10m needs drive cranked up higher, but it's very nearly full scale.

Do a visual on the driver coil to see where the slug sits.

Other suggestion is to install another driver tube. I know you did this to restore 40m but that puzzles me - my understanding is that driver tube 12 BY7A performance fails first at highest frequencies.

73 Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Don D" <ve2ud@...> wrote:
>
> Terry
>
> If you recall i mentioned i was getting a unseen parts radio to use for parts on that Ebay special we were working on[Ebay special on hold for now and more on that later]
> I have gotten the parts in from a Ebay seller for the Ebay special as the Hybrid store did not answer my email regarding parts.[think he was doing maintenance on his site?]
> I got the parts radio last week and to my surprise it was in real nice condition inside and out.I got the radio for the price of a set of tubes.
> The owner had told me it did not transmit very well and he had replaced the coupler,and did the coil adjustments.
> He even sent a small box of parts he got from Ken,RK-53 and FR-100 not installed plus a driver tube.
> This radio was too nice to become a parts radio,so i fired it up and only found that 40 meters was not working,on transmit and very poor rec.
> I removed the driver tube and reinstalled another one and bingo i had a good signal on 40 meters.
> When i went to load the rig and hit the send switch the signal would disappear.
> I would reinstall the driver tube and i had the signal back,as every time i hit the send switch the signal would disappear on the band i was trying to load,not just 40 meters.
> So i am thinking maybe bad solder joints on the driver socket,or a relay problem
> I did not realize that the lower and upper side bands relay would not work with the vox gain turned off as i could not hear them click in,so they were fine after i turned it on.
> Good way to save wear and tear on the relay if you listen more than operate.
> I decided to redo the coils packs[5 times] and they were out of adjustment and to my surprise all bands were working,except ten meters,good rec but little output.
> As you say it's nice to have a good working rig to compare to another one.

> The maker signal gives me about S7 To S8 compared to my good one that read S9 or better.
> The only way i can get output on ten meter[about 40 watts] is to load it in RF meter position only as i have no Alc and little ip reading.
> I can peak the rec coils,but not the driver coil as no reading.
> Seems to be a common problem as per other posts you have made regarding ten meters
> Would the kit Ken sells help,HV-22 as when i test the bus line it drops from 335 Vdc to 282 Vdc with a load on them
>
> 73
> Don/Ve2ud
>

43985. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 20:43:44 UTC
From: Craig Roberts
Topic: 43966 Message: 43985

Unless. like me, you paid $1,750 for it plus shipping from Guam and the "mint condition" Valiant arrived in six separate, unmatching and irreparable pieces with missing power and modulation transformers and the seller turned out to be an untraceable con artist from Nigeria, it would probably be best if you kept your good fortune to yourself, Bill.

Oh -- what the heck. Go ahead (sigh)...

Craig
W3CRR

43986. Re: [TS-520_820_530_830] Re: Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 20:53:21 UTC
From: Don
Topic: 43966 Message: 43986

Hi Adrian
Thanks for your reply
I will indeed check that out too
Something could have happened to the board when he removed and reinstall
the band coupler.
I did have one final tube with the guide broke off the under side of the
tube were the tube fits into the socket.
This is not uncommon for the center plastic guide piece to break off,and
a bit of crazy glue
cures the problem to get it seated back in the socket correctly.
This has nothing to do with the drive problem,but thought i would
mention it as i see no other way to fix it.

73
Don/Ve2ud

On 12/08/2013 4:37 PM, adrian.langford@... wrote:
>
> Don I had same conundrum of how to peak the 10m driver coil with no
> ALC reading.
>
> On my 520SE - as with your parts rig - all bands were fine apart from
> 10m. Inspecting the coil pack I could see the 10m driver ferrite core
> was deep down in former, not at top where theservice manual says it
> should be. Once I unscrewed the slug to near top of driver coil
> forme,r ALC sprang to life.
>
> I now get full scale ALC on all bands with fairly modest carrier
> level. 10m needs drive cranked up higher, but it's very nearly full scale.
>
> Do a visual on the driver coil to see where the slug sits.
>
> Other suggestion is to install another driver tube. I know you did
> this to restore 40m but that puzzles me - my understanding is that
> driver tube 12 BY7A performance fails first at highest frequencies.
>
> 73 Adrian G4IQW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Don D" <ve2ud@...> wrote:
> >
> > Terry
> >
> > If you recall i mentioned i was getting a unseen parts radio to use
> for parts on that Ebay special we were working on[Ebay special on

> hold for now and more on that later]
> > I have gotten the parts in from a Ebay seller for the Ebay special
> as the Hybrid store did not answer my email regarding parts.[think he
> was doing maintenance on his site?]
> > I got the parts radio last week and to my surprise it was in real
> nice condition inside and out.I got the radio for the price of a set
> of tubes.
> > The owner had told me it did not transmit very well and he had
> replaced the coupler,and did the coil adjustments.
> > He even sent a small box of parts he got from Ken,RK-53 and FR-100
> not installed plus a driver tube.
> > This radio was too nice to become a parts radio,so i fired it up and
> only found that 40 meters was not working,on transmit and very poor rec.
> > I removed the driver tube and reinstalled another one and bingo i
> had a good signal on 40 meters.
> > When i went to load the rig and hit the send switch the signal would
> disappear.
> > I would reinstall the driver tube and i had the signal back,as every
> time i hit the send switch the signal would disappear on the band i
> was trying to load,not just 40 meters.
> > So i am thinking maybe bad solder joints on the driver socket,or a
> relay problem
> > I did not realize that the lower and upper side bands relay would
> not work with the vox gain turned off as i could not hear them click
> in,so they were fine after i turned it on.
> > Good way to save wear and tear on the relay if you listen more than
> operate.
> > I decided to redo the coils packs[5 times] and they were out of
> adjustment and to my surprise all bands were working,except ten
> meters,good rec but little output.
> > As you say it's nice to have a good working rig to compare to
> another one.
> > The maker signal gives me about S7 To S8 compared to my good one
> that read S9 or better.
> > The only way i can get output on ten meter[about 40 watts] is to
> load it in RF meter position only as i have no Alc and little ip reading.
> > I can peak the rec coils,but not the driver coil as no reading.
> > Seems to be a common problem as per other posts you have made
> regarding ten meters
> > Would the kit Ken sells help,HV-22 as when i test the bus line it
> drops from 335 Vdc to 282 Vdc with a load on them
> >
> > 73
> > Don/Ve2ud
> >
>
>

[Non-text portions of this message have been removed]

43987. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 21:03:12 UTC
From: Les Zwiebel WB6ORZ
Topic: 43966 Message: 43987

I, for one, love the stories. That's half the fun. Betcha' even the "objectors" probably wud like to hear, although at some point we should probaby limit the posts to the Kenwood hybrids.
   (((73)))
   Les

-------- Original message --------
From: William Houghton <rdrbill@...>
Date: 08/12/2013 1:31 PM (GMT-08:00)
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Parts radio

Should I spare you all my Viking Valiant story?

73,
Bill

_____
From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 12, 2013 1:12 PM
Subject: Re: [TS-520_820_530_830] Parts radio

Now see what you've done, Will? These guys are going to torture us with their "...found a mint condition Signal One Mil-Spec in a neighbor's recycling bin..." stories for next eight to ten hours now.

Hrrrumph!

Craig
W3CRR

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

43988. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 21:05:52 UTC
From: crgrbrts@...
Topic: 43966 Message: 43988

Here's a handy tube socket cleaning tip (if I do say so myself). Go to the dental care aisle of your favorite pharmacy and pick up a package of those tiny nylon "interdental brushes." When moistened with DeoxIT, they are perfect for scrubbing out sockets.

73,
Craig
W3CRR

Sent via BlackBerry by AT&T

43989. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 21:11:44 UTC
From: Don
Topic: 43966 Message: 43989

Love this forum,great tip
Thanks
73
Don/Ve2ud

On 12/08/2013 5:05 PM, crgrbrts@... wrote:
>
> Here's a handy tube socket cleaning tip (if I do say so myself). Go to
> the dental care aisle of your favorite pharmacy and pick up a package
> of those tiny nylon "interdental brushes." When moistened with DeoxIT,
> they are perfect for scrubbing out sockets.
>
> 73,
> Craig
> W3CRR
>
> Sent via BlackBerry by AT&T
>
>

[Non-text portions of this message have been removed]

43990. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 21:23:48 UTC
From: Don
Topic: 43966 Message: 43990

Here's another tip,for circuit board cleaning or what ever as i have found so many use's for them.

Next time you go to the Dentist or hygienist,ask them if they? have any instruments that they use to clean or check your teeth with,that they will be deposing of.

They will put them in their radiation machine to kill all the bacteria,and you are good to go,as after so many uses they just throw them out.

They work great on cleaning and picking around solder joints on your circuit boards,and if you get brave you can try cleaning your own teeth hi hi

73
Don/Ve2ud

On 12/08/2013 5:11 PM, Don wrote:
>
> Love this forum,great tip
> Thanks
> 73
> Don/Ve2ud
>
> On 12/08/2013 5:05 PM, crgrbrts@...
> <mailto:crgrbrts%40verizon.net> wrote:
> >
> > Here's a handy tube socket cleaning tip (if I do say so myself). Go to
> > the dental care aisle of your favorite pharmacy and pick up a package
> > of those tiny nylon "interdental brushes." When moistened with DeoxIT,
> > they are perfect for scrubbing out sockets.
> >
> > 73,
> > Craig
> > W3CRR
> >
> > Sent via BlackBerry by AT&T
> >
> >
>
> [Non-text portions of this message have been removed]
>
>

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43991. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 21:39:13 UTC
From: n6wk@...
Topic: 43966 Message: 43991

Don,
If you remove the AF board, there is a small panel you can remove to
get to the bottom of the RF board.

73,
Gordon
N6WK

On 8/12/2013 1:34 PM, Don wrote:
>
>
> Nice to see some humor on the board for a change
> Think i found the problem on my new old parts rig.
> I went back to ten meters were i had half the output and no alc reading
> As i pushed down hard on the driver tube the watts went up to 90 watts
> out and i had a Alc reading[grounding ???]
> I do not want to remove the board so i am going to spray some cleaner
> into the socket [after it cools down]
> and blow it out with a straw as that's all i have on hand hi hi
> As now i don't have a parts rig to fix my Ebay special,i am now on the
> hunt again,if the price is right.
> WTG Don
>
> 73
> Don/Ve2ud
>
> On 12/08/2013 4:12 PM, Craig Roberts wrote:
> >
> > Now see what you've done, Will? These guys are going to torture us with
> > their "...found a mint condition Signal One Mil-Spec in a neighbor's
> > recycling bin..." stories for next eight to ten hours now.
> >
> > Hrrrumph!
> >
> > Craig
> > W3CRR
> >
> >
>
> [Non-text portions of this message have been removed]
>
>

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43993. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 21:43:43 UTC
From: Don
Topic: 43966 Message: 43993

Thanks Gordon

73's :-)
Don/Ve2ud

On 12/08/2013 5:39 PM, n6wk@... wrote:
>
> Don,
> If you remove the AF board, there is a small panel you can remove to
> get to the bottom of the RF board.
>
> 73,
> Gordon
> N6WK
>
> On 8/12/2013 1:34 PM, Don wrote:
> >
> >
> > Nice to see some humor on the board for a change
> > Think i found the problem on my new old parts rig.
> > I went back to ten meters were i had half the output and no alc reading
> > As i pushed down hard on the driver tube the watts went up to 90 watts
> > out and i had a Alc reading[grounding ???]
> > I do not want to remove the board so i am going to spray some cleaner
> > into the socket [after it cools down]
> > and blow it out with a straw as that's all i have on hand hi hi
> > As now i don't have a parts rig to fix my Ebay special,i am now on the
> > hunt again,if the price is right.
> > WTG Don
> >
> > 73
> > Don/Ve2ud
> >
> > On 12/08/2013 4:12 PM, Craig Roberts wrote:
> > >
> > > Now see what you've done, Will? These guys are going to torture us
> with
> > > their "...found a mint condition Signal One Mil-Spec in a neighbor's
> > > recycling bin..." stories for next eight to ten hours now.
> > >
> > > Hrrrumph!
> > >
> > > Craig
> > > W3CRR
> > >

> > >
> >
> > [Non-text portions of this message have been removed]
> >
> >
>
> --
>
> [Non-text portions of this message have been removed]
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43994. TS-530 Final Compartment Issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 22:36:44 UTC
From: n5xjt@ymail.com
Topic: 43994 Message: 43994

While replacing the cathode and screen resistors in my previously used TS-530 I found the copper enameled wire on theh Final Choke has come unwound about three turns and the end is just hangin loose. Does it attach under the plate cap assembly or just glue back to the coil? If glue back, will "krazy glue work? Also, someone has removed the Earth Plate (the V shaped piece) under the Final Choke. Is this a problem? Thanks for any help you can give.
Joe - N5XJT

43995. RE: [TS-520_820_530_830] cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 22:55:11 UTC
From: fpath fpath
Topic: 43958 Message: 43995

Craig,

Can air is far better and drier in my experience. I remove all my boards and soak them in detergent use sometimes might put it into ultra sonic bath, (depends on board). I usually leave for about an hour, if they are really dirty. Once I remove them I give them a good flick dry and then use canned air.

Now word of caution, do at own risk to your health, I then borrow XYL's hair dryer and blow dry both sides, anything up to 20 minutes, this always works. No matter how I try to avoid XYL temper she always knows I've used it, even if she's been out when I did it. Might have something to do with drying out multiply communtators from prop pitch motors?? Well she got a new hairdryer.

As p[er Ken's site they look like new and you don't have to deal with gummy crap

Dave

VK5PDL

After installing accessory CW filters in my TS-830S, I decided to finish
my extensive refurbishing of this fine and fully operational radio with
a final cleaning of cracks, crevices, nooks and crannies with the aid of
my nifty air compressor. I did this outdoors and, in full sunlight,
observed a disturbing sight. Tiny but numerous rivulets of liquid
emerged from secret hiding places on my RF Board. Now, I had cleaned
the bandswitch contacts with DeoxIT as a first step in the "get it
going" stage of the radio's service (it was pretty much dead as
delivered). However, I had applied the cleaner sparingly using a tiny
brush and a syringe on the individual contacts. I had done no wholesale
spraying of the red stuff. Apparently, however, a previous proprietor
had showered the board with a contact cleaner of some sort (given its
color, seemingly not DeoxIT).

I would like to flush this stuff off the board along with the congealed
dust slurry it's formed. I was able to remove some of the mess with
compressed air and Q-Tips, but much remains tucked away amongst the
densely packed board components. Is there ANY way using ANY agent that
would allow me to safely flush the top side of the RF Board while it is
in place? Yes, I know I could remove it, soak in in a mild detergent
solution, blow dry it and let it sit in the sun for 7 months, but --
honestly -- I hate to disturb something that's working by removing and
replacing if there's a safe and efficient alternative.

Has anyone performed such an operation?

Thanks again,

Craig
W3CRR

[Non-text portions of this message have been removed]

43996. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 22:59:15 UTC
From: Terry Wagoner
Topic: 43925 Message: 43996

Bob:

Another thought came to me.

Probably the easiest and fastest thing to do would be to just make the corrections to the current TS820 Service Manual steps and not completely reformat and rewrite it. Would need some grammer corrections/additions to make more sense out of some of the steps and correct the technical errors and provide missing info.

I would be willing to share any info I have and to serve as an SME and would then try to run the revised procedure in it entirety on my TS-820S before we would make it available.

With what Mark Gilger has collected and my notes and yours and Joes info/experience this might be something we could take on without a lot of work like a complete reformatting and rewrite would take.

Jim Showker also states that he now has a lot of TS820 experience so by now he has had to encountered all the problems and resolved them and marked up the service manual. Perhaps before embarking on this we should ask him if he is planning anytime soon to be offering a revised manual on his website anytime soon. If not perhaps he could provide you with a marked up copy or his notes.

If you like we can take this off the forum to discuss including possibility of revising or creating service bulletins in lieu of the service manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@..." <roberteleazer@...> wrote:
>
> Terry:
>
> We have discussed here the need to rewrite the TS-820 Operating Manual and the Service manual

44000. Re: TS-530 Final Compartment Issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 23:31:42 UTC
From: Terry Wagoner
Topic: 43994 Message: 44000

Are you saying the end is disconnected from top of the plate choke where parasitic suppressors are mounted to top of the ceramic coil form?

If so, that is 900vdc hanging in the air! CAUTION!

Need to unplug the rig and let is set for awhile and then take a alligator jumper lead and discharge the HV filter caps.

You will need to remove the enamel coating and rewrap this lead at the solder lugs and resolder it. Can remove the enamel by using open flame or better is to drag it thru molten puddle of solder while applying some pressure with solder iron tip. That will then remove the varnish and tin the bare copper. Not easy to do unless you remove the choke and do it on the bench.

Can apply some clear nail polish to the top of the winding. Q-dope would be better but I dont think GC makes it anymore. I make my own from melting styrofoam peanuts in acetone, but clear nail polish will be fine.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "n5xjt@..." <n5xjt@...> wrote:
>
> While replacing the cathode and screen resistors in my previously used TS-530 I found the copper enameled wire on theh Final Choke has come unwound about three turns and the end is just hangin loose. Does it attach under the plate cap assembly or just glue back to the coil? If glue back, will "krazy glue work? Also, someone has removed the Earth Plate (the V shaped piece) under the Final Choke. Is this a problem? Thanks for any help you can give.
> Joe - N5XJT
>

44001. Re: TS-530 Final Compartment Issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 23:36:19 UTC
From: Terry Wagoner
Topic: 43994 Message: 44001

I forgot to mention that the "earth plate" is to provide a good rf ground for the metal circumferential shields at base of the 6146 tubes. This metal shield isolates the control grids from RF feedback. It has its own grd pin 8 at the tube socket but the wide copper spring metal strap at base of choke is a more effective RF ground. Rig will run without it, but I would contact Bob Mansker and see if he has one.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Are you saying the end is disconnected from top of the plate choke where parasitic suppressors are mounted to top of the ceramic coil form?
>
> If so, that is 900vdc hanging in the air! CAUTION!
>
> Need to unplug the rig and let is set for awhile and then take a alligator jumper lead and discharge the HV filter caps.
>
> You will need to remove the enamel coating and rewrap this lead at the solder lugs and resolder it. Can remove the enamel by using open flame or better is to drag it thru molten puddle of solder while applying some pressure with solder iron tip. That will then remove the varnish and tin the bare copper. Not easy to do unless you remove the choke and do it on the bench.
>
> Can apply some clear nail polish to the top of the winding. Q-dope would be better but I dont think GC makes it anymore. I make my own from melting styrofoam peanuts in acetone, but clear nail polish will be fine.
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> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "n5xjt@" <n5xjt@> wrote:
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> > While replacing the cathode and screen resistors in my previously used TS-530 I found the copper enameled wire on theh Final Choke has come unwound about three turns and the end is just hangin loose. Does it attach under the plate cap assembly or just glue back to the coil? If glue back, will "krazy glue work? Also, someone has removed the Earth Plate (the V shaped piece) under the Final Choke. Is this a problem? Thanks for any help you can give.
> > Joe - N5XJT
> >
>

44002. Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 23:39:15 UTC
From: john
Topic: 43958 Message: 44002

Dave, absolutely good advice with the xly's hair dryer.....Some years ago in Miami they had Hurrican Andrew which later was labeled a category 5 Hurricane. I worked in management at Sears our retailer at the time. There were 3 stores that got flooded and the tech took 25 electronic registers to a warehouse and used a hair dryer to dry them out. All but one was saved and they worked perfectly once he dried them out. John, K5IRK

--- In TS-520_820_530_830@yahoogroups.com, fpath fpath <fpath@...> wrote:
>
> Craig,
>
>
>
> Can air is far better and drier in my experience. I remove all my boards and soak them in detergent use sometimes might put it into ultra sonic bath, (depends on board). I usually leave for about an hour, if they are really dirty. Once I remove them I give them a good flick dry and then use canned air.
>
>
>
> Now word of caution, do at own risk to your health, I then borrow XYL's hair dryer and blow dry both sides, anything up to 20 minutes, this always works. No matter how I try to avoid XYL temper she always knows I've used it, even if she's been out when I did it. Might have something to do with drying out multiply communtators from prop pitch motors?? Well she got a new hair dryer.
>
>
> As p[er Ken's site they look like new and you don't have to deal with gummy crap
>
>
>
> Dave
>
> VK5PDL
>
>
>
>
>
>
> After installing accessory CW filters in my TS-830S, I decided to finish
> my extensive refurbishing of this fine and fully operational radio with
> a final cleaning of cracks, crevices, nooks and crannies with the aid of
> my nifty air compressor. I did this outdoors and, in full sunlight,
> observed a disturbing sight. Tiny but numerous rivulets of liquid
> emerged from secret hiding places on my RF Board. Now, I had cleaned

> the bandswitch contacts with DeoxIT as a first step in the "get it
> going" stage of the radio's service (it was pretty much dead as
> delivered). However, I had applied the cleaner sparingly using a tiny
> brush and a syringe on the individual contacts. I had done no wholesale
> spraying of the red stuff. Apparently, however, a previous proprietor
> had showered the board with a contact cleaner of some sort (given its
> color, seemingly not DeoxIT).
>
> I would like to flush this stuff off the board along with the congealed
> dust slurry it's formed. I was able to remove some of the mess with
> compressed air and Q-Tips, but much remains tucked away amongst the
> densely packed board components. Is there ANY way using ANY agent that
> would allow me to safely flush the top side of the RF Board while it is
> in place? Yes, I know I could remove it, soak in in a mild detergent
> solution, blow dry it and let it sit in the sun for 7 months, but --
> honestly -- I hate to disturb something that's working by removing and
> replacing if there's a safe and efficient alternative.
>
> Has anyone performed such an operation?
>
> Thanks again,
>
> Craig
> W3CRR
>
>
>
>
>
>
> [Non-text portions of this message have been removed]
>

44003. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-12 23:29:44 UTC
From: James
Topic: 43925 Message: 44003

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Jim:
>
> Are you saying sometimes you do have rf output in SSB mode displayed on your external wattmeter for a long enough time period that you could make a contact?
I have not been able to make a contact. I get intermitent transmition
>
> So when it is working in SSB and you have coax jumper from rig connected to a dummy load is this what you see:
> 1. Meter in ALC position
> 2. Mic Gain at 1200
> 3. Mode switch either LSB or USB
> 4. Push the mic PTT and speak into the mic. The meter indicator swings within the black rectangular ALC box printed on the meter face.
> 5. Your external wattmeter reads approx 25 to 30 watts maximum on voice peaks.
>
> Is this correct?
Right now when I do that the meter goes all the way to the left. My esternal meter shows nothing.

>
> It would be very good if you have a local club close to you that you could ask if there is an experienced Kenwood or boatanchor transmitter person who could help you. No shame in that at all. Always helps when someone can explain and demonstrate.
>
> Lastly when you said you cleaned the relay do you mean you cleaned both relays and/or swapped them? How did you clean them?

I cleaned just the relay on the bottom to the back on the rig. I pulled it out pried off the plasic cover shot it with contact cleaner. Then took some 600 grit emery paper and cleaned the onctacts. The relay does seem to work ok
>
> This is beginning to sound like missing ALC bus voltage via the AGL line which is switched by your aux relay. No ALC bus voltage means no TIF amp signal from the IF board. This may not mean much to you now but if you look at block diagram for transmit and read circuit description can see how SSB signal is produced.
>
> Common cause of intermittent operation is AuX relay contacts. Cleaning may not fix it.
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:

> >
> >
> > This problem is intemitent when it works my external meter show output but I have not made a contact yet
>

44004. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 00:47:44 UTC
From: William Houghton
Topic: 43966 Message: 44004

Okay Les, but its not a Kenwood.

One Sunday morning last fall during the football season I saw a classified ad for a Johnson Valiant xmtr. I called the guy and asked the price. "Free, I just want to get it out of my garage". I programmed the DVR to tape the game and made the 90 min drive from my house. When I arrived I found a transmitter in very nice condition. To my surprise, it wasn't a Valiant but a Valiant II.

From: Les Zwiebel WB6ORZ <wb6orz@...>
To: "TS-520_820_530_830@yahoogroups com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, August 12, 2013 2:03 PM
Subject: Re: [TS-520_820_530_830] Parts radio

I, for one, love the stories. That's half the fun. Betcha' even the "objectors" probably wud like to hear, although at some point we should probaby limit the posts to the Kenwood hybrids.
(((73)))
Les

-------- Original message --------
From: William Houghton <rdrbill@...>
Date: 08/12/2013 1:31 PM (GMT-08:00)
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Parts radio

Should I spare you all my Viking Valiant story?

73,
Bill

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 12, 2013 1:12 PM
Subject: Re: [TS-520_820_530_830] Parts radio

Now see what you've done, Will? These guys are going to torture us with their "...found a mint condition Signal One Mil-Spec in a neighbor's recycling bin..." stories for next eight to ten hours now.

Hrrrumph!

Craig
W3CRR

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44005. Re: TS-530 Final Compartment Issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 00:51:29 UTC
From: n5xjt@ymail.com
Topic: 43994 Message: 44005

Hi Terry,
Thank you for the response. Yes, the end of the enameled wire has become disconnected and is hanging loosely about 3/4 of the way up the choke winding. I was going to scrape the end bare and solder it to the plate cap, e.g., the final tube connection center which screws to the choke top. I think it goes to the center but not sure. your suggestions about how to prepare it and using clear nail polish are MUCH BETTER and I will use them. My question is still, where does the wire end attach? Does it go to the center of the plate cap which screws to the choke? I think it solders to the circular connector from both final tube caps. Is this correct? I will contact Mr. Mansker and see if he has an earth plate. Your advise is much appreciated as this is "new ground" for me.
Thanks Again,
Joe-N5XJT

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I forgot to mention that the "earth plate" is to provide a good rf ground for the metal circumferential shields at base of the 6146 tubes. This metal shield isolates the control grids from RF feedback. It has its own grd pin 8 at the tube socket but the wide copper spring metal strap at base of choke is a more effective RF ground. Rig will run without it, but I would contact Bob Mansker and see if he has one.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Are you saying the end is disconnected from top of the plate choke where parasitic suppressors are mounted to top of the ceramic coil form?
> >
> > If so, that is 900vdc hanging in the air! CAUTION!
> >
> > Need to unplug the rig and let is set for awhile and then take a alligator jumper lead and discharge the HV filter caps.
> >
> > You will need to remove the enamel coating and rewrap this lead at the solder lugs and resolder it. Can remove the enamel by using open flame or better is to drag it thru molten puddle of solder while applying some pressure with solder iron tip. That will then remove the varnish and tin the bare copper. Not easy to do unless you remove the choke and do it on the bench.
> >
> > Can apply some clear nail polish to the top of the winding. Q-dope would be better but I dont think GC makes it anymore. I make my own from melting styrofoam peanuts in acetone, but clear nail polish will be fine.
> >
> > Terry K9TW
> >

> > --- In TS-520_820_530_830@yahoogroups.com, "n5xjt@" <n5xjt@> wrote:
> > >
> > > While replacing the cathode and screen resistors in my previously used TS-530 I found the copper enameled wire on theh Final Choke has come unwound about three turns and the end is just hangin loose. Does it attach under the plate cap assembly or just glue back to the coil? If glue back, will "krazy glue work? Also, someone has removed the Earth Plate (the V shaped piece) under the Final Choke. Is this a problem? Thanks for any help you can give.
> > > Joe - N5XJT
> > >
> >
>

44006. 8298 tube in Kenwood hybrids?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 01:26:04 UTC
From: Craig Roberts
Topic: 43994 Message: 44006

Has anyone tried a type 8298 ("ruggedized" 6146A) in his 530S or 830S?

Anything untoward occur?

Thanks,

Craig
W3CRR

44007. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 01:31:27 UTC
From: Terry Wagoner
Topic: 43925 Message: 44007

OK it sounds like you cleaned the Antenna TR relay. This relay would not cause no ALC indication when trying to peak the Drive control.

You need to clean the Aux Relay on top side of rig to the left of the black power transformer. It is under the VOX circuit board. Remove mounting screws and tip board up to access the relay.

I would clean it by wetting pieces of printer or copier paper strips with Deoxit contact cleaner and pulling the paper through the contacts (both the normally closed and the normally open contacts need to be cleaned) while applying light pressure to the movable armature. You should see black streaks on the paper. Then blow out with canned air.

I would not clean with emery paper. Emery particles are conductive. If you want to file the contacts you really need to use a diamond burnishing tool. GC Electronics makes them and MCM Electronics carries them.

Again I hope you are aware of the shock hazards in this radio and are doing all this work under the hood with rig unplugged and left standing for some time to discharge filter caps.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Jim:
> >
> > Are you saying sometimes you do have rf output in SSB mode displayed on your external wattmeter for a long enough time period that you could make a contact?
> I have not been able to make a contact. I get intermitent transmition
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> > So when it is working in SSB and you have coax jumper from rig connected to a dummy load is this what you see:
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> > Terry K9TW
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44008. Re: TS-530 Final Compartment Issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 01:43:28 UTC
From: Terry Wagoner
Topic: 43994 Message: 44008

Joe:

It can go to either solder lug on either side of center. Not critical.

Should have solder lugs on each side that the ears have not been bent over. A u-shaped channel exists where the resistor lead of each parasitic suppressor has been soldered. Reconnect the end of the choke winding where ever it will reach.

While you are there look at the soldering of each suppressor. Take a gentle tug on each resistor lead. Sometimes the resistor lead will pull right out of the solder and leave a perfect round hole. The solder will look sublimated ie greyish in color and not nice shiny silver. It is best to remove old solder and apply new if you find this condition.

Also while there take a look at the bypass capacitor and small right angle VHF choke at the base of the main plate choke. See if any discoloration or even the capacitor body can be split.

Ken K4EAA and Jim Hybrid Restore sell rebuild kits.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "n5xjt@..." <n5xjt@...> wrote:
>
> Hi Terry,
> Thank you for the response. Yes, the end of the enameled wire has become disconnected and is hanging loosely about 3/4 of the way up the choke winding. I was going to scrape the end bare and solder it to the plate cap, e.g., the final tube connection center which screws to the choke top. I think it goes to the center but not sure. your suggestions about how to prepare it and using clear nail polish are MUCH BETTER and I will use them. My question is still, where does the wire end attach? Does it go to the center of the plate cap which screws to the choke? I think it solders to the circular connector from both final tube caps. Is this correct? I will contact Mr. Mansker and see if he has an earth plate. Your advise is much appreciated as this is "new ground" for me.
> Thanks Again,
> Joe-N5XJT
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> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
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> > I forgot to mention that the "earth plate" is to provide a good rf ground for the metal circumferential shields at base of the 6146 tubes. This metal shield isolates the control grids from RF feedback. It has its own grd pin 8 at the tube socket but the wide copper spring metal strap at base of choke is a more effective RF ground. Rig will run without it, but I would contact Bob Mansker and see if he has one.
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> > >
> > > Terry K9TW
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> > > --- In TS-520_820_530_830@yahoogroups.com, "n5xjt@" <n5xjt@> wrote:
> > > >
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> > > > Joe - N5XJT
> > > >
> > >
> >
>

44009. RE: [TS-520_820_530_830] Re : cleaning PCBs in place. CANNED AIR: BE CAREFUL

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 03:25:11 UTC
From: <andrew@...>
Topic: 44009 Message: 44009

To the group, some GREAT ideas have been posted.

As a reminder, CANNED AIR IS NOT AIR, it is usually canned freon. The chemical is TOXIC and acts like cyanide gas. Oder-less, tasteless, colorless and will NOT make YOU SICK. It will KILL you.

ALWAYS USE this stuff in a well ventilated space.

My son was cleaning a computer with CANNED AIR in IRAQ, Camp Ramadi, 6 years ago this month. He was a communication specialist. Two armed guards.

My son is buried in Arlington National Cemetery. Because of CANNED AIR and not being in an open space while cleaning the PC. A tragic accident. http://wmsinc.org/

Be careful guys.

Andrew Schneider, N7EBG
C 801-529-3033
andrew@...

-------- Original Message --------
Subject: [TS-520_820_530_830] Re: cleaning PCBs in place.
From: "john" <jmlcs2000@...>
Date: Mon, August 12, 2013 5:39 pm
To: TS-520_820_530_830@yahoogroups.com

Dave, absolutely good advice with the xly's hair dryer.....Some years ago in Miami they had Hurrican Andrew which later was labeled a category 5 Hurricane. I worked in management at Sears our retailer at the time. There were 3 stores that got flooded and the tech took 25 electronic registers to a warehouse and used a hair dryer to dry them out. All but one was saved and they worked perfectly once he dried them out. John, K5IRK

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> Craig,
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they are really dirty. Once I remove them I give them a good flick dry
and then use canned air.
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> Now word of caution, do at own risk to your health, I then borrow
XYL's hair dryer and blow dry both sides, anything up to 20 minutes,
this always works. No matter how I try to avoid XYL temper she always
knows I've used it, even if she's been out when I did it. Might have
something to do with drying out multiply communtators from prop pitch
motors?? Well she got a new hair dryer.
>
>
> As p[er Ken's site they look like new and you don't have to deal with
gummy crap
>
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> Dave
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> my nifty air compressor. I did this outdoors and, in full sunlight,
> observed a disturbing sight. Tiny but numerous rivulets of liquid
> emerged from secret hiding places on my RF Board. Now, I had cleaned
> the bandswitch contacts with DeoxIT as a first step in the "get it
> going" stage of the radio's service (it was pretty much dead as
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> brush and a syringe on the individual contacts. I had done no
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> had showered the board with a contact cleaner of some sort (given its
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> compressed air and Q-Tips, but much remains tucked away amongst the
> densely packed board components. Is there ANY way using ANY agent

that
> would allow me to safely flush the top side of the RF Board while it
is
> in place? Yes, I know I could remove it, soak in in a mild detergent
> solution, blow dry it and let it sit in the sun for 7 months, but --
> honestly -- I hate to disturb something that's working by removing
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> replacing if there's a safe and efficient alternative.
>
> Has anyone performed such an operation?
>
> Thanks again,
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> Craig
> W3CRR
>
>
>
>
>
>
> [Non-text portions of this message have been removed]
>

44010. Re: [TS-520_820_530_830] 8298 tube in Kenwood hybrids?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 07:05:50 UTC
From: Young Kim
Topic: 43994 Message: 44010

Hi,
The 6146A and 8298 has a slightly lower plate dissipation to the 8298A, 6146B and S-2001, it works very well for SSB and CW.
So I did not have any problems at all during the operation.
Best 73's.
Young
K6hm

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 12, 2013 6:26 PM
Subject: [TS-520_820_530_830] 8298 tube in Kenwood hybrids?

Has anyone tried a type 8298 ("ruggedized" 6146A) in his 530S or 830S?

Anything untoward occur?

Thanks,

Craig
W3CRR

[Non-text portions of this message have been removed]

44011. YG-455C vs. YG455C1 filters

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 16:21:11 UTC
From: Craig Roberts
Topic: 43994 Message: 44011

I am attempting to outfit my TS-830S with an original "Gold Line" filter lineup. The pair of SSB filters are already present, of course, and I have a YK-88C on hand. What I need now is the YG-455C. I know that Inrad sells a compatible can, but I also see occasional (and less expensive) listings for Kenwood/Trio YK 88C1 devices. They look as if they might be YG-455C filters mounted on a plug-in adapter to fit the later model Kenwoods, meanin gthat I could remove teh filter from the board and have myself the 455 KHz filter I need for my 830S.

Is this so, or is the YG-455C1 a different animal altogether?

I am not dissing Inrad in any way, mind you. I have outfitted a scary number of my old Drakes and Ten Tecs and Heathkits with them and they are superb filters. I am just trying to save some bucks and maintain originality, for whatever that's worth.

Thanks again,

Craig

W3CRR

44012. Re: [TS-520_820_530_830] 8298 tube in Kenwood hybrids?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 16:32:52 UTC
From: Craig Roberts
Topic: 43994 Message: 44012

Thanks very much, Young. That's good news. 8298s (and 6146As) seem to be considerably less expensive than domestically produced 6146Bs and more readily available, too. I would think the effect of a handful of fewer watts output would be negligible and a linear could stil be driven nicely, if desired.

Although --- I must say that I am pleased with a bonus achieved last night by installing new HV caps in my TS-530S. The output power increased by about 5 watts or more (108 vs. 100 at 225 mA on 20 meters, for instance). Again, there's no practical difference on air, but it speaks to the same, juvenile part of me that demanded that I ride a 193 hp Superbike rather than the more sensible 650cc commuter machine my wife owns.

I think what I'll do with this output wattage "bump up" is back off my plate current to 200 mA and baby the finals a bit more.

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

44013. ANSWERED YG-455C vs. YG455C1 filters

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-13 20:08:31 UTC
From: Craig Roberts
Topic: 43994 Message: 44013

Oh, well...

Data kindly sent from one of our list buddies indicates that the YG-455C
and YG-455C-1 have differing center frequencies.

I guess it's back to my friends at Inrad, eh?

73,

Craig
W3CRR

44015. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 01:04:59 UTC
From: James
Topic: 43925 Message: 44015

If I replace the 12BY7A tube do I have to do the neutralization?
I did switch the two relays out and that did not help.
Jim D

44016. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 02:35:39 UTC
From: Don
Topic: 43925 Message: 44016

No

Don/Ve2ud

On 13/08/2013 9:04 PM, James wrote:
>
>
>
> If I replace the 12BY7A tube do I have to do the neutralization?
> I did switch the two relays out and that did not help.
> Jim D
>
>

[Non-text portions of this message have been removed]

44017. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 03:33:09 UTC
From: Don D
Topic: 43925 Message: 44017

Jim

This is from http://www.k4eaa.com/faq.htm site

Kenwood Hybrid Transceiver FAQ

Do I have to perform any alignment after changing the driver tube?

Replacing the driver tube changes tuning enough that the rig can usually benefit from a realignment of the RF board. Different tube capacitances will shift the tuning on the Rx mixer and Tx driver stages. It's usually not severe , and in worst case you will notice that the DRIVE peaking on receive doesn't match the DRIVE tuning for maximum ALC. A realignment will correct that, and line up the receiver preselector with the transmitter drive peaking once again.

To check if you need an alignment, select a Band and Frequency (tune in a calibrator signal) of interest, and then don't change either during the test. Turn on your calibrator, and peak the S-Meter with the DRIVE control. Then, with the rig in TUNE Mode, flip the send switch and peak the ALC indication. If the drive control is in different positions for Rx and Tx, then go back and check your calibrator signal in receive, and see how many S-units your receiver has been degraded. Your judgment will determine if it is worth going through an RF board alignment.

Don/Ve2ud

--- In TS-520_820_530_830@yahoogroups.com, Don <ve2ud@...> wrote:
>
>
> No
>
> Don/Ve2ud
>
>
> On 13/08/2013 9:04 PM, James wrote:
> >
> >
> >
> > If I replace the 12BY7A tube do I have to do the neutralization?
> > I did switch the two relays out and that did not help.
> > Jim D
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44018. TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 12:02:08 UTC
From: WL
Topic: 44018 Message: 44018

Gentlemen,
Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly new (2008) to the hobby. I am enjoying learning to repair these Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am in the process of replacing the cathode resistors on an 830S belonging to a friend of mine. The resistor replacemnet is no issue but while looking the radio over, I found the clear pointer on the plate capacitor control to be reversed with the raised portion of the clear pointer facing aft towards the radio face. My friend told me that while attempting to tune up on 20m he could only find a slight dip in the 80m postion of the scale and at that point the main fuse,and the cathode resistors I assume, failed. With the rotor completely unmeshed the clear pointer is indicating 15m. Is this approximately correct? Since the pointer was installed backwards I am suspecting that it could also be 180 degrees out of position. Is this a valid assumption? I could compare it to my 830S, which I may eventually end up doing, but before I take it out of the circuit and take it apart for visual comparison I thought I'd ask if any of you know off hand approximately where the clear pointer should be with the rotor completely unmeshed, or fully meshed for that matter. Looking forward for your assistance.
73,
Butch Lewis
KØPSA

44019. Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 12:43:23 UTC
From: W5RKL
Topic: 44018 Message: 44019

Butch,

I could be wrong but this sounds a lot like a broken/cracked band switch coupler between the long band switch shaft and the band switch wafer assembly inside the final amplifier enclosure.

Do NOT loosen and/or remove the band switch knob on the front panel!!

To check the coupler, disconnect all power, allow the capacitors in the 830 to discharge to zero, then remove the 830 from it's cabinet (top and bottom).

Place the 830 up right with the front panel facing "your left".

Remove the top cover on the final amplifier enclosure.

Remove the 6146 tube closest to the forward portion of the final enclosure. This will allow you to look closely at the band switch coupler to see if it is broken/cracked.

If the coupler is cracked/broken, you can order a replacement from Ken, K4EAA, at his website

k4eaa.com

If the coupler is in fact broken/cracked and you can order a replacement from Ken, there is a simple procedure you must perform in order to get the long band switch shaft and the final amplifier switch assembly back in "sync". Again, do NOT remove the front panel's band switch knob!! The band switch has a detent but it does not have a stop so the band switch can be rotated a continuous 360 degree without stopping.

First let us know IF the band switch coupler is in fact broken then we can work on getting the new coupler installed and the band switch aligned properly. Again, this is if the coupler is in fact broken/cracked.

73
Mike W5RKL

On 8/14/2013 7:02 AM, WL wrote:
>
> Gentlemen,
> Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> new (2008) to the hobby. I am enjoying learning to repair these
> Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> in the process of replacing the cathode resistors on an 830S belonging

> to a friend of mine. The resistor replacemnet is no issue but while
> looking the radio over, I found the clear pointer on the plate
> capacitor control to be reversed with the raised portion of the clear
> pointer facing aft towards the radio face. My friend told me that
> while attempting to tune up on 20m he could only find a slight dip in
> the 80m postion of the scale and at that point the main fuse,and the
> cathode resistors I assume, failed. With the rotor completely unmeshed
> the clear pointer is indicating 15m. Is this approximately correct?
> Since the pointer was installed backwards I am suspecting that it
> could also be 180 degrees out of position. Is this a valid assumption?
> I could compare it to my 830S, which I may eventually end up doing,
> but before I take it out of the circuit and take it apart for visual
> comparison I thought I'd ask if any of you know off hand approximately
> where the clear pointer should be with the rotor completely unmeshed,
> or fully meshed for that matter. Looking forward for your assistance.
> 73,
> Butch Lewis
> KØPSA
>
>

[Non-text portions of this message have been removed]

44020. Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 12:45:45 UTC
From: W5RKL
Topic: 44018 Message: 44020

Butch, you might best remove both 6146 final tubes when inspecting the coupler. You also should clean the inside of the final cage, fan blades etc, while you have the final cage cover \off.

73
Mike W5RKL

On 8/14/2013 7:02 AM, WL wrote:
>
> Gentlemen,
> Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> new (2008) to the hobby. I am enjoying learning to repair these
> Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> in the process of replacing the cathode resistors on an 830S belonging
> to a friend of mine. The resistor replacemnet is no issue but while
> looking the radio over, I found the clear pointer on the plate
> capacitor control to be reversed with the raised portion of the clear
> pointer facing aft towards the radio face. My friend told me that
> while attempting to tune up on 20m he could only find a slight dip in
> the 80m postion of the scale and at that point the main fuse,and the
> cathode resistors I assume, failed. With the rotor completely unmeshed
> the clear pointer is indicating 15m. Is this approximately correct?
> Since the pointer was installed backwards I am suspecting that it
> could also be 180 degrees out of position. Is this a valid assumption?
> I could compare it to my 830S, which I may eventually end up doing,
> but before I take it out of the circuit and take it apart for visual
> comparison I thought I'd ask if any of you know off hand approximately
> where the clear pointer should be with the rotor completely unmeshed,
> or fully meshed for that matter. Looking forward for your assistance.
> 73,
> Butch Lewis
> KØPSA
>
>

[Non-text portions of this message have been removed]

44021. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 12:59:12 UTC
From: Don
Topic: 43966 Message: 44021

Gordon

I removed the cover under the AF board ,which was real easy to do,and it saved time,plus no disturbance to the RF board.
Kenwood thought of everything when they designed the TS830,well all most everything.
Thanks for that tip
73
Don/Ve2ud

On 12/08/2013 5:39 PM, n6wk@... wrote:
>
> Don,
> If you remove the AF board, there is a small panel you can remove to
> get to the bottom of the RF board.
>
> 73,
> Gordon
> N6WK
>
>
> >
> >
>
> --
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

44022. Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 13:01:37 UTC
From: Craig Roberts
Topic: 44018 Message: 44022

I have purchased four Kenwood hybrids in the past few months and two of them had cracked couplers. So, Mike's advice is right on. I would replace the nylon band switch coupler even if it is not cracked at the moment. It's a vulnerable piece and replacing it as a bit of preventative maintenance will give you one less thing to worry about.

You can also order brass replacement couplers from Jim Showker (hybridrestore.com). Both he and Ken are terrific sources of parts and expertise -- and both are really nice guys.

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

44023. Re: [TS-520_820_530_830] Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 13:13:28 UTC
From: Craig Roberts
Topic: 43966 Message: 44023

Trust me. I love my Kenwood hybrids but, for service and maintenance purposes, I have been spoiled by the very easy to remove vertical plug-in boards in the Drake TR-7.

Oh, and I must compliment my old employer, The Heath Company, for adopting the same scheme for the Heathkit SB-104(A) and HW-104 transceivers.

(Yes, I worked for Heath but -- it must be noted by the hard core technicians among us who have answered my series of dumb questions -- I worked in the marketing department, not the design and engineering group. Can ya tell?)

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

44024. Re: TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 13:17:04 UTC
From: Bill
Topic: 44018 Message: 44024

Can you let me know how to sync the switches as I just replaced my coupler and things are not working as they should. I had a bear of a time trying to get the old coupler out and may have moved the switch shaft. Please advise. Bill WD8OSJ

--- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@...> wrote:
>
> Butch,
>
> I could be wrong but this sounds a lot like a broken/cracked band switch
> coupler between the long band switch shaft and the band switch wafer
> assembly inside the final amplifier enclosure.
>
> Do NOT loosen and/or remove the band switch knob on the front panel!!
>
> To check the coupler, disconnect all power, allow the capacitors in the
> 830 to discharge to zero, then remove the 830 from it's cabinet (top and
> bottom).
>
> Place the 830 up right with the front panel facing "your left".
>
> Remove the top cover on the final amplifier enclosure.
>
> Remove the 6146 tube closest to the forward portion of the final
> enclosure. This will allow you to look closely at the band switch
> coupler to see if it is broken/cracked.
>
> If the coupler is cracked/broken, you can order a replacement from Ken,
> K4EAA, at his website
>
> k4eaa.com
>
> If the coupler is in fact broken/cracked and you can order a replacement
> from Ken, there is a simple procedure you must perform in order to get
> the long band switch shaft and the final amplifier switch assembly back
> in "sync". Again, do NOT remove the front panel's band switch knob!! The
> band switch has a detent but it does not have a stop so the band switch
> can be rotated a continuous 360 degree without stopping.
>
> First let us know IF the band switch coupler is in fact broken then we
> can work on getting the new coupler installed and the band switch
> aligned properly. Again, this is if the coupler is in fact broken/cracked.
>
>
>
> 73

> Mike W5RKL
>
>
> On 8/14/2013 7:02 AM, WL wrote:
> >
> > Gentlemen,
> > Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> > new (2008) to the hobby. I am enjoying learning to repair these
> > Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> > in the process of replacing the cathode resistors on an 830S belonging
> > to a friend of mine. The resistor replacemnet is no issue but while
> > looking the radio over, I found the clear pointer on the plate
> > capacitor control to be reversed with the raised portion of the clear
> > pointer facing aft towards the radio face. My friend told me that
> > while attempting to tune up on 20m he could only find a slight dip in
> > the 80m postion of the scale and at that point the main fuse,and the
> > cathode resistors I assume, failed. With the rotor completely unmeshed
> > the clear pointer is indicating 15m. Is this approximately correct?
> > Since the pointer was installed backwards I am suspecting that it
> > could also be 180 degrees out of position. Is this a valid assumption?
> > I could compare it to my 830S, which I may eventually end up doing,
> > but before I take it out of the circuit and take it apart for visual
> > comparison I thought I'd ask if any of you know off hand approximately
> > where the clear pointer should be with the rotor completely unmeshed,
> > or fully meshed for that matter. Looking forward for your assistance.
> > 73,
> > Butch Lewis
> > KØPSA
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44025. Re: TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 13:19:14 UTC
From: Bill
Topic: 44018 Message: 44025

Forgot to say, this is a TS530S. Bill WD8OSJ

--- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@...> wrote:
>
> Butch,
>
> I could be wrong but this sounds a lot like a broken/cracked band switch
> coupler between the long band switch shaft and the band switch wafer
> assembly inside the final amplifier enclosure.
>
> Do NOT loosen and/or remove the band switch knob on the front panel!!
>
> To check the coupler, disconnect all power, allow the capacitors in the
> 830 to discharge to zero, then remove the 830 from it's cabinet (top and
> bottom).
>
> Place the 830 up right with the front panel facing "your left".
>
> Remove the top cover on the final amplifier enclosure.
>
> Remove the 6146 tube closest to the forward portion of the final
> enclosure. This will allow you to look closely at the band switch
> coupler to see if it is broken/cracked.
>
> If the coupler is cracked/broken, you can order a replacement from Ken,
> K4EAA, at his website
>
> k4eaa.com
>
> If the coupler is in fact broken/cracked and you can order a replacement
> from Ken, there is a simple procedure you must perform in order to get
> the long band switch shaft and the final amplifier switch assembly back
> in "sync". Again, do NOT remove the front panel's band switch knob!! The
> band switch has a detent but it does not have a stop so the band switch
> can be rotated a continuous 360 degree without stopping.
>
> First let us know IF the band switch coupler is in fact broken then we
> can work on getting the new coupler installed and the band switch
> aligned properly. Again, this is if the coupler is in fact broken/cracked.
>
>
>
> 73
> Mike W5RKL
>

>
> On 8/14/2013 7:02 AM, WL wrote:
> >
> > Gentlemen,
> > Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> > new (2008) to the hobby. I am enjoying learning to repair these
> > Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> > in the process of replacing the cathode resistors on an 830S belonging
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> > looking the radio over, I found the clear pointer on the plate
> > capacitor control to be reversed with the raised portion of the clear
> > pointer facing aft towards the radio face. My friend told me that
> > while attempting to tune up on 20m he could only find a slight dip in
> > the 80m postion of the scale and at that point the main fuse,and the
> > cathode resistors I assume, failed. With the rotor completely unmeshed
> > the clear pointer is indicating 15m. Is this approximately correct?
> > Since the pointer was installed backwards I am suspecting that it
> > could also be 180 degrees out of position. Is this a valid assumption?
> > I could compare it to my 830S, which I may eventually end up doing,
> > but before I take it out of the circuit and take it apart for visual
> > comparison I thought I'd ask if any of you know off hand approximately
> > where the clear pointer should be with the rotor completely unmeshed,
> > or fully meshed for that matter. Looking forward for your assistance.
> > 73,
> > Butch Lewis
> > KØPSA
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44026. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 13:28:11 UTC
From: Terry Wagoner
Topic: 43925 Message: 44026

Jim:

In your original post (pasted below) you stated that the rig transmits always in CW mode but not in SSB. IS THIS STILL TRUE? CAN YOU LOAD THE RIG IN CW MODE? DO YOU GET ALC INDICATION IN TUNE MODE WHEN PEAKING THE DRIVE CONTROL?

If that is still true then you need to ask the person who is advising you that you need to change the Driver Tube how the tube could be good in CW mode and not in SSB mode.

"I just got a Kenwood TS-520S and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking."

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
>
>
> If I replace the 12BY7A tube do I have to do the neutralization?
> I did switch the two relays out and that did not help.
> Jim D
>

44027. Re: [TS-520_820_530_830] Re: TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 14:29:47 UTC
From: W5RKL
Topic: 44018 Message: 44027

Hi Bill,

It's not that difficult once you have done it at least one time. The difficult part is making sure the final amplifier's switch assembly shaft, inside the final amplifier enclosure, is set correctly.

Before attempting to perform the following procedure, make sure that ALL capacitors have discharged to zero and ALL power is removed from the 530! Do NOT attempt this procedure with power applied and/or the main power cable plugged into the wall outlet!!! Don't assume the cable is pulled from the wall outlet, check it to be sure!!

Position the 530 on the bench with both top and bottom cabinets covers removed, and the front panel facing YOUR left.

Remove the final amplifier enclosure top cover.

Remove both final tubes.

Look closely at the final amplifier's band switch wafer switch shaft inside the final amplifier enclosure, NOT the long band switch shaft. You will notice there are 2 flat spots on the switch assembly shaft. These flat spots must be positioned exactly as stated below.

Do NOT loosen the coupler set screws until instructed to do so. Also NEVER loosen the band switch knob set screws during this procedure!

The band switch can be rotated a continuous 360 degrees without encountering a mechanical stop. There is a "detente" (click) that is part of the final amplifier band switch assembly shaft inside the final amplifier enclosure but, again, there is no "mechanical stop" in the band switch..

Once you have found the 2 flat spots on the final amplifier switch assembly shaft, inside the final amplifier enclosure, rotate the band switch knob so the 2 flat spots are positioned "exactly" as follows:

1. One flat spot is positioned "exactly vertical" and facing to the "right" (facing the final tubes)

2. The other flat spot is positioned "exactly horizontal" and facing down towards the chassis.

You must ensure the flat spots are positioned exactly as stated above!! Do NOT second guess/assume they are, look closely to ensure the flat spots are position exactly as stated above!!

Next, loosen the "coupler" set screws closest to the long band switch shaft then rotate the band switch knob so the knob is pointing "exactly" at "10" on the front panel band switch setting. The "10" on the front panel is "30 meters" NOT "10 meters"!!!! Rotating the band switch knob should rotate the LONG band switch shaft ONLY!! Tighten the coupler set screws.

Recheck to ensure the switch assembly inside the final amplifier enclosure has NOT moved and that the flat spots are exactly as stated above with the band switch knob pointing to 10 (30 meters) setting on the front panel.

Replace the final tubes and test by tuning the transmitter into a 50 ohm dummy load. If you did it right the 530 transmitter should be working fine now.

I can't stress the importance of positioning the flat spots on the final amplifier switch assembly shaft, inside the final amplifier enclosure, as stated above.

Removing a cracked/broken band switch coupler is not difficult. Loosen the coupler set screws on both ends of the coupler . Gently PULL the LONG shaft outward from the coupler enough that the coupler can be removed. You may have to use your fingers when gently pulling the long shaft to support each band switch wafers on the RF unit board. Do NOT pull the shaft completely out of the radio. You only need to pull the shaft out and away from the coupler enough so the coupler can be removed. It's not difficult, just take your time.

73
Mike W5RKL

On 8/14/2013 8:17 AM, Bill wrote:
>
> Can you let me know how to sync the switches as I just replaced my
> coupler and things are not working as they should. I had a bear of a
> time trying to get the old coupler out and may have moved the switch
> shaft. Please advise. Bill WD8OSJ
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, W5RKL <w5rkl@...> wrote:
> >
> > Butch,
> >
> > I could be wrong but this sounds a lot like a broken/cracked band
> switch
> > coupler between the long band switch shaft and the band switch wafer
> > assembly inside the final amplifier enclosure.
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> > Do NOT loosen and/or remove the band switch knob on the front panel!!
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> > To check the coupler, disconnect all power, allow the capacitors in the
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> and
> > bottom).
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> > Place the 830 up right with the front panel facing "your left".
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> > coupler to see if it is broken/cracked.
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> > the long band switch shaft and the final amplifier switch assembly back
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> > band switch has a detent but it does not have a stop so the band switch
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> broken/cracked.
> >
> >
> >
> > 73
> > Mike W5RKL
> >
> >
> > On 8/14/2013 7:02 AM, WL wrote:
> > >
> > > Gentlemen,
> > > Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> > > new (2008) to the hobby. I am enjoying learning to repair these
> > > Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> > > in the process of replacing the cathode resistors on an 830S
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> > > to a friend of mine. The resistor replacemnet is no issue but while
> > > looking the radio over, I found the clear pointer on the plate
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> > > pointer facing aft towards the radio face. My friend told me that
> > > while attempting to tune up on 20m he could only find a slight dip in
> > > the 80m postion of the scale and at that point the main fuse,and the

> > > cathode resistors I assume, failed. With the rotor completely
> unmeshed
> > > the clear pointer is indicating 15m. Is this approximately correct?
> > > Since the pointer was installed backwards I am suspecting that it
> > > could also be 180 degrees out of position. Is this a valid
> assumption?
> > > I could compare it to my 830S, which I may eventually end up doing,
> > > but before I take it out of the circuit and take it apart for visual
> > > comparison I thought I'd ask if any of you know off hand
> approximately
> > > where the clear pointer should be with the rotor completely unmeshed,
> > > or fully meshed for that matter. Looking forward for your assistance.
> > > 73,
> > > Butch Lewis
> > > KØPSA
> > >
> > >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
>
>

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44028. Re: [TS-520_820_530_830] Re: TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 14:33:04 UTC
From: W5RKL
Topic: 44018 Message: 44028

The same procedure is used for the TS-830.

73
Mike W5RKL

On 8/14/2013 9:29 AM, W5RKL wrote:
>
> Hi Bill,
>
> It's not that difficult once you have done it at least one time. The
> difficult part is making sure the final amplifier's switch assembly
> shaft, inside the final amplifier enclosure, is set correctly.
>
> Before attempting to perform the following procedure, make sure that ALL
> capacitors have discharged to zero and ALL power is removed from the
> 530! Do NOT attempt this procedure with power applied and/or the main
> power cable plugged into the wall outlet!!! Don't assume the cable is
> pulled from the wall outlet, check it to be sure!!
>
> Position the 530 on the bench with both top and bottom cabinets covers
> removed, and the front panel facing YOUR left.
>
> Remove the final amplifier enclosure top cover.
>
> Remove both final tubes.
>
> Look closely at the final amplifier's band switch wafer switch shaft
> inside the final amplifier enclosure, NOT the long band switch shaft.
> You will notice there are 2 flat spots on the switch assembly shaft.
> These flat spots must be positioned exactly as stated below.
>
> Do NOT loosen the coupler set screws until instructed to do so. Also
> NEVER loosen the band switch knob set screws during this procedure!
>
> The band switch can be rotated a continuous 360 degrees without
> encountering a mechanical stop. There is a "detente" (click) that is
> part of the final amplifier band switch assembly shaft inside the final
> amplifier enclosure but, again, there is no "mechanical stop" in the
> band switch..
>
> Once you have found the 2 flat spots on the final amplifier switch
> assembly shaft, inside the final amplifier enclosure, rotate the band
> switch knob so the 2 flat spots are positioned "exactly" as follows:
>

> 1. One flat spot is positioned "exactly vertical" and facing to the
> "right" (facing the final tubes)
>
> 2. The other flat spot is positioned "exactly horizontal" and facing
> down towards the chassis.
>
> You must ensure the flat spots are positioned exactly as stated above!!
> Do NOT second guess/assume they are, look closely to ensure the flat
> spots are position exactly as stated above!!
>
> Next, loosen the "coupler" set screws closest to the long band switch
> shaft then rotate the band switch knob so the knob is pointing "exactly"
> at "10" on the front panel band switch setting. The "10" on the front
> panel is "30 meters" NOT "10 meters"!!!! Rotating the band switch knob
> should rotate the LONG band switch shaft ONLY!! Tighten the coupler set
> screws.
>
> Recheck to ensure the switch assembly inside the final amplifier
> enclosure has NOT moved and that the flat spots are exactly as stated
> above with the band switch knob pointing to 10 (30 meters) setting on
> the front panel.
>
> Replace the final tubes and test by tuning the transmitter into a 50 ohm
> dummy load. If you did it right the 530 transmitter should be working
> fine now.
>
> I can't stress the importance of positioning the flat spots on the final
> amplifier switch assembly shaft, inside the final amplifier enclosure,
> as stated above.
>
> Removing a cracked/broken band switch coupler is not difficult. Loosen
> the coupler set screws on both ends of the coupler . Gently PULL the
> LONG shaft outward from the coupler enough that the coupler can be
> removed. You may have to use your fingers when gently pulling the long
> shaft to support each band switch wafers on the RF unit board. Do NOT
> pull the shaft completely out of the radio. You only need to pull the
> shaft out and away from the coupler enough so the coupler can be
> removed. It's not difficult, just take your time.
>
> 73
> Mike W5RKL
>
> On 8/14/2013 8:17 AM, Bill wrote:
> >
> > Can you let me know how to sync the switches as I just replaced my
> > coupler and things are not working as they should. I had a bear of a
> > time trying to get the old coupler out and may have moved the switch
> > shaft. Please advise. Bill WD8OSJ
> >
> > --- In TS-520_820_530_830@yahoogroups.com

> <mailto:TS-520_820_530_830%40yahoogroups.com>
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, W5RKL <w5rkl@...> wrote:
> > >
> > > Butch,
> > >
> > > I could be wrong but this sounds a lot like a broken/cracked band
> > switch
> > > coupler between the long band switch shaft and the band switch wafer
> > > assembly inside the final amplifier enclosure.
> > >
> > > Do NOT loosen and/or remove the band switch knob on the front panel!!
> > >
> > > To check the coupler, disconnect all power, allow the capacitors
> in the
> > > 830 to discharge to zero, then remove the 830 from it's cabinet (top
> > and
> > > bottom).
> > >
> > > Place the 830 up right with the front panel facing "your left".
> > >
> > > Remove the top cover on the final amplifier enclosure.
> > >
> > > Remove the 6146 tube closest to the forward portion of the final
> > > enclosure. This will allow you to look closely at the band switch
> > > coupler to see if it is broken/cracked.
> > >
> > > If the coupler is cracked/broken, you can order a replacement from
> Ken,
> > > K4EAA, at his website
> > >
> > > k4eaa.com
> > >
> > > If the coupler is in fact broken/cracked and you can order a
> > replacement
> > > from Ken, there is a simple procedure you must perform in order to get
> > > the long band switch shaft and the final amplifier switch assembly
> back
> > > in "sync". Again, do NOT remove the front panel's band switch knob!!
> > The
> > > band switch has a detent but it does not have a stop so the band
> switch
> > > can be rotated a continuous 360 degree without stopping.
> > >
> > > First let us know IF the band switch coupler is in fact broken then we
> > > can work on getting the new coupler installed and the band switch
> > > aligned properly. Again, this is if the coupler is in fact
> > broken/cracked.
> > >
> > >
> > >

> > > 73
> > > Mike W5RKL
> > >
> > >
> > > On 8/14/2013 7:02 AM, WL wrote:
> > > >
> > > > Gentlemen,
> > > > Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> > > > new (2008) to the hobby. I am enjoying learning to repair these
> > > > Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT.
> I am
> > > > in the process of replacing the cathode resistors on an 830S
> > belonging
> > > > to a friend of mine. The resistor replacemnet is no issue but while
> > > > looking the radio over, I found the clear pointer on the plate
> > > > capacitor control to be reversed with the raised portion of the
> clear
> > > > pointer facing aft towards the radio face. My friend told me that
> > > > while attempting to tune up on 20m he could only find a slight
> dip in
> > > > the 80m postion of the scale and at that point the main fuse,and the
> > > > cathode resistors I assume, failed. With the rotor completely
> > unmeshed
> > > > the clear pointer is indicating 15m. Is this approximately correct?
> > > > Since the pointer was installed backwards I am suspecting that it
> > > > could also be 180 degrees out of position. Is this a valid
> > assumption?
> > > > I could compare it to my 830S, which I may eventually end up doing,
> > > > but before I take it out of the circuit and take it apart for visual
> > > > comparison I thought I'd ask if any of you know off hand
> > approximately
> > > > where the clear pointer should be with the rotor completely
> unmeshed,
> > > > or fully meshed for that matter. Looking forward for your
> assistance.
> > > > 73,
> > > > Butch Lewis
> > > > KØPSA
> > > >
> > > >
> > > >
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44029. Re: Parts radio

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-14 15:39:58 UTC
From: n6wk_skcc3
Topic: 43966 Message: 44029

Don,
I'm happy to Help!

73,
Gordon
N6WK

--- In TS-520_820_530_830@yahoogroups.com, Don <ve2ud@...> wrote:
>
> Gordon
>
> I removed the cover under the AF board ,which was real easy to do,and it
> saved time,plus no disturbance to the RF board.
> Kenwood thought of everything when they designed the TS830,well all most
> everything.
> Thanks for that tip
> 73
> Don/Ve2ud
>
>
>
> On 12/08/2013 5:39 PM, n6wk@... wrote:
> >
> > Don,
> > If you remove the AF board, there is a small panel you can remove to
> > get to the bottom of the RF board.
> >
> > 73,
> > Gordon
> > N6WK
> >
> >
> > >
> > >
> > >
> > --
> >
> > [Non-text portions of this message have been removed]
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>
> [Non-text portions of this message have been removed]
>

44030. The 'fun' of repairing old test equipment.... Heathkit V7A at the moment.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 02:51:32 UTC
From: Wes Will
Topic: 43966 Message: 44030

Well, got started on the V7A, the first step in getting the 520SE back on the air.

It was running about "too hot to touch" temperature if you plugged it in and flipped the switch. Nothing smoking, but yowch! Hot chassis, and I mean heat hot not electrical potential.

I suspect maybe a blown diode and power supply filter cap could be the cause of that bit of excess heat. So hit that the traces on the PC board were cooked off and lifted where the diode was soldered on.

I'm rebuilding the traces with hookup wire, calling it as practice for if there are missing spots on one of my 520 boards.

Now, if all the high-precision resistors in the divider (mounted on the switch) are still somewhere in tolerance, I might get somewhere. Checking the rest of the thing, removing all the excess solder and flux, and re-soldering about half the joints on the board and the switches, because some prior bone-head used 1950-era plumbing solder (nearly 100% lead) on there instead of electronic-grade silver-bearing solder. And about a pound of flux. Sheesh.

It's a wonder this thing ever worked. (I'm having a lot of fun.)

I'll be replacing the rectifier board in the 520 tomorrow night, if the VTVM works after I'm done.

--
Wes Will
N9KDY

44031. Re: The 'fun' of repairing old test equipment.... Heathkit V7A at the moment.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 10:44:36 UTC
From: Terry Wagoner
Topic: 43966 Message: 44031

Wes:

Brings back memories. Heath made a big deal about it having a new fangled PC board in it when they introduced it!

You mention "Diode" so you know it has been modified from original Selenium rectifier. Perhaps at that time they also replaced the filter cap? Might want to measure the plate voltage of the 12AU7 tube. Should be approx 70vdc. Sometimes when folks replace a selenium with a silicon rectifier diode they do not install series dropping resistor/surge current limiter. Have to play around with the value. Maybe start with 50 ohm 5 watt.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
>
> Well, got started on the V7A, the first step in getting the 520SE back
> on the air.
>
> It was running about "too hot to touch" temperature if you plugged it in
> and flipped the switch. Nothing smoking, but yowch! Hot chassis, and I
> mean heat hot not electrical potential.
>
> I suspect maybe a blown diode and power supply filter cap could be the
> cause of that bit of excess heat. So hit that the traces on the PC
> board were cooked off and lifted where the diode was soldered on.
>
> I'm rebuilding the traces with hookup wire, calling it as practice for
> if there are missing spots on one of my 520 boards.
>
> Now, if all the high-precision resistors in the divider (mounted on the
> switch) are still somewhere in tolerance, I might get somewhere.
> Checking the rest of the thing, removing all the excess solder and flux,
> and re-soldering about half the joints on the board and the switches,
> because some prior bone-head used 1950-era plumbing solder (nearly 100%
> lead) on there instead of electronic-grade silver-bearing solder. And
> about a pound of flux. Sheesh.
>
> It's a wonder this thing ever worked. (I'm having a lot of fun.)
>
> I'll be replacing the rectifier board in the 520 tomorrow night, if the
> VTVM works after I'm done.
>
> --
> Wes Will
> N9KDY

>

44032. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 01:18:44 UTC
From: James
Topic: 43925 Message: 44032

As is now it will transmit in CW but not USB.
When I tune up in every thing looks fine.
I switched the relays with not efect
I put in a new 12BY7A that did nothing. This was some thing I thought at begining trouble shooting.
I have tried cleaning contacts in some of the switches.
Jim
I am now looking for some one local to help me.

--- In TS-520_820_530_830@...m, "Terry Wagoner" <wagstw46@...> wrote:
>
> Jim:
>
> In your original post (pasted below) you stated that the rig transmits always in CW mode but not in SSB. IS THIS STILL TRUE? CAN YOU LOAD THE RIG IN CW MODE? DO YOU GET ALC INDICATION IN TUNE MODE WHEN PEAKING THE DRIVE CONTROL?
>
> If that is still true then you need to ask the person who is advising you that you need to change the Driver Tube how the tube could be good in CW mode and not in SSB mode.
>
> "I just got a Kenwood TS-520S and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking."
>
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> >
> >
> >
> > If I replace the 12BY7A tube do I have to do the neutralization?
> > I did switch the two relays out and that did not help.
> > Jim D
> >
>

44033. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 14:32:13 UTC
From: Terry Wagoner
Topic: 43925 Message: 44033

Jim:

Are you saying it now transmits in LSB?

If so, it sounds like that the USB Carrier Oscillator is not running or you have bad Xtal filter. More likely to have bad solder connection at the crystal pins or bad crystal on the Carrier Osc board than a bad IF filter.

When you turn the mode switch from CW to USB to LSB the switch contacts are applying 9vdc to switching diodes that selects the proper Carrier Oscillator crystal. Not often have bad mode switch contact, but could try cleaning it.

Easiest thing to do requires some test gear like RF probe VTVM/DMM, or O-scope, and/or Frequency Counter and to measure the Carrier Oscillator signal at the input of the Generator Board.

With Mode switch in USB you should measure approx 1.0rf volts @ 3396.5khz at the CAR terminal wire wrap post on the Generator Board. CAUTION: You will be withing reaching and touching distance of the 900vdc at the HV filter caps so exercise caution connecting test equipment to the CAR post when making this measurement.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
> As is now it will transmit in CW but not USB.
> When I tune up in every thing looks fine.
> I switched the relays with not efect
> I put in a new 12BY7A that did nothing. This was some thing I thought at begining trouble shooting.
> I have tried cleaning contacts in some of the switches.
> Jim
> I am now looking for some one local to help me.
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Jim:
> >
> > In your original post (pasted below) you stated that the rig transmits always in CW mode but not in SSB. IS THIS STILL TRUE? CAN YOU LOAD THE RIG IN CW MODE? DO YOU GET ALC INDICATION IN TUNE MODE WHEN PEAKING THE DRIVE CONTROL?
> >
> > If that is still true then you need to ask the person who is advising you that you need to change the Driver Tube how the tube could be good in CW mode and not in SSB mode.
> >
> > "I just got a Kenwood TS-520S and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB

and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking."
> >
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> > >
> > >
> > >
> > > If I replace the 12BY7A tube do I have to do the neutralization?
> > > I did switch the two relays out and that did not help.
> > > Jim D
> > >
> >
>

44034. Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 16:06:01 UTC
From: W LEWIS
Topic: 44018 Message: 44034

Hi Mike,
Thanks for the advise on the band switch coupler. I inspected the coupler and found it to be intact and aligned correctly however the forward most allen screw on the coupler was slightly loose. I snugged it which removed the small amount of play. While I have the covers off I am going to replace the plastic couplers with the brass ones. I did find upon close inspection that the coupler on the load control had been glued. I'm still looking for information on where the clear pointer on the plate control should be relative to the rotor position since it can be mounted two different ways on the shaft. I guess I'll just have to take my 830S out of the circuit, open it up and visually check the rotor and pointer positions of the plate control. I'll post my findings so that anyone facing the same issue in future will have a reference.
73,
Butch Lewis
KØPSA

From: W5RKL <w5rkl@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 14, 2013 7:43 AM
Subject: Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position

Butch,

I could be wrong but this sounds a lot like a broken/cracked band switch coupler between the long band switch shaft and the band switch wafer assembly inside the final amplifier enclosure.

Do NOT loosen and/or remove the band switch knob on the front panel!!

To check the coupler, disconnect all power, allow the capacitors in the 830 to discharge to zero, then remove the 830 from it's cabinet (top and bottom).

Place the 830 up right with the front panel facing "your left".

Remove the top cover on the final amplifier enclosure.

Remove the 6146 tube closest to the forward portion of the final enclosure. This will allow you to look closely at the band switch coupler to see if it is broken/cracked.

If the coupler is cracked/broken, you can order a replacement from Ken, K4EAA, at his website

k4eaa.com

If the coupler is in fact broken/cracked and you can order a replacement from Ken, there is a simple procedure you must perform in order to get the long band switch shaft and the final amplifier switch assembly back in "sync". Again, do NOT remove the front panel's band switch knob!! The band switch has a detent but it does not have a stop so the band switch can be rotated a continuous 360 degree without stopping.

First let us know IF the band switch coupler is in fact broken then we can work on getting the new coupler installed and the band switch aligned properly. Again, this is if the coupler is in fact broken/cracked.

73
Mike W5RKL

On 8/14/2013 7:02 AM, WL wrote:
>
> Gentlemen,
> Butch Lewis (KØPSA) here. I'm a retired airline pilot and am fairly
> new (2008) to the hobby. I am enjoying learning to repair these
> Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> in the process of replacing the cathode resistors on an 830S belonging
> to a friend of mine. The resistor replacemnet is no issue but while
> looking the radio over, I found the clear pointer on the plate
> capacitor control to be reversed with the raised portion of the clear
> pointer facing aft towards the radio face. My friend told me that
> while attempting to tune up on 20m he could only find a slight dip in
> the 80m postion of the scale and at that point the main fuse,and the
> cathode resistors I assume, failed. With the rotor completely unmeshed
> the clear pointer is indicating 15m. Is this approximately correct?
> Since the pointer was installed backwards I am suspecting that it
> could also be 180 degrees out of position. Is this a valid assumption?
> I could compare it to my 830S, which I may eventually end up doing,
> but before I take it out of the circuit and take it apart for visual
> comparison I thought I'd ask if any of you know off hand approximately
> where the clear pointer should be with the rotor completely unmeshed,
> or fully meshed for that matter. Looking forward for your assistance.
> 73,
> Butch Lewis
> KØPSA
>
>

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44035. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 22:04:25 UTC
From: tfrugia81
Topic: 43925 Message: 44035

Make sure you have mic gain turned up.

-Tyler
k7fru

--- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@...> wrote:
>
> As is now it will transmit in CW but not USB.
> When I tune up in every thing looks fine.
> I switched the relays with not efect
> I put in a new 12BY7A that did nothing. This was some thing I thought at begining trouble shooting.
> I have tried cleaning contacts in some of the switches.
> Jim
> I am now looking for some one local to help me.
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Jim:
> >
> > In your original post (pasted below) you stated that the rig transmits always in CW mode but not in SSB. IS THIS STILL TRUE? CAN YOU LOAD THE RIG IN CW MODE? DO YOU GET ALC INDICATION IN TUNE MODE WHEN PEAKING THE DRIVE CONTROL?
> >
> > If that is still true then you need to ask the person who is advising you that you need to change the Driver Tube how the tube could be good in CW mode and not in SSB mode.
> >
> > "I just got a Kenwood TS-520S and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking."
> >
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> > >
> > >
> > >
> > > If I replace the 12BY7A tube do I have to do the neutralization?
> > > I did switch the two relays out and that did not help.
> > > Jim D
> > >
> >

>

44036. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-15 22:27:41 UTC
From: Terry Wagoner
Topic: 43925 Message: 44036

I am curious... how would it work in LSB if the Mic gain was turned down?

Mic gain, turning off the processor, and trying different microphones was addressed several post back. Was told all of this was verified.

Original report was good TX operation in CW mode and intermittent TX operation in both LSB and USB modes.

Now it appears it works in LSB?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "tfrugia81" <tfrugia@...> wrote:
>
> Make sure you have mic gain turned up.
>
>
> -Tyler
> k7fru
>
>

44037. Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 13:26:42 UTC
From: Craig Roberts
Topic: 43958 Message: 44037

A few days ago I asked if anyone had found a safe and efficient method of flushing contact cleaner "overruns" and other unwanted gradu* off the component side of printed circuit boards "in situ." It seems that an air compressor stream directed on my TS-830S's RF Board had dislodged ancient rivers of "dust sludge" (old but still liquified contact cleaner residue from previous generations combined with dust, dirt and grime) and I wanted this crud gone without removing, bathing and replacing a perfectly functioning board.

Our friend Don Allen replied:
> "The best I've found for this application is Techspray Precision
> Plastic-Safe Universal Cleaner."

Thank you, Don!

I received my 10 oz. aerosol can of this magical stuff yesterday, immediately hauled my TS-830S with DeoxIT soiled RF board outside, removed the radio's covers and went to it. Tilting the transceiver on its side to facilitate runoff, I flushed the top surface of the board liberally, but carefully using the spray nozzle "straw." Within 30 seconds or less, the RF board was absolutely spotless, dry and looking like new. As Techspray advertises, this chemical leaves no residue and apparently does no harm to components. As proof, the radio fired up normally a few minutes later and I worked an S51 (Slovenia) with a 59++ report immediately (the DX facilitated by a squeaky clean RF board, no doubt :-)).

As Don intimated, Techspray Precision Plastic-Safe Universal Cleaner is not inexpensive. Plus, it's a little hard to find in single can offerings. But, it's worth the effort and expense if you wish clean the surfaces of your radio's PCBs in place quickly, easily, thoroughly and safely.

I'll let you know if the transceiver explodes in a week or two.

/* People from south Louisiana already know what "gradu" or "gradoux" (pron. "grad-DOO") is. For the rest of y'all, it's a mysterious and unwanted substance. The residue on my circuit board is one example. Belly button lint is another, as is the moldy gunk in the bottom of the coffee cup you forgot to wash a week ago. Then there that weird, greenish gray furry thing in the back of your refrigerator that may have been a tomato, peach, mushroom or live rodent a year ago. That's also gradu. /

[Non-text portions of this message have been removed]

44038. Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 14:47:31 UTC
From: Don Allen
Topic: 43958 Message: 44038

Craig,

Congatulations on your success with the Techspray Precision V cleaner.
Albeit a bit expensive, it works very well.

73
Don W9CW

On 8/16/2013 8:26 AM, Craig Roberts wrote:
>
>
> A few days ago I asked if anyone had found a safe and efficient method
> of flushing contact cleaner "overruns" and other unwanted gradu* off the
> component side of printed circuit boards "in situ." It seems that an
> air compressor stream directed on my TS-830S's RF Board had dislodged
> ancient rivers of "dust sludge" (old but still liquified contact cleaner
> residue from previous generations combined with dust, dirt and grime)
> and I wanted this crud gone without removing, bathing and replacing a
> perfectly functioning board.
>
> Our friend Don Allen replied:
> > "The best I've found for this application is Techspray Precision
> > Plastic-Safe Universal Cleaner."
>
> Thank you, Don!
>
> I received my 10 oz. aerosol can of this magical stuff yesterday,
> immediately hauled my TS-830S with DeoxIT soiled RF board outside,
> removed the radio's covers and went to it. Tilting the transceiver on
> its side to facilitate runoff, I flushed the top surface of the board
> liberally, but carefully using the spray nozzle "straw." Within 30
> seconds or less, the RF board was absolutely spotless, dry and looking
> like new. As Techspray advertises, this chemical leaves no residue and
> apparently does no harm to components. As proof, the radio fired up
> normally a few minutes later and I worked an S51 (Slovenia) with a 59++
> report immediately (the DX facilitated by a squeaky clean RF board, no
> doubt :-)).
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> As Don intimated, Techspray Precision Plastic-Safe Universal Cleaner is
> not inexpensive. Plus, it's a little hard to find in single can
> offerings. But, it's worth the effort and expense if you wish clean the
> surfaces of your radio's PCBs in place quickly, easily, thoroughly and
> safely.
>
> I'll let you know if the transceiver explodes in a week or two.
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> /* People from south Louisiana already know what "gradu" or "gradoux"
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> unwanted substance. The residue on my circuit board is one example.
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> coffee cup you forgot to wash a week ago. Then there that weird,
> greenish gray furry thing in the back of your refrigerator that may have
> been a tomato, peach, mushroom or live rodent a year ago. That's also
> gradu. /
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

44039. Re: TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 14:32:38 UTC
From: w0nta
Topic: 44018 Message: 44039

Hi Butch,

The plastic indicator should be installed with the flat side out - toward the front of the radio. With the plates of the capacitor fully meshed, the indicator should be pointing to the nine o'clock position. With the plates completely open, the indicator should point to the three o'clock position. If these positions are not correct, loosen the shaft coupler for the capacitor and adjust accordingly.

73, Dick, W0NTA

--- In TS-520_820_530_830@yahoogroups.com, W LEWIS <nscb56a@...> wrote:
>
> Hi Mike,
> Thanks for the advise on the band switch coupler.Â I inspected the coupler and found it to be intact and aligned correctly however the forward most allen screw on the coupler was slightly loose.Â I snugged it which removed the small amount of play.Â While I have the covers off I am going to replace the plastic couplers with the brass ones.Â I did find upon close inspection that the coupler on the load control had been glued.Â I'm still looking for information on where the clear pointer on the plate control should be relative to the rotor position since it can be mounted two different ways on the shaft.Â I guess I'll just have to take my 830S out of the circuit, open it up and visually check the rotor and pointer positions of the plate control.Â I'll post my findings so that anyone facing the same issue in future will have a reference.
> 73,
> Butch Lewis
> KÃ□PSA
>
>
> _____
> From: W5RKL <w5rkl@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, August 14, 2013 7:43 AM
> Subject: Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position
>
> Â
> Butch,
>
> I could be wrong but this sounds a lot like a broken/cracked band switch
> coupler between the long band switch shaft and the band switch wafer
> assembly inside the final amplifier enclosure.
>
> Do NOT loosen and/or remove the band switch knob on the front panel!!
>
> To check the coupler, disconnect all power, allow the capacitors in the
> 830 to discharge to zero, then remove the 830 from it's cabinet (top and
> bottom).
>

> Place the 830 up right with the front panel facing "your left".
>
> Remove the top cover on the final amplifier enclosure.
>
> Remove the 6146 tube closest to the forward portion of the final
> enclosure. This will allow you to look closely at the band switch
> coupler to see if it is broken/cracked.
>
> If the coupler is cracked/broken, you can order a replacement from Ken,
> K4EAA, at his website
>
> k4eaa.com
>
> If the coupler is in fact broken/cracked and you can order a replacement
> from Ken, there is a simple procedure you must perform in order to get
> the long band switch shaft and the final amplifier switch assembly back
> in "sync". Again, do NOT remove the front panel's band switch knob!! The
> band switch has a detent but it does not have a stop so the band switch
> can be rotated a continuous 360 degree without stopping.
>
> First let us know IF the band switch coupler is in fact broken then we
> can work on getting the new coupler installed and the band switch
> aligned properly. Again, this is if the coupler is in fact broken/cracked.
>
> 73
> Mike W5RKL
>
> On 8/14/2013 7:02 AM, WL wrote:
> >
> > Gentlemen,
> > Butch Lewis (KÃ□PSA) here. I'm a retired airline pilot and am fairly
> > new (2008) to the hobby. I am enjoying learning to repair these
> > Kenwood radios. I currently own a 520S, 820S, 830S and a 940SAT. I am
> > in the process of replacing the cathode resistors on an 830S belonging
> > to a friend of mine. The resistor replacemnet is no issue but while
> > looking the radio over, I found the clear pointer on the plate
> > capacitor control to be reversed with the raised portion of the clear
> > pointer facing aft towards the radio face. My friend told me that
> > while attempting to tune up on 20m he could only find a slight dip in
> > the 80m postion of the scale and at that point the main fuse,and the
> > cathode resistors I assume, failed. With the rotor completely unmeshed
> > the clear pointer is indicating 15m. Is this approximately correct?
> > Since the pointer was installed backwards I am suspecting that it
> > could also be 180 degrees out of position. Is this a valid assumption?
> > I could compare it to my 830S, which I may eventually end up doing,
> > but before I take it out of the circuit and take it apart for visual
> > comparison I thought I'd ask if any of you know off hand approximately
> > where the clear pointer should be with the rotor completely unmeshed,
> > or fully meshed for that matter. Looking forward for your assistance.

> > 73,
> > Butch Lewis
> > KÃ□PSA
> >
> >
>
> [Non-text portions of this message have been removed]
>
>
>
>
> [Non-text portions of this message have been removed]
>

44040. Re: [TS-520_820_530_830] Re: TS-830S Plate capacitor rotor position vs. pointer position

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 18:24:26 UTC
From: W LEWIS
Topic: 44018 Message: 44040

Hi Dick,
Thanks so much for the information. That's exactly the information I was looking for. I did reinstall the clear pointer with flat side out and the pointer is about 30-40 degrees off when the rotor is meshed or not meshed. With your information it should be fairly easy to adjust the pointer so that it points to the correct band when looking for the dip.
Thanks again.
73,
Butch Lewis
KØPSA

From: w0nta <w0nta@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, August 16, 2013 9:32 AM
Subject: [TS-520_820_530_830] Re: TS-830S Plate capacitor rotor position vs. pointer position

Hi Butch,

The plastic indicator should be installed with the flat side out - toward the front of the radio. With the plates of the capacitor fully meshed, the indicator should be pointing to the nine o'clock position. With the plates completely open, the indicator should point to the three o'clock position. If these positions are not correct, loosen the shaft coupler for the capacitor and adjust accordingly.

73, Dick, W0NTA

--- In mailto:TS-520_820_530_830%40yahoogroups.com, W LEWIS <nscb56a@...> wrote:
>
> Hi Mike,
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> 73,
> Butch Lewis
> KÃ˜PSA
>
>

> _____
> From: W5RKL <w5rkl@...>
> To: mailto:TS-520_820_530_830%40yahoogroups.com
> Sent: Wednesday, August 14, 2013 7:43 AM
> Subject: Re: [TS-520_820_530_830] TS-830S Plate capacitor rotor position vs. pointer position
>
> Â
> Butch,
>
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> coupler between the long band switch shaft and the band switch wafer
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> Do NOT loosen and/or remove the band switch knob on the front panel!!
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> To check the coupler, disconnect all power, allow the capacitors in the
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> bottom).
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> Place the 830 up right with the front panel facing "your left".
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> Remove the top cover on the final amplifier enclosure.
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> enclosure. This will allow you to look closely at the band switch
> coupler to see if it is broken/cracked.
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> If the coupler is cracked/broken, you can order a replacement from Ken,
> K4EAA, at his website
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> If the coupler is in fact broken/cracked and you can order a replacement
> from Ken, there is a simple procedure you must perform in order to get
> the long band switch shaft and the final amplifier switch assembly back
> in "sync". Again, do NOT remove the front panel's band switch knob!! The
> band switch has a detent but it does not have a stop so the band switch
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> 73
> Mike W5RKL
>
> On 8/14/2013 7:02 AM, WL wrote:
> >
> > Gentlemen,

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> >
> >
>
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[Non-text portions of this message have been removed]

44041. Mic for TS-570D(g)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 19:59:20 UTC
From: rkings1956
Topic: 44041 Message: 44041

Hi group,

I purchased the TS-570 3 months ago and wondering what is a good mic for the rigs. I currently have a stock mike and a Kenwood MC-50.

Rob
kd6fsk

44042. mc for ts-570

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 20:10:02 UTC
From: rkings1956
Topic: 44042 Message: 44042

Please disregard my last msg. Thanks

Rob
kd6fsk

44043. Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 21:06:38 UTC
From: Mike McHugh
Topic: 44043 Message: 44043

Just turned on my 830s and not much working.....I can adjust the volume but NO display. No signals. Band change knob does not seem to do anything...Mode switch (itself) seems to make some differance but meter does not react to anything. Meter will go FMD when RF control turned all way down.Punching all other switches and turning all other knobs makes no changes...Meter illumination dims when I turn the heater switch on so I will assume the filaments light up.
Disconcerting to say the least. Anybody have an idea where I should start looking????HELP....

Mike
KD2DYY

44044. Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 22:36:24 UTC
From: Les Zwiebel WB6ORZ
Topic: 43958 Message: 44044

I just priced a 10 oz. can on Amazon.
   $32.50 plus $10.50 for shipping +-
   Yipes.
   (((73)))
   Les

-------- Original message --------
From: Don Allen <w9cw@w9cw.com>
Date: 08/16/2013 7:47 AM (GMT-08:00)
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Craig,

Congatulations on your success with the Techspray Precision V cleaner.
Albeit a bit expensive, it works very well.

73
Don W9CW

On 8/16/2013 8:26 AM, Craig Roberts wrote:
>
>
> A few days ago I asked if anyone had found a safe and efficient method
> of flushing contact cleaner "overruns" and other unwanted gradu* off the
> component side of printed circuit boards "in situ." It seems that an
> air compressor stream directed on my TS-830S's RF Board had dislodged
> ancient rivers of "dust sludge" (old but still liquified contact cleaner
> residue from previous generations combined with dust, dirt and grime)
> and I wanted this crud gone without removing, bathing and replacing a
> perfectly functioning board.
>
> Our friend Don Allen replied:
> > "The best I've found for this application is Techspray Precision
> > Plastic-Safe Universal Cleaner."
>
> Thank you, Don!
>
> I received my 10 oz. aerosol can of this magical stuff yesterday,
> immediately hauled my TS-830S with DeoxIT soiled RF board outside,
> removed the radio's covers and went to it. Tilting the transceiver on
> its side to facilitate runoff, I flushed the top surface of the board
> liberally, but carefully using the spray nozzle "straw." Within 30
> seconds or less, the RF board was absolutely spotless, dry and looking
> like new. As Techspray advertises, this chemical leaves no residue and
> apparently does no harm to components. As proof, the radio fired up

> normally a few minutes later and I worked an S51 (Slovenia) with a 59++
> report immediately (the DX facilitated by a squeaky clean RF board, no
> doubt :-)).
>
> As Don intimated, Techspray Precision Plastic-Safe Universal Cleaner is
> not inexpensive. Plus, it's a little hard to find in single can
> offerings. But, it's worth the effort and expense if you wish clean the
> surfaces of your radio's PCBs in place quickly, easily, thoroughly and
> safely.
>
> I'll let you know if the transceiver explodes in a week or two.
>
> /* People from south Louisiana already know what "gradu" or "gradoux"
> (pron. "grad-DOO") is. For the rest of y'all, it's a mysterious and
> unwanted substance. The residue on my circuit board is one example.
> Belly button lint is another, as is the moldy gunk in the bottom of the
> coffee cup you forgot to wash a week ago. Then there that weird,
> greenish gray furry thing in the back of your refrigerator that may have
> been a tomato, peach, mushroom or live rodent a year ago. That's also
> gradu. /
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44045. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-16 22:13:31 UTC
From: James
Topic: 43925 Message: 44045

No is is not work in LSB
I have found someone local and have dropped it off to him.
Thank to all the help that you all have gave but I do not want to get it to it and make it worse.
Jim

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Jim:
>
> Are you saying it now transmits in LSB?
>
> If so, it sounds like that the USB Carrier Oscillator is not running or you have bad Xtal filter. More likely to have bad solder connection at the crystal pins or bad crystal on the Carrier Osc board than a bad IF filter.
>
> When you turn the mode switch from CW to USB to LSB the switch contacts are applying 9vdc to switching diodes that selects the proper Carrier Oscillator crystal. Not often have bad mode switch contact, but could try cleaning it.
>
> Easiest thing to do requires some test gear like RF probe VTVM/DMM, or O-scope, and/or Frequency Counter and to measure the Carrier Oscillator signal at the input of the Generator Board.
>
> With Mode switch in USB you should measure approx 1.0rf volts @ 3396.5khz at the CAR terminal wire wrap post on the Generator Board. CAUTION: You will be withing reaching and touching distance of the 900vdc at the HV filter caps so exercise caution connecting test equipment to the CAR post when making this measurement.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> >
> > As is now it will transmit in CW but not USB.
> > When I tune up in every thing looks fine.
> > I switched the relays with not efect
> > I put in a new 12BY7A that did nothing. This was some thing I thought at begining trouble shooting.
> > I have tried cleaning contacts in some of the switches.
> > Jim
> > I am now looking for some one local to help me.
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > >
> > > Jim:

> > >
> > > In your original post (pasted below) you stated that the rig transmits always in CW mode but not in SSB. IS THIS STILL TRUE? CAN YOU LOAD THE RIG IN CW MODE? DO YOU GET ALC INDICATION IN TUNE MODE WHEN PEAKING THE DRIVE CONTROL?
> > >
> > > If that is still true then you need to ask the person who is advising you that you need to change the Driver Tube how the tube could be good in CW mode and not in SSB mode.
> > >
> > > "I just got a Kenwood TS-520S and figuring out how to work it. I have got the tuning down, I am using K4EAA procudures. The problem is that some times I will transmit on SSB and some time it will not. I will transmit on CW alway but not on SSB. The meter on the 520 does show some movement but the extenal meter I have show nothing. I can hear the relay in side clicking."
> > >
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "James" <w0ppa_jd@> wrote:
> > > >
> > > >
> > > >
> > > > If I replace the 12BY7A tube do I have to do the neutralization?
> > > > I did switch the two relays out and that did not help.
> > > > Jim D
> > > >
> > > >
> > >
> >
>

44046. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 00:36:08 UTC
From: roberteleazer@rocketmail.com
Topic: 43925 Message: 44046

Terry:

That's a good idea, although my first job out of college involved rewriting a lot of manuals and as a consequence I have yet to see one that I like. My standards probably are too high!

I think as first step we should go through the TS-820 Kenwood Service Bulletins, discard the ones that we think are not useful, elaborate on the ones that are useful if required, and add new ones.

And over at Mods.DK there have some useful mods or fixes listed, and some might be suitable for inclusion as well. I can think of at least one that probably is - a frequency instability problem associated with a bad cap in the carrier unit. I did not have that problem, as it turned out, but I put the fix in anyway.

On the other hand, I fixed a problem in the PD unit, replacing a cap, that was a case of something that is in the Service Bulletins but in reality was not broke - BUT the way I did the fix induced teh very problem it was desigend to fix!

It will be difficult to not turn the revised Service Bulletins into a new troubleshooting list, but that's not a bad thing - eventually we will need that, too. That probably will require some reorganization, once we get it fleshed out

So I'll get started on this.

And we need to start a new thread!

Robert
WB5WSV

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Bob:
>
> Another thought came to me.
>
> Probably the easiest and fastest thing to do would be to just make the corrections to the current TS820 Service Manual steps and not completely reformat and rewrite it. Would need some grammer corrections/additions to make more sense out of some of the steps and correct the technical errors and provide missing info.
>
> I would be willing to share any info I have and to serve as an SME and would then try to run the revised procedure in it entirety on my TS-820S before we would make it available.
>
> With what Mark Gilger has collected and my notes and yours and Joes info/experience this might be something we could take on without a lot of work like a complete reformatting and rewrite would take.

>
> Jim Showker also states that he now has a lot of TS820 experience so by now he has had to encountered all the problems and resolved them and marked up the service manual. Perhaps before embarking on this we should ask him if he is planning anytime soon to be offering a revised manual on his website anytime soon. If not perhaps he could provide you with a marked up copy or his notes.
>
> If you like we can take this off the forum to discuss including possibility of revising or creating service bulletins in lieu of the service manual.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@" <roberteleazer@> wrote:
> >
> > Terry:
> >
> > We have discussed here the need to rewrite the TS-820 Operating Manual and the Service manual
>

44047. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 01:19:46 UTC
From: Don Allen
Topic: 43925 Message: 44047

Bob,

Inquiring minds would like to know what cap in the Carrier Unit Mods.dk discussed regarding the frequency instability problem.

Tnx,
Don W9CW

On 8/16/2013 7:36 PM, roberteleazer@... wrote:
> And over at Mods.DK there have some useful mods or fixes listed, and
> some might be suitable for inclusion as well. I can think of at least
> one that probably is - a frequency instability problem associated with
> a bad cap in the carrier unit. I did not have that problem, as it
> turned out, but I put the fix in anyway.

44048. Re: [TS-520_820_530_830] Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 01:58:26 UTC
From: Bob Lazarow
Topic: 44043 Message: 44048

Mike: wow, I hope that never happens to my '830.

At the risk of sounding redundant, unless you are well known to our
experts, it would be useful for you to state:
Your access to test equipment, such as a VTVM with RF and hi-impedance
probes. Am o-scope dummy load, maybe a tube tester, or known good tubes,
maybe a good frequency counter and a calibrated watt meter
Good service and owner manuals for the TS-830
Your level of experience troubleshooting and working around LETHAL High
Voltage

Good Luck !

Bob /WA2JAJ

On 8/16/2013 5:06 PM, Mike McHugh wrote:
>
>
> Just turned on my 830s and not much working.....I can adjust
> the volume but NO display. No signals. Band change knob does not seem
> to do anything...Mode switch (itself) seems to make some differance
> but meter does not react to anything. Meter will go FMD when RF
> control turned all way down.Punching all other switches and turning
> all other knobs makes no changes...Meter illumination dims when I turn
> the heater switch on so I will assume the filaments light up.
> Disconcerting to say the least. Anybody have an idea where I should
> start looking????HELP....
>
> Mike
> KD2DYY
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6582 - Release Date: 08/16/13
>

[Non-text portions of this message have been removed]

44049. Re: [TS-520_820_530_830] Re: cleaning PCBs in place.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 02:02:36 UTC
From: Craig Roberts
Topic: 43958 Message: 44049

Told ya. :-)

I figure I saved about $3,000 by buying a TS-830S rather than its
current equivalent, so $40 to make it pretty doesn't seem so bad after all.

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

44050. Re: [TS-520_820_530_830] Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 02:53:29 UTC
From: Craig Roberts
Topic: 44043 Message: 44050

Like Bob said.

Oh -- and never make eye contact.

44051. Re: Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 03:26:16 UTC
From: n6wk_skcc3
Topic: 44043 Message: 44051

Didn't happen to push the FIX switch in did you?

73,
Gordon
N6WK

--- In TS-520_820_530_830@yahoogroups.com, Mike McHugh <mchugh54321@...> wrote:
>
>
> Just turned on my 830s and not much working.....I can adjust the volume but NO display. No signals. Band change knob does not seem to do anything...Mode switch (itself) seems to make some differance but meter does not react to anything. Meter will go FMD when RF control turned all way down.Punching all other switches and turning all other knobs makes no changes...Meter illumination dims when I turn the heater switch on so I will assume the filaments light up.
> Disconcerting to say the least. Anybody have an idea where I should start looking????HELP....
>
> Mike
> KD2DYY
>

44052. TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 03:46:36 UTC
From: John
Topic: 44052 Message: 44052

I just received a TS-520SE from a family member, and I am having difficulty understaning section 4.4 in the Operating Manual labeled "Normal Tranciever Calibration". Is there an alternative way for performing said calibration? I do not own an RF generator.

44053. Re: Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 04:08:46 UTC
From: M. J. Synowiec
Topic: 44043 Message: 44053

Hi Mike,

I hope this finds you well. RE: your radio: check to make sure the 9 pin VFO dummy/shorting plug is firmly seated in the remote vfo socket on the radio. These sometimes work loose or get bumped and will give this kind of operational problem.

Vy 73,
Mike
K8SYN

[Non-text portions of this message have been removed]

44054. Re: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 04:43:18 UTC
From: Joseph Stiles
Topic: 44052 Message: 44054

You do not need an RF generator to do the calibration. Start with the rig on for maybe about 20-30 minutes or so...just to get
everything nice and warmed up and stable. Make sure that the "RIT" is OFF!!! Turn "function switch" to "CAL -25"...rotate main tuning knob...until you hear a tone.. that should be the "marker/cal" signal...depending which "MODE" you want to cal...USB, LSB, or CW refer to the markings above the main tuning
knob. Rotate the main tuning knob back and forth through the tone several time to get the feel of it...then using the above mentioned markings,
zero beat..(no tone) the marker signal. If the dial scale...that the silver ring with the numbers on it...just behind the main tuning knob is NOT on an even
25kHz marking...hold the main tuning knob and move the dial skirt until it does. The dial skirt is a friction device and should be stiff..but not hard to move.. and
most important...does not move real easy. If rig has a CW filter installed...see the directions under section 4.4 as mentioned.
This is basic calibration...and you'll need to get used to doing it, as the VFO is not quite linear from on end to the other.

73 Joe
WB7UQU

From: John <jbdkz@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, August 16, 2013 8:46 PM
Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes me

I just received a TS-520SE from a family member, and I am having difficulty understaning section 4.4 in the Operating Manual labeled "Normal Tranciever Calibration". Is there an alternative way for performing said calibration? I do not own an RF generator.

[Non-text portions of this message have been removed]

44055. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 11:58:13 UTC
From: Terry Wagoner
Topic: 43925 Message: 44055

Man its like pulling teeth here. Your last response said it transmits in CW but not in USB.

At one time you said it transmitted in both LSB and USB intermittently.

That means you key the mic and speak into it and get ALC indication and RF output power indicated on your wattmeter from time to time but not every time you key the mic. Perhaps the use of the term intermittent was not correct? If you get just a small/short duration flick of ALC and output power that is not intermittent operation. That is momentary operation.

It really helps to understand what the real operational issue is.

If this fellow has problems I offer this final thought.

1. In CW you need Carrier Osc and dc voltage from the Car level pot to produce output from the Balanced Mod. If you have good CW output into dummy load then you know you have these two things.

2. In LSB and USB you need Audio and Carrier Oscillator input to the Balanced Modulator. This means two different Carrier Oscillator signals and not likely that both would be missing, but very easy to check at the CAR post on the Gen Board. Audio is needed at the BM post (approx 150 to 200mv for full scale ALC indication). Again very easy to measure.

3. You said you tried a different mic and set mic gain full CW and no results. It is possible that you have a bad front panel mic jack connection but not a very common failure.

4. Tell this guy after loading in CW to turn off the SG switch, place mode switch in LSB/USB, remove mic and set mic gain full CW and then flip to Send. Now touch finger or tap a jumper lead to the bottom right pin on the mic jack. Should get full scale ALC deflection as he taps this pin. (assumes he has no way to inject any kind of audio test signal). If no ALC deflection then go to the Phone Patch jack on rear panel and touch center pin there(assumes this is a TS-520S). If you get good ALC indication it means you have a bad connection on the front panel mic jack. If no ALC indication then need to measure Audio and Carrier inputs at Gen Board.

5. As I mentioned he should find approx 100 to 200 mv of audio at BM and 1.0 volt of Carrier at the inputs to the Balanced Mod on the GEN Board.

Good luck
Terry K9TW

"No is is not work in LSB
As is now it will transmit in CW but not USB.
When I tune up in every thing looks fine."

44056. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 12:05:18 UTC
From: Terry Wagoner
Topic: 43925 Message: 44056

Robert:

Do we want to ask who else wants to help and in what capacity? Should we then take off the forum?

Perhaps ask people to submit errors they have found in any of the documentation?

I have not looked at Mod.dk so will let you compile those and I can look at them if you want.

Terry K9TW

> I think as first step we should go through the TS-820 Kenwood Service Bulletins, discard the ones that we think are not useful, elaborate on the ones that are useful if required, and add new ones.
>

44057. Re: [TS-520_820_530_830] Mic for TS-570D(g)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 15:44:17 UTC
From: John Davidson
Topic: 44041 Message: 44057

I just used a junkbox mic I wired up for the kenwood and the few times I got on fone I had good reports. Just about any mic of the right Z will sound good on a Kenwood Hybrid.

From: rkings1956 <rkings1956@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, August 16, 2013 3:59 PM
Subject: [TS-520_820_530_830] Mic for TS-570D(g)

Hi group,

I purchased the TS-570 3 months ago and wondering what is a good mic for the rigs. I currently have a stock mike and a Kenwood MC-50.

Rob
kd6fsk

[Non-text portions of this message have been removed]

44058. Re: Documentation Rewrite and Collaboration

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 15:50:58 UTC
From: Wes Will
Topic: 43925 Message: 44058

> Do we want to ask who else wants to help and in what capacity? Should we
> then take off the forum?

Do you need a separate email mailing list for this? NOT one of these annoying wahoo thing-ummies, just plain email in from one, email out to all?

I run a mail server, with the Mailman mailing list server. It's the work of a couple minutes, without raising a sweat, to set up a private mailing list. Anything up to about 250 users won't even be noticed. (More users than that, I'd need more bandwidth if the amount of message traffic was significant.)

There is also an FTP server on here, I can give you all access to it, one username, one password for everyone to use to dump files for collaboration. Same deal, two minutes, no perspiration for me, and the machine and connection costs me the same if it's sitting idle or running full-out. (Apache web server as well, but that's not presently set up for easy access from outside of my internal network, it would take me probably half an hour to tweak it.)

Just an offer, thought it might be handy.

--
Wes Will
N9KDY

44059. Re: [TS-520_820_530_830] Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 12:53:57 UTC
From: Mike McHugh
Topic: 44043 Message: 44059

Good morning Bob..... Ok on your note.... I do have scope and multimeter.... LOT of in field troubleshooting experience. Carried tool kit all my working life. NCR corp. Dumac Corp. Amtec corp. POS and Microfilm and pc etc.etc. Yup, know all about HV and dangers.... I know you are trying to help (and keep me safe). This is all appreciated.
I did find the problem after the knock testing of the plugs and boards.... Turned out plug #2 on counter unit board X54-1540-00 was intermittent. When I "knocked" on that connector ALL functions came back to life....WHEW!
I proceeded to Exercise ALL plugs on the rig.....After 30 some years guess the ol-girl has right to be a little cranky...Love her though...Just like the 520s I also have.
I was Amateur in the 50's (WA2AMZ). Just getting back to it and FUN. Challenging as well. (This issue).
Thanks, again. All responses are greatly appreciated......

Best of 73's
Mike KD2DYY

On Fri, Aug 16, 2013 6:58 PM PDT Bob Lazarow wrote:

>Mike: wow, I hope that never happens to my '830.
>
>At the risk of sounding redundant, unless you are well known to our
>experts, it would be useful for you to state:
>Your access to test equipment, such as a VTVM with RF and hi-impedance
>probes. Am o-scope dummy load, maybe a tube tester, or known good tubes,
>maybe a good frequency counter and a calibrated watt meter
>Good service and owner manuals for the TS-830
>Your level of experience troubleshooting and working around LETHAL High
>Voltage
>
>Good Luck !
>
>Bob /WA2JAJ
>
>
>
>On 8/16/2013 5:06 PM, Mike McHugh wrote:
>>
>>
>> Just turned on my 830s and not much working.....I can adjust
>> the volume but NO display. No signals. Band change knob does not seem
>> to do anything...Mode switch (itself) seems to make some differance
>> but meter does not react to anything. Meter will go FMD when RF
>> control turned all way down.Punching all other switches and turning
>> all other knobs makes no changes...Meter illumination dims when I turn
>> the heater switch on so I will assume the filaments light up.

>> Disconcerting to say the least. Anybody have an idea where I should
>> start looking????HELP....
>>
>> Mike
>> KD2DYY
>>
>>
>>
>> No virus found in this message.
>> Checked by AVG - www.avg.com <http://www.avg.com>
>> Version: 2013.0.3392 / Virus Database: 3211/6582 - Release Date: 08/16/13
>>
>
>
>
>[Non-text portions of this message have been removed]
>

44060. Re: [TS-520_820_530_830] Re: Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 12:55:24 UTC
From: Mike McHugh
Topic: 44043 Message: 44060

all set Mike and thanks.....

73's
Mike KD2DYY

On Fri, Aug 16, 2013 9:08 PM PDT M. J. Synowiec wrote:

>Hi Mike,
>
> I hope this finds you well. RE: your radio: check to make sure the 9 pin VFO dummy/shorting plug is firmly seated in the remote vfo socket on the radio. These sometimes work loose or get bumped and will give this kind of operational problem.
>
>Vy 73,
>Mike
>K8SYN
>
>[Non-text portions of this message have been removed]
>

44061. Re: [TS-520_820_530_830] Re: Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 12:57:06 UTC
From: Mike McHugh
Topic: 44043 Message: 44061

All set Gordon. Thanks (and I will pay attention to that "FIX" switch in future). Yikes!

Best of 73's
Mike KD2DYY

On Fri, Aug 16, 2013 8:26 PM PDT n6wk_skcc3 wrote:

>Didn't happen to push the FIX switch in did you?
>
>73,
>Gordon
>N6WK
>
>
>
>--- In TS-520_820_530_830@yahoogroups.com, Mike McHugh <mchugh54321@...> wrote:
>>
>>
>> Just turned on my 830s and not much working.....I can adjust the volume but NO display. No signals. Band change knob does not seem to do anything...Mode switch (itself) seems to make some differance but meter does not react to anything. Meter will go FMD when RF control turned all way down.Punching all other switches and turning all other knobs makes no changes...Meter illumination dims when I turn the heater switch on so I will assume the filaments light up.
>> Disconcerting to say the least. Anybody have an idea where I should start looking????HELP....
>>
>> Mike
>> KD2DYY
>>
>
>

44062. Looking for an assembled external VFO-820 cable

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 04:45:13 UTC
From: Barry
Topic: 44062 Message: 44062

I would like to find an assembled external VFO-820 8-pin cable. Anybody have one in great shape?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44063. Re: [TS-520_820_530_830] Looking for an assembled external VFO-820 cable

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 16:10:32 UTC
From: Jim Lamanteer
Topic: 44062 Message: 44063

BARRY I HAVE A BRAND NEW ONE $12.00 SHIPPED TO YOU USPS M.O. IS GOOD FOR ME. LET ME KNOW? JIMMY   MATT 7:7

_____
From: Barry <bonnevilleblb@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, August 17, 2013 12:45 AM
Subject: [TS-520_820_530_830] Looking for an assembled external VFO-820 cable

I would like to find an assembled external VFO-820 8-pin cable. Anybody have one in great shape?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

[Non-text portions of this message have been removed]

44064. Re: Documentation Rewrite and Collaboration

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 18:00:41 UTC
From: Terry Wagoner
Topic: 43925 Message: 44064

Wes:

I will leave that up to Robert. I hope to just be a worker bee on this project! I cant even spell DOS!

One of the things that kept me from just correcting the steps in the 820 Service Manual is I couldnt figure out how to scan it in and convert from PDF to a format that I could make the corrections.

That and I had envisioned a complete rewrite in a different format perhaps similar to the TS830 matrix with a little more meat on the bones which would take some time commitment.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
>
> > Do we want to ask who else wants to help and in what capacity? Should we
> > then take off the forum?
>
> Do you need a separate email mailing list for this? NOT one of these
> annoying wahoo thing-ummies, just plain email in from one, email out to all?
>
> I run a mail server, with the Mailman mailing list server. It's the
> work of a couple minutes, without raising a sweat, to set up a private
> mailing list. Anything up to about 250 users won't even be noticed.
> (More users than that, I'd need more bandwidth if the amount of message
> traffic was significant.)
>
> There is also an FTP server on here, I can give you all access to it,
> one username, one password for everyone to use to dump files for
> collaboration. Same deal, two minutes, no perspiration for me, and the
> machine and connection costs me the same if it's sitting idle or running
> full-out. (Apache web server as well, but that's not presently set up
> for easy access from outside of my internal network, it would take me
> probably half an hour to tweak it.)
>
> Just an offer, thought it might be handy.
>
> --
> Wes Will
> N9KDY
>

44065. TS-520s Alignment/Overhaul

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 17:38:27 UTC
From: k4tfj
Topic: 44065 Message: 44065

My 520s "seems" to operate fine. I say it this way because I do not have anything to compare it to. I don't know if anything has ever been replaced, nor when the last time it was aligned. I have almost nothing in the way of test bench equipment at the moment.

Can anyone recommend a shop/person that can do an overhaul/alignment and maybe caps? Just want her tip-top before winter.

Tj, K4TFJ

44066. Re: Wow, this sucks!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 18:19:07 UTC
From: Terry Wagoner
Topic: 44043 Message: 44066

Mike:

This is good background and should serve you well. Just dont get offended if anyone forgets this over time. Number one objective is to make sure no one gets hurt.

As to exercising all the molex connectors in the rig there are at least two camps. Some recommend it as a first step along with cleaning relay contacts and spraying copious amounts of contact cleaner. Others say only when "knock test" or troubleshooting indicates connector is the potential problem. There is risk of inducing new problems in these old rigs so just go into this with your eyes wide open. Very easy to pull molex connectors off the board. Also wiggling side to side can produce crack at foil trace to pin pad and induce an intermittent and very hard to see and find.

When I have to unplug one I try to pull straight up and only rock end to end if any rocking at all.

I once pulled three off a customers IF board and set there with tears in my eyes. I called Ken Kempski and he shared similar horror stories with me. Only good thing was when I removed board to repair I found much cobble work with numerous traces repaired with jumper wires etc.

Customer opted for a "new" replacement board from Bob Mansker.

Enjoy your TS830

Terry K9TW

44067. Re: TS-520s Alignment/Overhaul

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 18:36:36 UTC
From: Terry Wagoner
Topic: 44065 Message: 44067

TJ:

Is this rig new to you or one you have had for some time?

Before you send it off for a tune up suggest you read Section 6 of your operating and instruction manual. Start with Paragraph 6.3. The steps listed there will allow you to tune up the Receive and Transmit performance of your radio to pretty close to design specs with no test equipment required.

Just skip the steps that call for test equipment.

If you have never performed Coil Pack alignment and dont have the proper alignment tool come back and ask about the precautions and some steps to make this easier.

You can test the Receiver performance where you are at now by turning Marker signal on and peaking the Drive control around 1200. Do this on each band at around 200 on the VFO. You should see approx S9 on all the bands except perhaps 10 meters where will see S6 or so.

You can test the Driver stage by placing SG switch off and seeing if you can get maximum ALC indication in CW mode and the indication not falling off quickly. Do this on each band. Should get FS ALC deflection with Car Level pot advanced no more than approx 1000 to 1100 with exception of 10 meters which may take 1200 to 1300. Let the Driver tube rest between bands. Dont leave rig keyed for more than about 10 seconds max. Drive tube runs Class A and will get pretty warm.

Can then load into Dummy load to approx 200ma IP and should see approx 100 watts output on all bands with exception of 10 meters which may be around 80 watts or so.

Regards replacing HV filter caps these are the only ones I recommend replacing under preventive maintenance umbrella as they can cause collateral damage and make a real mess when they fail.

If you do not feel comfortable after reading Sect 6 then by all means ship the rig off. Just be sure you understand how to professionally pack so it survives the round trip journey.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "k4tfj" <timothy.f.johnston@...> wrote:
>
> My 520s "seems" to operate fine. I say it this way because I do not have anything to compare it to. I don't know if anything has ever been replaced, nor when the last time it was aligned. I have almost nothing in the way of test bench equipment at the moment.
>
> Can anyone recommend a shop/person that can do an overhaul/alignment and maybe caps? Just want her tip-top before winter.
>
> Tj, K4TFJ

>

44068. TS-820 Service Bulletin Rewrite

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 19:38:28 UTC
From: Terry Wagoner
Topic: 44068 Message: 44068

Robert:

Started new thread. Couple of questions.

You already know what I think about TS520 "No. 21 Service Bulletin". Kenwood would never direct a tech at authorized service center to replace Q4 3rd IF mosfet to address No Receive condition. There are one line entries after one line entries like this that an experienced tech would laugh at. Obvious exceptions include:
1. Q4 was speced wrong and not correct device for this application
2. Q4 was installed wrong at factory
3. Q4 was from a bad production run of mosfets

So with that back ground we should be able to draw lines thru many of these kind of recommendations on most of the Kenwood "service bulletins".

Question then comes what do we replace them with? I think we need to define who the audience is that we are writing for. Is it the newly licensed and first time Kenwood Hybrid owner?

Kenwood factory engineers would have written for a technician who had a good fundamental electronics knowledge back ground, good experience level, and good trouble shooting experience including knowledge of test equipment and how to use it. Very seldom are any technical manuals, service manuals, service bulletins, or maintenance procedures ever written for the owner/operator.

We can write for the newly licensed owner operator if that is what is needed. Might eliminate a lot of the repeat questions on the forum in absence of a FAQ section?

So how rudimentary do we want to get? Do we want to include operator error items?

With the example of No Receive above do we want to replace the recommendation to replace Q4 IF Amp mosfet with a series of steps or do we want to write a Troubleshooting Guide for Weak and/or No Receive conditions?

Here is example of steps that we could use in place of "replace Q4":

1. No Receive (all bands)
A. Check Antenna switch is off ground postion and switched to an antenna
B. Check RF gain full CW and AF gain turned up
C. Check Remote Plug 8/9 jumper
D. Check Xvtr switch off
E. Check RF attenuator off
F. Check Function Switch to VFO

And/Or things like:
G. What does Marker signal do? If good Marker then problem is before Coil Pack board.
H. Clean contacts and/or swap Aux relay and T/R relay
I. Measure 9vdc regulated and RF-1 3.5vdc at AF-AVR Board

J. Measure AGC bus voltage at RF board Conn RF-1 Pin 7 (use 11meg meter should read approx 3.0vdc)
K. Check L8 Antenna Step-up Transformer. Do we tell them how to test it or how to jumper around it?
L. Remove and clean Molex connector RF-1 on RF board
M. Remove and clean Molex connectors IF-1 and IF-3 on IF board.
N. Measure DC voltages at RF amp Q2 (DSG voltages)
O. Measure VCO level at TP on RF board. Should be approx 1.0rms rf volts.

I think you get the idea.

Perhaps there are some things suited for a Service Bulletin and others for a Trouble Shooting guide?

Maybe how to install jumpers in the DG-1 vias is Service Bulletin material and how to trace signal path and signal levels thru the Counter Mixer board is Trouble Shooting Guide stuff?

Terry K9TW

44069. Strange problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 20:27:33 UTC
From: W5RKL
Topic: 44069 Message: 44069

This problem is not in a Kenwood hybrid. I thought this problem would be an excellent learning tool for members who are studying vacuum tube theory.

The transceiver is a Heathkit SB-100 5 band ham transceiver consisting of all vacuum tubes. Power is supplied by an HP-23C separate supply.

The symptoms are

1. S meter pegs below zero
2. Meter zero pot has no affect on meter
3. Receive and calibrator signal levels have no affect on meter after 3 minutes of warm up
4. Receive audio, whether from off the air signals or tuing the 100Khz interval of the calibrator (Marker for hybrid owners) is distorted

What's the source of the problem? Don't guess, use the information provided to determine what's causing these symptoms and the source of the problem. For those who know already, sit back and let the inexperienced members work the problem. Do NOT worry about whether you get it right or not. The important thing is you learn something from this!!!!!

First, let me give you some voltage measurements. I like voltage measurements, they allow one to learn how to use test equipment plus they give you 'clues' as to what the source of the problem could be!!!

Measured all power supply voltage, bias is -117VDC, LV at 317VDC, and final amplifier's HV is "825VDC", all measured in receive and all are normal as measure in the transceiver NOT at the power supply output connector!!

Transceiver is in receive. This is NOT a transmitter problem, it's a "receiver" problem so don't think anything "transmit", think only "receive" and vacuum tube theory. If you have an HW-101 or SB-101 schematic you can use them, the HW-101 and SB-100/101/102 series transceivers were basically the same. There are difference between these transceiver and I know the VFO in the SB-102 is all solid state so no need to bring all that out. The point here is the IF amplifiers in all of these transceiver is the same.

The S meter (meter switch set to ALC, required to display receive S Units or transmit ALC levels) displays variations in V3's screen and cathode voltage. When V3's screen voltage decreases, V3's cathode voltage increases causing the meter to fall back towards zero (more positive potential on the meter's negative terminal and less positive potential on the meter's positive terminal). If V3's screen voltage increases, V3's cathode voltage decreases causing the meter to rise

above zero (less positive potential on the meter's negative terminal and more positive potential on the meter's positive terminal). Simple metering circuit based on the voltage changes on V3's screen and cathode. If V3's cathode voltage rises higher than normal and V3's screen voltage decreases more than normal, the meter will fall below Zero due to the higher positive potential on the meter's "negative" terminal and significantly less positive potential on the meter's positive terminal, the meter will stay put below zero until the problem is solved. The meter zero pot is there to equalize the voltages applied to the meter terminals so with no signal received the meter rests at zero.

IF amplifier's V3 and V4 are both 6AU6/6AU6As which are sharp cut off pentodes typically used as RF and IF amplifiers.

Following are voltage measurements taken at the first and second IF amplifiers, V3 and V4, when power first applied. Note the voltages, you will need to know them later on to help you diagnose the source of the problem and what's going on in both amplifiers!!! As I said above, use the information provided so you can diagnose the problem. Don't guess, you won't learn a darn thing by guessing!!! Don't quickly say, replace the tubes, again, you won't learn a thing doing that. Remember, I have said many times, NEVER replace a component unless your troubleshooting results tells you to, this problem is no exception to that!!!!

The following voltage measurements were taken when power is first applied to the transceiver.

Measured V3s plate voltage which is +305VDC (normal)
Measured V3's screen voltage which is +195VDC (normal)
Measured V3's grid voltage which is -1.07VDC (normal)

Measured V4's plate voltage which is +304VDC (normal)
Measured V4's screen voltage which is +253VDC (normal)
Measured V4's grid voltage which is -1.07VDC (normal)

After approximately 3 minutes the S meter drops and pegs below zero. The meter zero pot has no affect, meaning you can turn the meter zero pot till the cows come home and the meter will still be pegged below zero!!! Nope, cleaning the meter zero pot is a waste of time, the symptoms do not change cleaning the pot so put the can of DeoXit D5 back on the shelf!!!

Let's see what going on here, take some voltage measurements again but concentrate on V3 only this time. V4 is affected but not nearly as bad as V3 is. Read later below to see how V4 is affected by V3's mess:

V3's plate voltage is NOW +195VDC"
V3's screen voltage is NOW +145VDC
V3's grid voltage is NOW "+1.7VDC" (Definitely NOT normal, normally this should never be positive!!)

Hmmm, some major changes in voltages have occurred!!! Remember I said V3's grid should never go positive, well it did!!! We have to determine

"why". Comparing the initial normal voltage to the now "changed" voltages should give you clues as to what's going on now. So why is the grid of V3 and V4 changed to a positive voltage? The key is in V3 plate and screen voltages.

Notice V3's "Plate voltage"!!! It has dropped significantly from "+305VDC down to "195VDC". That's a difference of "110VDC"!!! Also notice that V3's screen voltage has dropped by 50VDC. Just those 2 voltages alone tell you that V3 is conducting into saturation. What's causing this to happen and why V3's grid is positive? Excessive gas in V3. The gas positive ions produced in V3 collect on the grid of V3. Electrons are attracted to those positive ions so electrons emitted from V3's cathode, race toward V3's grid causing grid current to flow in V3 which is how V3's grid changes from a "negative" voltage to a "positive" voltage. When this happens, V3 conducts heavily into saturation causing V3's plate and screen voltages to take a dive and V3's cathode voltage to rise significantly higher than normal which causes the meter to drop below zero.

Okay, now that we have determined what the source of the problem is, what is causing the distortion in the speaker? When V3 goes into saturation and grid current flows in V3, the output signal from V3 is "distorted". V4 also has a slight amount of grid current, not caused by gas in V4 but rather caused by the high positive grid potential from V3 imposing on the AGC buss. V3 and V4 use the same AGC buss so any positive potential appearing on the AGC buss shared by V3 and V4, will affect both tubes. Correcting V3's problem will eliminate V4's indirectly induced problem as well.

Since both tubes have grid current, V3 more than V4, both stages have distortion in their outputs. The distortion in both tube's output combines is amplifed and pass the amplified distorted signal on to the Product Detector. The Product Detector doesn't care about distortion, it simply mixes the distorted amplified IF signal with the CAR Generator signal (BFO), passing it's "distorted output" which is the recovered audio, on to the audio amplifier, hence you hear distortion in the speaker. Eliminate V3 and V4's problem (distorted output) and you eliminate the distortion heard in the speaker.

Replacing V3 solved the all the problems.

This is an excellent example of how taking voltage measurements, comparing them against normal voltages, and having a solid understanding of vacuum tube theory is so important. I hope you learned something from this.

73
Mike W5RKL

[Non-text portions of this message have been removed]

44070. Re: [TS-520_820_530_830] Re: TS-520s Alignment/Overhaul

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 19:40:24 UTC
From: Timothy Johnston
Topic: 44065 Message: 44070

@Terry: I picked up the TS-520s as part of a LOT sale about 6 months ago. I fired it up and it worked, so I began to use it as a primary HF rig in the shack and took my Alinco DX-70T out to the truck. I had not played with tube/hybrid rigs since my novice days, so this was a blast from the past and a chance to re-learn some forgotten knowledge. I am in the beginning stages of rebuilding a proper test bench. Until then I have a GOOD digital multimeter, MFJ-259B for RF SG and Freq Count (no dip coils yet). A few cheapo tuning wands and that's about it.

I will give the Section 6 a once over and let you know how I feel. Feel free to supply the "precautions and some steps to make this easier" anytime.

Thanks, 73, TJ, K4TFJ

[Non-text portions of this message have been removed]

44071. Re: [TS-520_820_530_830] Strange problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 21:15:56 UTC
From: Mike
Topic: 44069 Message: 44071

After sending the post I realized I gave the source of the problem (answer) in the write up. No problem, that'sokay. The important thing is for members to learn from the write up.

73
Mike W5RKL

On 8/17/2013 3:27 PM, W5RKL wrote:
>
> This problem is not in a Kenwood hybrid. I thought this problem would be
> an excellent learning tool for members who are studying vacuum tube
> theory.
>
> The transceiver is a Heathkit SB-100 5 band ham transceiver consisting
> of all vacuum tubes. Power is supplied by an HP-23C separate supply.
>
> The symptoms are
>
> 1. S meter pegs below zero
> 2. Meter zero pot has no affect on meter
> 3. Receive and calibrator signal levels have no affect on meter after 3
> minutes of warm up
> 4. Receive audio, whether from off the air signals or tuing the 100Khz
> interval of the calibrator (Marker for hybrid owners) is distorted
>
> What's the source of the problem? Don't guess, use the information
> provided to determine what's causing these symptoms and the source of
> the problem. For those who know already, sit back and let the
> inexperienced members work the problem. Do NOT worry about whether you
> get it right or not. The important thing is you learn something from
> this!!!!!
>
> First, let me give you some voltage measurements. I like voltage
> measurements, they allow one to learn how to use test equipment plus
> they give you 'clues' as to what the source of the problem could be!!!
>
> Measured all power supply voltage, bias is -117VDC, LV at 317VDC, and
> final amplifier's HV is "825VDC", all measured in receive and all are
> normal as measure in the transceiver NOT at the power supply output
> connector!!
>
> Transceiver is in receive. This is NOT a transmitter problem, it's a
> "receiver" problem so don't think anything "transmit", think only
> "receive" and vacuum tube theory. If you have an HW-101 or SB-101
> schematic you can use them, the HW-101 and SB-100/101/102 series

> transceivers were basically the same. There are difference between these
> transceiver and I know the VFO in the SB-102 is all solid state so no
> need to bring all that out. The point here is the IF amplifiers in all
> of these transceiver is the same.
>
> The S meter (meter switch set to ALC, required to display receive S
> Units or transmit ALC levels) displays variations in V3's screen and
> cathode voltage. When V3's screen voltage decreases, V3's cathode
> voltage increases causing the meter to fall back towards zero (more
> positive potential on the meter's negative terminal and less positive
> potential on the meter's positive terminal). If V3's screen voltage
> increases, V3's cathode voltage decreases causing the meter to rise
> above zero (less positive potential on the meter's negative terminal and
> more positive potential on the meter's positive terminal). Simple
> metering circuit based on the voltage changes on V3's screen and
> cathode. If V3's cathode voltage rises higher than normal and V3's
> screen voltage decreases more than normal, the meter will fall below
> Zero due to the higher positive potential on the meter's "negative"
> terminal and significantly less positive potential on the meter's
> positive terminal, the meter will stay put below zero until the problem
> is solved. The meter zero pot is there to equalize the voltages applied
> to the meter terminals so with no signal received the meter rests at zero.
>
> IF amplifier's V3 and V4 are both 6AU6/6AU6As which are sharp cut off
> pentodes typically used as RF and IF amplifiers.
>
> Following are voltage measurements taken at the first and second IF
> amplifiers, V3 and V4, when power first applied. Note the voltages, you
> will need to know them later on to help you diagnose the source of the
> problem and what's going on in both amplifiers!!! As I said above, use
> the information provided so you can diagnose the problem. Don't guess,
> you won't learn a darn thing by guessing!!! Don't quickly say, replace
> the tubes, again, you won't learn a thing doing that. Remember, I have
> said many times, NEVER replace a component unless your troubleshooting
> results tells you to, this problem is no exception to that!!!!
>
> The following voltage measurements were taken when power is first
> applied to the transceiver.
>
> Measured V3s plate voltage which is +305VDC (normal)
> Measured V3's screen voltage which is +195VDC (normal)
> Measured V3's grid voltage which is -1.07VDC (normal)
>
> Measured V4's plate voltage which is +304VDC (normal)
> Measured V4's screen voltage which is +253VDC (normal)
> Measured V4's grid voltage which is -1.07VDC (normal)
>
> After approximately 3 minutes the S meter drops and pegs below zero. The
> meter zero pot has no affect, meaning you can turn the meter zero pot
> till the cows come home and the meter will still be pegged below zero!!!

> Nope, cleaning the meter zero pot is a waste of time, the symptoms do
> not change cleaning the pot so put the can of DeoXit D5 back on the
> shelf!!!
>
> Let's see what going on here, take some voltage measurements again but
> concentrate on V3 only this time. V4 is affected but not nearly as bad
> as V3 is. Read later below to see how V4 is affected by V3's mess:
>
> V3's plate voltage is NOW +195VDC"
> V3's screen voltage is NOW +145VDC
> V3's grid voltage is NOW "+1.7VDC" (Definitely NOT normal, normally this
> should never be positive!!)
>
> Hmmm, some major changes in voltages have occurred!!! Remember I said
> V3's grid should never go positive, well it did!!! We have to determine
> "why". Comparing the initial normal voltage to the now "changed"
> voltages should give you clues as to what's going on now. So why is the
> grid of V3 and V4 changed to a positive voltage? The key is in V3 plate
> and screen voltages.
>
> Notice V3's "Plate voltage"!!! It has dropped significantly from
> "+305VDC down to "195VDC". That's a difference of "110VDC"!!! Also
> notice that V3's screen voltage has dropped by 50VDC. Just those 2
> voltages alone tell you that V3 is conducting into saturation. What's
> causing this to happen and why V3's grid is positive? Excessive gas in
> V3. The gas positive ions produced in V3 collect on the grid of V3.
> Electrons are attracted to those positive ions so electrons emitted from
> V3's cathode, race toward V3's grid causing grid current to flow in V3
> which is how V3's grid changes from a "negative" voltage to a "positive"
> voltage. When this happens, V3 conducts heavily into saturation causing
> V3's plate and screen voltages to take a dive and V3's cathode voltage
> to rise significantly higher than normal which causes the meter to drop
> below zero.
>
> Okay, now that we have determined what the source of the problem is,
> what is causing the distortion in the speaker? When V3 goes into
> saturation and grid current flows in V3, the output signal from V3 is
> "distorted". V4 also has a slight amount of grid current, not caused by
> gas in V4 but rather caused by the high positive grid potential from V3
> imposing on the AGC buss. V3 and V4 use the same AGC buss so any
> positive potential appearing on the AGC buss shared by V3 and V4, will
> affect both tubes. Correcting V3's problem will eliminate V4's
> indirectly induced problem as well.
>
> Since both tubes have grid current, V3 more than V4, both stages have
> distortion in their outputs. The distortion in both tube's output
> combines is amplifed and pass the amplified distorted signal on to the
> Product Detector. The Product Detector doesn't care about distortion, it
> simply mixes the distorted amplified IF signal with the CAR Generator
> signal (BFO), passing it's "distorted output" which is the recovered

> audio, on to the audio amplifier, hence you hear distortion in the
> speaker. Eliminate V3 and V4's problem (distorted output) and you
> eliminate the distortion heard in the speaker.
>
> Replacing V3 solved the all the problems.
>
> This is an excellent example of how taking voltage measurements,
> comparing them against normal voltages, and having a solid understanding
> of vacuum tube theory is so important. I hope you learned something from
> this.
>
> 73
> Mike W5RKL
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

44072. Re: Looking for an assembled external VFO-820 cable

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-17 21:46:07 UTC
From: Barry
Topic: 44062 Message: 44072

I definitely want that new one for $12. I'm going to email you and if you don't get another one let me know.

Great verse, too!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, Jim Lamanteer <jimlamanteer@...> wrote:
>
> BARRYÂ IÂ HAVE A BRAND NEW ONE $12.00 SHIPPED TO YOU USPSÂ M.O. Â IS GOOD FOR ME. LET ME KNOW? JIMMYÂ Â Â MATT 7:7
>
>
>
> _____
> From: Barry <bonnevilleblb@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Saturday, August 17, 2013 12:45 AM
> Subject: [TS-520_820_530_830] Looking for an assembled external VFO-820 cable
>
>
> Â
>
> I would like to find an assembled external VFO-820 8-pin cable. Anybody have one in great shape?
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
>
>
>
> [Non-text portions of this message have been removed]
>

44073. Re: TS-820 Service Bulletin Rewrite

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 00:26:38 UTC
From: roberteleazer@rocketmail.com
Topic: 44068 Message: 44073

Terry:

I view Service Bulletins as an addition to the service manual, the service manual modified by real world experience. In the case of the Kenwood SB's, they are essentially additions to the troubleshooting guide.

In comparison, the Heathkit Service Bulletins are a bit different. They can be an addition to the troubleshooting guide but often they basically say something like, "We initially put 6146B's in the HW-100. They worked fine. But they were all GE 6146B's and it seems that any other company's 6146B's may very well not work well at all. Damifwenowhy. But if it's not a GE tube, use a 6146A; they all seem to work Okay."

The Kenwood SB's are far less definitive. You do not know why they are saying what they do. A bad batch of parts? A change in vendors? A typo on the schematic? A process error in the factory? Good old Saburo the tech retired and nobody else was as good as he?

Anyway, I think we should write a new list of Service Bulletins with the end objective to eventually create an entirely new troubleshooting guide to replace the one in the manual entirely. In the interim the new SB's will be an addition to the troubleshooting guide.

For example I would envision one that said:

"X. Frequency instability:
a. Dirty cap in the VFO (may produce total dropouts as well as jumps of up to 500 KHZ)
b. Low 9VDC supply voltage (can cause anything you can imagine).
c. Bad cap that filters the 9VDC in the carrier unit (1-2 KHZ back and forth oscillation NOTE: Mods.DK has a mod on this I have performed)
d. Some fool replaced the tantalum cap in the PD unit with a ceramic one (1-2 KHZ back and forth oscillation) or else the tantalum cap is just bad.
e. ?"

Now, if we had nothing to say about frequency instability because it is not an observed problem, then that would not even be a category in the New Service Bulletins, but obviously it is one.

As to whether we include stuff like "No Transmit: SG switch off" and "Rig lights up but is inoperative: No 9 pin plug installed" - I donno, but I doubt it. Maybe we need a "Before you do anything else check the following items" section. Even if newcomers to the Yahoo group refused to read the files first at least then we could just do a copy and paste to respond.

I have done little radio stuff over the last few months because I have been working on my airplane. The company came out with a couple of Service Bulletins that turned out to be a real bear to perform ☐ and even worse, proved to be real, valid concerns, even more so than they realized.

Best regards,

Robert
WB5WSV

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Robert:
>
> Started new thread. Couple of questions.
>
> You already know what I think about TS520 "No. 21 Service Bulletin". Kenwood would never direct a tech at authorized service center to replace Q4 3rd IF mosfet to address No Receive condition. There are one line entries after one line entries like this that an experienced tech would laugh at. Obvious exceptions include:
> 1. Q4 was speced wrong and not correct device for this application
> 2. Q4 was installed wrong at factory
> 3. Q4 was from a bad production run of mosfets
>
> So with that back ground we should be able to draw lines thru many of these kind of recommendations on most of the Kenwood "service bulletins".
>
> Question then comes what do we replace them with? I think we need to define who the audience is that we are writing for. Is it the newly licensed and first time Kenwood Hybrid owner?
>
> Kenwood factory engineers would have written for a technician who had a good fundamental electronics knowledge back ground, good experience level, and good trouble shooting experience including knowledge of test equipment and how to use it. Very seldom are any technical manuals, service manuals, service bulletins, or maintenance procedures ever written for the owner/operator.
>
> We can write for the newly licensed owner operator if that is what is needed. Might eliminate a lot of the repeat questions on the forum in absence of a FAQ section?
>
> So how rudimentary do we want to get? Do we want to include operator error items?
>
> With the example of No Receive above do we want to replace the recommendation to replace Q4 IF Amp mosfet with a series of steps or do we want to write a Troubleshooting Guide for Weak and/or No Receive conditions?
>
> Here is example of steps that we could use in place of "replace Q4":
>
> 1. No Receive (all bands)
> A. Check Antenna switch is off ground postion and switched to an antenna
> B. Check RF gain full CW and AF gain turned up
> C. Check Remote Plug 8/9 jumper
> D. Check Xvtr switch off
> E. Check RF attenuator off
> F. Check Function Switch to VFO
>
> And/Or things like:
> G. What does Marker signal do? If good Marker then problem is before Coil Pack board.

> H. Clean contacts and/or swap Aux relay and T/R relay
> I. Measure 9vdc regulated and RF-1 3.5vdc at AF-AVR Board
> J. Measure AGC bus voltage at RF board Conn RF-1 Pin 7 (use 11meg meter should read approx 3.0vdc)
> K. Check L8 Antenna Step-up Transformer. Do we tell them how to test it or how to jumper around it?
> L. Remove and clean Molex connector RF-1 on RF board
> M. Remove and clean Molex connectors IF-1 and IF-3 on IF board.
> N. Measure DC voltages at RF amp Q2 (DSG voltages)
> O. Measure VCO level at TP on RF board. Should be approx 1.0rms rf volts.
>
> I think you get the idea.
>
> Perhaps there are some things suited for a Service Bulletin and others for a Trouble Shooting guide?
>
> Maybe how to install jumpers in the DG-1 vias is Service Bulletin material and how to trace signal path and signal levels thru the Counter Mixer board is Trouble Shooting Guide stuff?
>
> Terry K9TW
>

44074. Re: [TS-520_820_530_830] TS-820 Service Bulletin Rewrite

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 00:50:51 UTC
From: Mark Gilger
Topic: 44068 Message: 44074

Maybe a flow diagram might save a some of
individual steps? Would take someone that is
gifted in that area, but would be nice.

Mark, WB0IQK

At 03:38 PM 8/17/2013, Terry Wagoner wrote:
>
>
>Robert:
>
>Started new thread. Couple of questions.
>
>You already know what I think about TS520 "No.
>21 Service Bulletin". Kenwood would never direct
>a tech at authorized service center to replace
>Q4 3rd IF mosfet to address No Receive
>condition. There are one line entries after one
>line entries like this that an experienced tech
>would laugh at. Obvious exceptions include:
>1. Q4 was speced wrong and not correct device for this application
>2. Q4 was installed wrong at factory
>3. Q4 was from a bad production run of mosfets
>
>So with that back ground we should be able to
>draw lines thru many of these kind of
>recommendations on most of the Kenwood "service bulletins".
>
>Question then comes what do we replace them
>with? I think we need to define who the audience
>is that we are writing for. Is it the newly
>licensed and first time Kenwood Hybrid owner?
>
>Kenwood factory engineers would have written for
>a technician who had a good fundamental
>electronics knowledge back ground, good
>experience level, and good trouble shooting
>experience including knowledge of test equipment
>and how to use it. Very seldom are any technical
>manuals, service manuals, service bulletins, or
>maintenance procedures ever written for the owner/operator.
>
>We can write for the newly licensed owner
>operator if that is what is needed. Might
>eliminate a lot of the repeat questions on the

>forum in absence of a FAQ section?
>
>So how rudimentary do we want to get? Do we want
>to include operator error items?
>
>With the example of No Receive above do we want
>to replace the recommendation to replace Q4 IF
>Amp mosfet with a series of steps or do we want
>to write a Troubleshooting Guide for Weak and/or No Receive conditions?
>
>Here is example of steps that we could use in place of "replace Q4":
>
>1. No Receive (all bands)
>A. Check Antenna switch is off ground postion and switched to an antenna
>B. Check RF gain full CW and AF gain turned up
>C. Check Remote Plug 8/9 jumper
>D. Check Xvtr switch off
>E. Check RF attenuator off
>F. Check Function Switch to VFO
>
>And/Or things like:
>G. What does Marker signal do? If good Marker
>then problem is before Coil Pack board.
>H. Clean contacts and/or swap Aux relay and T/R relay
>I. Measure 9vdc regulated and RF-1 3.5vdc at AF-AVR Board
>J. Measure AGC bus voltage at RF board Conn RF-1
>Pin 7 (use 11meg meter should read approx 3.0vdc)
>K. Check L8 Antenna Step-up Transformer. Do we
>tell them how to test it or how to jumper around it?
>L. Remove and clean Molex connector RF-1 on RF board
>M. Remove and clean Molex connectors IF-1 and IF-3 on IF board.
>N. Measure DC voltages at RF amp Q2 (DSG voltages)
>O. Measure VCO level at TP on RF board. Should be approx 1.0rms rf volts.
>
>I think you get the idea.
>
>Perhaps there are some things suited for a
>Service Bulletin and others for a Trouble Shooting guide?
>
>Maybe how to install jumpers in the DG-1 vias is
>Service Bulletin material and how to trace
>signal path and signal levels thru the Counter
>Mixer board is Trouble Shooting Guide stuff?
>
>Terry K9TW
>
>

[Non-text portions of this message have been removed]

44075. Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 01:37:07 UTC
From: John
Topic: 44052 Message: 44075

Thanks Joe, will try this the next time I can slip away to my shack.

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...> wrote:
>
> You do not need an RF generator to do the calibration. Start with the rig on for maybe about 20-30 minutes or so...just to get
> everything nice and warmed up and stable. Make sure that the "RIT" is OFF!!!Â Turn "function switch" toÂ "CAL -25"...rotate main tuning knob...until you hear a tone..
> that should be the "marker/cal" signal...depending which "MODE" you want to cal...USB, LSB, or CW refer to the markings above the main tuning
> knob. Rotate the main tuning knob back and forth through the tone several time to get the feel of it...then using the above mentioned markings,
> zero beat..(no tone) the marker signal. If the dial scale...that the silver ring with the numbers on it...just behind the main tuning knob is NOT on an even
> 25kHz marking...hold the main tuning knob and move the dial skirt until it does. The dial skirt is a friction device and should be stiff..but not hard to move.. and
> most important...does not move real easy. If rig has a CW filter installed...see the directions under section 4.4 as mentioned.
> This is basic calibration...and you'll need to get used to doing it, as the VFO is not quite linear from on end to the other.
>
>
> Â
> 73Â Joe
> WB7UQU
>
>
>
> _____
> From: John <jbdkz@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Friday, August 16, 2013 8:46 PM
> Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes me
>
>
>
> Â
> I just received a TS-520SE from a family member, and I am having difficulty understaning section 4.4 in the Operating Manual labeled "Normal Tranciever Calibration". Is there an alternative way for performing said calibration? I do not own an RF generator.
>
>

>
>
> [Non-text portions of this message have been removed]
>

44076. Re: TS-520s Alignment/Overhaul

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 02:23:41 UTC
From: Terry Wagoner
Topic: 44065 Message: 44076

TJ: OK so not a long history where you might notice some decline in performance.

Well just perform the RX and TX performance tests I provided and read Sect 6 and decide. It really is pretty easy to do a decent Coil Pack and IFT peaking using the Marker signal as your sig gen and the S-meter as your peak reading meter.

As to some precautions look around page 38 of your manual depending on revision and you should see picture of the vertical mounted boards. Het Osc, Mixer, Antenna, and Drive coils to give you an idea of what you are looking for.

With rig unplugged for some time and covers removed lay rig on its top with front panel facing you and these coils will be on the front left side of the chassis. With good light and perhaps magnifier take a good visual on them. Sometimes the cardboard coil formers will be twisted off there mounts and windings/turns may even be slightly unraveled. This is due to stuck core and someone torqued too hard on it and twisted the former from its mount.

Take good look at all the slug tuned cores. If you have any cracked these will have to be removed and replaced. This can be a pain and may have to break it up or drill/grind it out carefully with a Dremel tool burr and shop vac out the pieces and powder. If new core is now too loose in the form I wrap it with small amount of PTFE plumbers tape. You can ask on forum if anyone has any spare cores or contact Bob Mansker. Some folks report good luck with using cores removed from scrap CB radio coils.

If you dont have the exact plastic alignment tool order one from Ken K4EAA website. Do not use any kind of metal tool to try to turn the cores with. The ferrite material is very brittle. You may want to apply a small drop of WD-40 or lite oil at top edge with a toothpick to each core before starting the alignment. Some report good luck with Ear Wax removal/softner oil from drug store. I have never tried it.

If you encounter any cores that will not turn freely after a pre-lube stop and do not force it. You can apply heat from tip of small soldering iron to the core and it should free it.

Important to do the alignment in exact order specified. I usually do it with rig on its side so can see S-meter as turn the cores. Just have to be aware that energized HV filter caps are nearby and must control fingers and tools to ensure no accidental contact.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston <timothy.f.johnston@...>
wrote:
>
> @Terry: I picked up the TS-520s as part of a LOT sale about 6 months ago. I
> fired it up and it worked, so I began to use it as a primary HF rig in the
> shack and took my Alinco DX-70T out to the truck. I had not played with
> tube/hybrid rigs since my novice days, so this was a blast from the past
> and a chance to re-learn some forgotten knowledge. I am in the beginning
> stages of rebuilding a proper test bench. Until then I have a GOOD digital

> multimeter, MFJ-259B for RF SG and Freq Count (no dip coils yet). A few
> cheapo tuning wands and that's about it.
>
> I will give the Section 6 a once over and let you know how I feel. Feel
> free to supply the "precautions and some steps to make this easier" anytime.
>
> Thanks, 73, TJ, K4TFJ
>
>
> [Non-text portions of this message have been removed]
>

44077. Re: TS-820 Service Bulletin Rewrite

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 02:38:22 UTC
From: Terry Wagoner
Topic: 44068 Message: 44077

Hi Mark:

Agree would be nice, but I think it would be easier to first develop a bench tested written troubleshooting procedure first before you can flow chart it. Seems like it would be easier if a two step process? Maybe not? Any event a lot of work. I have seen some nice flow charts for things like Tek O-scopes.

Terry K9TW

--- In TS-520_820_530_830@...m, Mark Gilger <mgilger@...> wrote:
>
> Maybe a flow diagram might save a some of
> individual steps? Would take someone that is
> gifted in that area, but would be nice.
>
> Mark, WB0IQK

44078. DG-5 Schematic

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 07:20:53 UTC
From: k4tfj
Topic: 44078 Message: 44078

Can anyone send me a clear copy of the DG-5 schematic? All the ones online that i gind are fuzzy, and the component values and ids are hard to read.
Ty 73, TJ

44079. Re: Strange problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 13:32:33 UTC
From: Terry Wagoner
Topic: 44069 Message: 44079

Mike:

Darn-it dont you hate it when that happens! You arent becoming the absent minded professor are you? Fun to do these kind of exercises and relate them to our Kenwoods. Thanks for sharing this.

For any of us the did not see that the teacher told us that the control grid voltage was going positive as rig warmed up and it was in this case due to "gassy" tube we surely deserve an F on our report cards.

I guess might want to give another reason that grid voltage could go positive....a leaky interstage coupling capacitor. Pulling tube and monitoring AVC voltage at control grid pin at tube socket should eliminate that cause. In old days would lift one end of cap and place VTVM on the lead and power the rig and should see a momentary flick upwards on the meter as the small value cap charged. Might never would see it with DMM. Depending on the value of the capacitor may take as much as 8 time constants to decay back to zero so for a .1uf cap and 10 meg meter it would take approx 8 seconds for voltage to decay back to zero. It takes very little leakage current (in the microampere range) to throw the bias voltage off. 1 microampere might give you .5vdc change.

Where does this gas come from that the electrons are striking and turning these gas molecules into positive ions which are then attracted back to the cathode (where they can strip it) and to the control grid causing it to go positive in potential?

Tube is under very high vacuum. However not possible to get all gas (atmosphere) out of it when it is pumped down and sealed. Also there is entrained gas in the tube elements and coatings and insulators. The high vacuum is tugging on these materials pulling the gas from them as they are heated during each on cycle. Also the pin seals at the point where the elements leave the glass envelope can develop very small leaks allowing atmosphere to be pulled into the tube.

This is where the Getter comes in. For a flash getter it is made of highly reactive metal usually barium. In presence of this heated gas it reacts with it chemically to remove it and/or thru adsorption. So the getter has a life. It is being expended over each heat cycle. If you see the getter has white powder around it then likely you have a major leak at the tube pins and the getter is fully expended and the tube is no good.

Sometimes you hear people say the tube is "Leaky" or has "Leakage". That is not the same as "Gassy". I have been guilty of using the terms interchangebly. Leakage is the microampere leakage current path across insulating barriers and supports between the elements. When you are using a tube tester to check leakage you are measuring the dielectric strength of the insulating materials such as the insulting film between the heater and cathode. A good tube will have insulation values in the 10s of millions of ohms. You dont want any current flow due to what is effectively a short between the elements.

When you are using the Gas test feature of your tube tester you are not measuring presence of gas directly you are measuring grid current. Exactly what Mike was trying to drive us to

answer. Gassy tube causes grid current between the control grid and cathode because the grid has now become positive with respect to the cathode due to these positive ions collecting at the grid and charging it positive.

Lots of very good old tube manuals available on the web. I like the manufacturers manuals from the 40s and 50s.

I look forward to Mikes next problem of the week. Not sure how he will tell who is holding up their hand! Major points off for blurting out the answer!

Terry K9TW

44080. Re: TS-820 Service Bulletin Rewrite

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 15:09:42 UTC
From: Terry Wagoner
Topic: 44068 Message: 44080

Robert:

This thing seems to be taking on a life of its own! If Service Bulletins are extensions to the Troubleshooting guides where are those guides?

My recollection goes back many months ago when I noticed a thread about a fellow trying to null the carrier and he was adjusting the trimmer cap and trimmer pot at the Product Detector and not at the Balanced Modulator because he was trying to follow the directions contained in the TS820 Operating Manual.

We talked about errors in the Operating Manual maintenance section depending on what revision you were using. We also began talking about the Service Manual and the many gross errors and admissions in it that caused much frustration. Much discussion then about the need to revise the Service Manual.

I remarked that I had a marked up service manual but could not say I had found all the errors. I am not an expert. I have probably worked on 25 or so 820s over a 10 year period so hopefully have encountered most of the problems trying to use the documentation. I wrote an example of a proposed service manual revised step and posted it. I dont remember what message number it is. Got very little feedback as I recall at that time.

Now we have evolved to Service Bulletins and Troubleshooting Guides.

As far as Operating manual goes about 3 errors I know of that can be easily fixed. As far as the Troubleshooting guide contained in the Operating manual I simply ignore it as it is designed to mainly address the brand new owner/operator error type items with gems like "if SSB speech is garbled switch the mode switch to the opposite sideband". I would not waste 5 minutes working on it. With the Forum an owner really doesnt need to refer to it.

The Service Manual is primarily intended to provide instruction on how to align and calibrate the radio. Can also help with troubleshooting as it does contain some signal levels, dc voltages, RX/TX Level diagrams, and x-ray views of the boards. It is really intended for the experienced tech or ham who has troubleshooting experience, test equipment, and experience using the test gear. Evidence of this is how so few owners understand and use the TX level diagrams to troubleshoot low or no RF drive. Where as experienced bench techs rely heavily on rf voltage measurements to identify where the fault is.

Service bulletins as you say should be factory produced and issued based on post production operating and maintenance experience. Lessons learned communicated back to authorized service centers for their use in servicing and repairing customer radios and in some cases addressing gross errors that require a recall.

Mods originating from the factory should be contained in Service bulletins and most that I have seen are more commonly driven from the owner operator conceived and implemented ones that are listed in various websites and survival guides. Do we really need to install star lock washers on all board hold down screws?

Detailed Troubleshooting guides and flow charts. I know of none? There has been some interest expressed in a DG-1 guide.

The Yahoo Kenwood Forum. A source of all information. How to operate. What accessories fit what rig. How to align and calibrate. How to troubleshoot. Preventive and corrective maintenance. How circuits actually work. Signal levels. Tips and techniques. All often repeated over and over and over again. How to load, how to neutralize and how to replace and align bandswitch coupler comes to mind.

If I was a new owner I would have to ask myself...What revised TS820 documentation would I find the most useful to me at this time?

I will try to help in any capacity that I can. Just not sure revised Service Bulletins will do the most good for the most people but I will be glad to review any strawman you produce and if it requires running on an 820 I can do that on my rig.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@..." <roberteleazer@...> wrote:
>
> Terry:
>
> I view Service Bulletins as an addition to the service manual, the service manual modified by real world experience. In the case of the Kenwood SB's, they are essentially additions to the troubleshooting guide.

44081. T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 15:19:50 UTC
From: nz8j
Topic: 44081 Message: 44081

Hi,
Does anyone know what VR09 (1K) is for on the T-599D, it looks to me like it comes off the generator board through R27 (100 ohm) to ground? I found it to be the cause of intermittent power/tuning issues on my 599D.

I can't find a service manual for download (seems like every other manual for the 599 series is there but that one, unless I'm missing it)

I dont see that particular resistor in the plain 599 service manual.

It's been a long time since I've done any trouble shooting on a rig and it shows. I recently retired and have a new found interest in the hybrid rigs. I love the 599D twins, but would also like to get a 530 or 830 (preferred) in order to have the warc bands. My main interest is cw rag chewing.

Thanks in advance for any info on the variable resistor in the 599D.
Tim
NZ8J
nz8j@...

44082. Re: [TS-520_820_530_830] T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 16:09:54 UTC
From: Mark Gilger
Topic: 44081 Message: 44082

The R599S Service manual was mean for the D + S
series as it was told to me. I think the 'S'
series was meant only for the Japan market. You
can find both on W6WK's web site. Or jump to it from the following link.

Good luck.

http://wb4hfn.com/KENWOOD/Kenwood-Manuals.htm

Mark

At 11:19 AM 8/18/2013, nz8j wrote:
>
>
>Hi,
>Does anyone know what VR09 (1K) is for on the
>T-599D, it looks to me like it comes off the
>generator board through R27 (100 ohm) to ground?
>I found it to be the cause of intermittent power/tuning issues on my 599D.
>
>I can't find a service manual for download
>(seems like every other manual for the 599
>series is there but that one, unless I'm missing it)
>
>I dont see that particular resistor in the plain 599 service manual.
>
>It's been a long time since I've done any
>trouble shooting on a rig and it shows. I
>recently retired and have a new found interest
>in the hybrid rigs. I love the 599D twins, but
>would also like to get a 530 or 830 (preferred)
>in order to have the warc bands. My main interest is cw rag chewing.
>
>Thanks in advance for any info on the variable resistor in the 599D.
>Tim
>NZ8J
><mailto:nz8j%40woh.rr.com>nz8j@...
>
>

[Non-text portions of this message have been removed]

44083. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 17:15:15 UTC
From: n6wk_skcc3
Topic: 44081 Message: 44083

That should be N6WK 's website.. LOL

73,
Gordon
N6WK

--- In TS-520_820_530_830@yahoogroups.com, Mark Gilger <mgilger@...> wrote:
>
> The R599S Service manual was mean for the D + S
> series as it was told to me. I think the 'S'
> series was meant only for the Japan market. You
> can find both on W6WK's web site. Or jump to it from the following link.
>
> Good luck.
>
> http://wb4hfn.com/KENWOOD/Kenwood-Manuals.htm
>
> Mark
>
> At 11:19 AM 8/18/2013, nz8j wrote:
> >
> >
> >Hi,
> >Does anyone know what VR09 (1K) is for on the
> >T-599D, it looks to me like it comes off the
> >generator board through R27 (100 ohm) to ground?
> >I found it to be the cause of intermittent power/tuning issues on my 599D.
> >
> >I can't find a service manual for download
> >(seems like every other manual for the 599
> >series is there but that one, unless I'm missing it)
> >
> >I dont see that particular resistor in the plain 599 service manual.
> >
> >It's been a long time since I've done any
> >trouble shooting on a rig and it shows. I
> >recently retired and have a new found interest
> >in the hybrid rigs. I love the 599D twins, but
> >would also like to get a 530 or 830 (preferred)
> >in order to have the warc bands. My main interest is cw rag chewing.
> >
> >Thanks in advance for any info on the variable resistor in the 599D.
> >Tim
> >NZ8J
> ><mailto:nz8j%40woh.rr.com>nz8j@...

> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44084. Homebrew digital display for the Kenwood TS-520s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 17:05:33 UTC
From: k4tfj
Topic: 44084 Message: 44084

Proof-of-Concept <http://youtu.be/GyTHEPcFe-I>

This is the early stage of a digital display for the Kenwood TS-520s using an Arduino Mega2560 and some supporting circuitry. The DG-5 display normally used for this family of rigs can be hard to come by in good shape and/or expensive. Additionally I included the ability to send the frequency and mode information via the USB serial to a computer for logging. It is emulating a Kenwood TS-50 for the communication to the logging program. This is still mostly in a proof-of-concept stage.
73, K4TFJ

[Non-text portions of this message have been removed]

44085. KENWOOD HYBRID USER NET (August 18th, update)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 18:32:18 UTC
From: mvgilger
Topic: 44085 Message: 44085

The Saturday's net on 40 meter was run by Jimmy, WB2KNR. He had 8 stations checking in under good band conditions. Jimmy indicated this was the first time he can remember when there were zero TS-520's checking in. I have to agree. Very unusual. Out of those, there was:

0 running TS-520(x)
1 running TS-530(x)
2 running TS-820(x)
3 running TS-830S
0 running TS-900

I was running my TS-940s. The rest were running non hybrids of one model or another.

The Sunday's net on 20 meter we had 8 stations checking in under good band conditions. Out of those, there was:

4 running TS-520(x)
0 running TS-530(x)
0 running TS-820(x)
1running TS-830S

I was running my TS-940s. The rest were running non hybrids of one model or another.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940's, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins

November 2012, Saturday's, net total = 47, Sundays total = 20
December 2012, Saturday's, net total = 74, Sunday's total = 70
January 2013, Saturday's, net total = 93, Sunday's total = 87
February 2013, Saturday's net total = 103, Sundays total = 87

March 2013, Saturday's, net total = 112, Sunday's total =39
April 2013, Saturday's net total = 52, Sunday's total = 29
May 2013, Saturday's net total = 45, Sunday's total = 50
June 2013, Saturday's net total = 30, Sunday's total = 27
July 2013, Saturday's net total = 63, Sunday's total = 41
August 2013, Saturday's net total = 48, Sunday's total = 35 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44086. Re: [TS-520_820_530_830] T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 19:37:17 UTC
From: <pmarkavage@...>
Topic: 44081 Message: 44086

I don't see any mention of a VR09 on the T-599D schematic or parts list.

Pete, wa2cwa
http://www.manualman.com

On Sun, 18 Aug 2013 15:19:50 -0000 "nz8j" <nz8j@...> writes:
> Hi,
> Does anyone know what VR09 (1K) is for on the T-599D, it looks to me
> like it comes off the generator board through R27 (100 ohm) to
> ground? I found it to be the cause of intermittent power/tuning
> issues on my 599D.
>
> I can't find a service manual for download (seems like every other
> manual for the 599 series is there but that one, unless I'm missing
> it)
>
> I dont see that particular resistor in the plain 599 service
> manual.
>
> It's been a long time since I've done any trouble shooting on a rig
> and it shows. I recently retired and have a new found interest in
> the hybrid rigs. I love the 599D twins, but would also like to get a
> 530 or 830 (preferred) in order to have the warc bands. My main
> interest is cw rag chewing.
>
> Thanks in advance for any info on the variable resistor in the
> 599D.
> Tim
> NZ8J
> nz8j@...

44087. Re: [TS-520_820_530_830] T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 20:07:16 UTC
From: W5RKL
Topic: 44081 Message: 44087

Pete, the pot in question is labeled as "VR9 1K" and is located on the T599D schematic at the top right end of the X52-0009-00 board in series with a 100 ohm resistor to ground.

73
Mike W5RKL

On 8/18/2013 2:37 PM, pmarkavage@... wrote:
>
> I don't see any mention of a VR09 on the T-599D schematic or parts list.
>
> Pete, wa2cwa
> http://www.manualman.com
>
> On Sun, 18 Aug 2013 15:19:50 -0000 "nz8j" <nz8j@...
> <mailto:nz8j%40woh.rr.com>> writes:
> > Hi,
> > Does anyone know what VR09 (1K) is for on the T-599D, it looks to me
> > like it comes off the generator board through R27 (100 ohm) to
> > ground? I found it to be the cause of intermittent power/tuning
> > issues on my 599D.
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> > manual for the 599 series is there but that one, unless I'm missing
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> >
> > I dont see that particular resistor in the plain 599 service
> > manual.
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> > It's been a long time since I've done any trouble shooting on a rig
> > and it shows. I recently retired and have a new found interest in
> > the hybrid rigs. I love the 599D twins, but would also like to get a
> > 530 or 830 (preferred) in order to have the warc bands. My main
> > interest is cw rag chewing.
> >
> > Thanks in advance for any info on the variable resistor in the
> > 599D.
> > Tim
> > NZ8J
> > nz8j@... <mailto:nz8j%40woh.rr.com>
>
>

[Non-text portions of this message have been removed]

44088. Re: [TS-520_820_530_830] T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 20:08:48 UTC
From: W5RKL
Topic: 44081 Message: 44088

More than likely that pot is very dirty/corroded which is causing the
intermittent problem. Clean the pot then test.

73
Mike W5RKL

On 8/18/2013 3:07 PM, W5RKL wrote:
> Pete, the pot in question is labeled as "VR9 1K" and is located on
> the T599D schematic at the top right end of the X52-0009-00 board in
> series with a 100 ohm resistor to ground.
>
> 73
> Mike W5RKL
>
> On 8/18/2013 2:37 PM, pmarkavage@... wrote:
>>
>> I don't see any mention of a VR09 on the T-599D schematic or parts list.
>>
>> Pete, wa2cwa
>> http://www.manualman.com
>>
>> On Sun, 18 Aug 2013 15:19:50 -0000 "nz8j" <nz8j@...
>> <mailto:nz8j%40woh.rr.com>> writes:
>> > Hi,
>> > Does anyone know what VR09 (1K) is for on the T-599D, it looks to me
>> > like it comes off the generator board through R27 (100 ohm) to
>> > ground? I found it to be the cause of intermittent power/tuning
>> > issues on my 599D.
>> >
>> > I can't find a service manual for download (seems like every other
>> > manual for the 599 series is there but that one, unless I'm missing
>> > it)
>> >
>> > I dont see that particular resistor in the plain 599 service
>> > manual.
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>> > It's been a long time since I've done any trouble shooting on a rig
>> > and it shows. I recently retired and have a new found interest in
>> > the hybrid rigs. I love the 599D twins, but would also like to get a
>> > 530 or 830 (preferred) in order to have the warc bands. My main
>> > interest is cw rag chewing.
>> >
>> > Thanks in advance for any info on the variable resistor in the
>> > 599D.
>> > Tim

>> > NZ8J
>> > nz8j@... <mailto:nz8j%40woh.rr.com>
>>
>>
>

[Non-text portions of this message have been removed]

44089. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 20:52:56 UTC
From: Terry Wagoner
Topic: 44081 Message: 44089

Q5 is the 1st Mixer it takes low level IF signal and high level VFO (LO) and mixes them and produces your 8.8 mhz TIF output. It is your TIF amp same as in the hybrids. The TIF signal is fed to the TX Mixer and mixed with Het Osc to produce the output transmit signal that is fed to control grid of the 12BY7A Driver tube. All standard stuff here.

Q5 is a FET mixer with a bypassed source resistor. This means if you increase the value of VR9 trim pot you will reduce the gain and lower the output signal level. It is similar to cathode bias with a tube. According to the voltage table in the manual in TX mode you should see approx 0.95vdc on the Source of Q5 in TX mode.

I am not sure why they wanted a variable source resistor? I dont think the input level to the Band Pass Filter would be too critical?

We need TX level diagram to know what the input level to the BPF should be. Not sure if these exist for the T599? In the TS520 the TIF signal level at output of the BPF is approx 250mv rms. If you have no means of measuring RF level than I would just measure the source voltage to chassis and if approx 0.95vdc should be good and if not tweak VR9 until you get 0.95vdc in TX mode.

With approx 250mv of TIF and approx 1 volt of Het Osc you should have approx 2vdc rms at output of the TX Mixer.

Best way to troubleshoot weak or missing Rf drive is with RF millivolt meter or O-scope and see where you are missing the signal.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "nz8j" <nz8j@...> wrote:
>
> Hi,
> Does anyone know what VR09 (1K) is for on the T-599D, it looks to me like it comes off the generator board through R27 (100 ohm) to ground? I found it to be the cause of intermittent power/tuning issues on my 599D.
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> I can't find a service manual for download (seems like every other manual for the 599 series is there but that one, unless I'm missing it)
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> I dont see that particular resistor in the plain 599 service manual.
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> It's been a long time since I've done any trouble shooting on a rig and it shows. I recently retired and have a new found interest in the hybrid rigs. I love the 599D twins, but would also like to get a 530 or 830 (preferred) in order to have the warc bands. My main interest is cw rag chewing.
>
> Thanks in advance for any info on the variable resistor in the 599D.
> Tim
> NZ8J

> nz8j@...
>

44090. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 21:09:41 UTC
From: Terry Wagoner
Topic: 44081 Message: 44090

I forgot to mention DO NOT mess with T3, T4, T5 BPF coils. You cannot just adjust them for peak RF output. These need to be stagger tuned to give proper TX bandpass response and must use Sweep Gen and markers to adjust these.

Terry K9TW

44091. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 21:32:43 UTC
From: Terry Wagoner
Topic: 44081 Message: 44091

I am sorry one last thing and I will get out of the way. If the trim pot is bad and you cant find a replacement just replace it with a fixed resistor. Could select one to set .95vdc on the source of Q5.

Makes no sense to need a pot unless they were getting batches of 3SK22 mosfets with widely varying forward transfer admittance? Similar to vacuum tube transconductance. I dont think very likely?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I forgot to mention DO NOT mess with T3, T4, T5 BPF coils. You cannot just adjust them for peak RF output. These need to be stagger tuned to give proper TX bandpass response and must use Sweep Gen and markers to adjust these.
>
> Terry K9TW
>

44092. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 21:46:18 UTC
From: nz8j
Topic: 44081 Message: 44092

Terry,
Thanks for the responses, that's what I did to fix it temporarily. I didn't measure the voltage I measured the value VR09 was set to and used an equivalent fixed resistor. Probably not as accurate but the transmit intermittent issue is fixed anyhow.

Not sure what happened I posted this info earlier but I don't see it here in the thread anywhere.

73
Tim
NZ8J

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I am sorry one last thing and I will get out of the way. If the trim pot is bad and you cant find a replacement just replace it with a fixed resistor. Could select one to set .95vdc on the source of Q5.
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> Makes no sense to need a pot unless they were getting batches of 3SK22 mosfets with widely varying forward transfer admittance? Similar to vacuum tube transconductance. I dont think very likely?
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> Terry K9TW
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> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
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> > Terry K9TW
> >
>

44093. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 20:56:11 UTC
From: nz8j
Topic: 44081 Message: 44093

I did already and it didn't help, it must have a hairline crack or something. I measured the resistance that it iwas currently set to which turned out to be approximately 600 ohms and just replaced it with a fixed resistor as a temp solution. The radio works fine now but I want to find out why it was there in the first place and adjust it for whatever the proper setting was supposed to be. It is on my T599D schematic but I'd like to find it in a service manual to see what to adjust it to. All the T-599 service manuals I can find don't show it, the only place I can find it is in the schematic in my 599D operating manual.

Thanks
Tim
NZ8J

--- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@...> wrote:
>
> More than likely that pot is very dirty/corroded which is causing the
> intermittent problem. Clean the pot then test.
>
> 73
> Mike W5RKL
>
> On 8/18/2013 3:07 PM, W5RKL wrote:
> > Pete, the pot in question is labeled as "VR9 1K" and is located on
> > the T599D schematic at the top right end of the X52-0009-00 board in
> > series with a 100 ohm resistor to ground.
> >
> > 73
> > Mike W5RKL
> >
> > On 8/18/2013 2:37 PM, pmarkavage@... wrote:
> >>
> >> I don't see any mention of a VR09 on the T-599D schematic or parts list.
> >>
> >> Pete, wa2cwa
> >> http://www.manualman.com
> >>
> >> On Sun, 18 Aug 2013 15:19:50 -0000 "nz8j" <nz8j@...
> >> <mailto:nz8j%40woh.rr.com>> writes:
> >> > Hi,
> >> > Does anyone know what VR09 (1K) is for on the T-599D, it looks to me
> >> > like it comes off the generator board through R27 (100 ohm) to
> >> > ground? I found it to be the cause of intermittent power/tuning
> >> > issues on my 599D.
> >> >
> >> > I can't find a service manual for download (seems like every other
> >> > manual for the 599 series is there but that one, unless I'm missing

> >> > it)
> >> >
> >> > I dont see that particular resistor in the plain 599 service
> >> > manual.
> >> >
> >> > It's been a long time since I've done any trouble shooting on a rig
> >> > and it shows. I recently retired and have a new found interest in
> >> > the hybrid rigs. I love the 599D twins, but would also like to get a
> >> > 530 or 830 (preferred) in order to have the warc bands. My main
> >> > interest is cw rag chewing.
> >> >
> >> > Thanks in advance for any info on the variable resistor in the
> >> > 599D.
> >> > Tim
> >> > NZ8J
> >> > nz8j@... <mailto:nz8j%40woh.rr.com>
> >>
> >>
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44094. Re: [TS-520_820_530_830] Re: TS-820 Service Bulletin Rewrite

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-18 23:48:09 UTC
From: Dave & Loraine
Topic: 44068 Message: 44094

Terry,
I suggest the KISS approach.
Just a referenced list of Operating and Service Manuals error corrections and see how that goes.
Probably a one pager.
73 Dave f4eyk

[Non-text portions of this message have been removed]

44095. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 00:33:06 UTC
From: Terry Wagoner
Topic: 44081 Message: 44095

Unlikely that Service Manual would describe how to adjust this trimmer. I would have guessed something around 300 ohms. Problem with measuring value at the set point is you never know if any former owner had tweaked it. If you get time suggest you measure source voltage key down.

I would prefer to include measuring the TIF signal level. If you have O-scope can measure it at the Out terminal on the board. As I said should see something like 250mv rms or approx 700mv P-P @ 8.595mhz.

I looked for Service Manual and TX Level Diagram and couldnt find one.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "nz8j" <nz8j@...> wrote:
>
> I did already and it didn't help, it must have a hairline crack or something. I measured the resistance that it iwas currently set to which turned out to be approximately 600 ohms and just replaced it with a fixed resistor as a temp solution. The radio works fine now but I want to find out why it was there in the first place and adjust it for whatever the proper setting was supposed to be. It is on my T599D schematic but I'd like to find it in a service manual to see what to adjust it to. All the T-599 service manuals I can find don't show it, the only place I can find it is in the schematic in my 599D operating manual.
>
> Thanks
> Tim
> NZ8J
>
> --- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@> wrote:
> >
> > More than likely that pot is very dirty/corroded which is causing the
> > intermittent problem. Clean the pot then test.
> >
> > 73
> > Mike W5RKL
> >
> > On 8/18/2013 3:07 PM, W5RKL wrote:
> > > Pete, the pot in question is labeled as "VR9 1K" and is located on
> > > the T599D schematic at the top right end of the X52-0009-00 board in
> > > series with a 100 ohm resistor to ground.
> > >
> > > 73
> > > Mike W5RKL
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> > > On 8/18/2013 2:37 PM, pmarkavage@ wrote:
> > >>
> > >> I don't see any mention of a VR09 on the T-599D schematic or parts list.

> > >>
> > >> Pete, wa2cwa
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> > >> > I can't find a service manual for download (seems like every other
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> > >> > I dont see that particular resistor in the plain 599 service
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> > >> > It's been a long time since I've done any trouble shooting on a rig
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> > >> > Thanks in advance for any info on the variable resistor in the
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> > >>
> > >>
> > >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
>

44096. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 01:26:05 UTC
From: Terry Wagoner
Topic: 44081 Message: 44096

OK if it was a snake I would not be typing! Found manual under my nose on Gordons site.

I dont see VR9 adjust discussed. Also, it does not have TX Level Diagram but does have active device voltages under heading of Battery Chart Table 2. It shows RF voltage at OUT terminal to be 0.5 but does not say if it is rms. My guess is that it is as they also show VFO signal to be 1.0 rf volts and that would be about correct for an rms LO level. So 500mv is about twice the TIF level that I am use to seeing. Kind of unusual to have the RF level to be half the LO level.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Unlikely that Service Manual would describe how to adjust this trimmer. I would have guessed something around 300 ohms. Problem with measuring value at the set point is you never know if any former owner had tweaked it. If you get time suggest you measure source voltage key down.
>
> I would prefer to include measuring the TIF signal level. If you have O-scope can measure it at the Out terminal on the board. As I said should see something like 250mv rms or approx 700mv P-P @ 8.595mhz.
>
> I looked for Service Manual and TX Level Diagram and couldnt find one.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "nz8j" <nz8j@> wrote:
> >
> > I did already and it didn't help, it must have a hairline crack or something. I measured the resistance that it iwas currently set to which turned out to be approximately 600 ohms and just replaced it with a fixed resistor as a temp solution. The radio works fine now but I want to find out why it was there in the first place and adjust it for whatever the proper setting was supposed to be. It is on my T599D schematic but I'd like to find it in a service manual to see what to adjust it to. All the T-599 service manuals I can find don't show it, the only place I can find it is in the schematic in my 599D operating manual.
> >
> > Thanks
> > Tim
> > NZ8J
> >
> > --- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@> wrote:
> > >
> > > More than likely that pot is very dirty/corroded which is causing the
> > > intermittent problem. Clean the pot then test.
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> > > Mike W5RKL
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> > > >>
> > > >> Pete, wa2cwa
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> > > >>
> > > >> On Sun, 18 Aug 2013 15:19:50 -0000 "nz8j" <nz8j@
> > > >> <mailto:nz8j%40woh.rr.com>> writes:
> > > >> > Hi,
> > > >> > Does anyone know what VR09 (1K) is for on the T-599D, it looks to me
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> > > >> > ground? I found it to be the cause of intermittent power/tuning
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> > > >> >
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> > > >> >
> > > >> > Thanks in advance for any info on the variable resistor in the
> > > >> > 599D.
> > > >> > Tim
> > > >> > NZ8J
> > > >> > nz8j@ <mailto:nz8j%40woh.rr.com>
> > > >>
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> > >
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> > > [Non-text portions of this message have been removed]
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>

44097. Kenwwod TS820s remote VFO outlet cap issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 00:12:57 UTC
From: schneiderandrew
Topic: 44097 Message: 44097

TS820s remote VFO outlet cap issue

I have purchased the REMOTE VFO cap/plug so I can jump pins 8-9.

Who has one of these plug/caps? How do you get the cap off the plug. Simple question/issue but sure has me stumped. I do not wan to damage the plug.

Andy N7EBG
801-529-3033
andrew@...

44098. Re: [TS-520_820_530_830] Kenwwod TS820s remote VFO outlet cap issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 01:36:49 UTC
From: Jim Lamanteer
Topic: 44097 Message: 44098

ANDY U SHOULD BE ABLE TO JUST UNSCREW IT. U MAY HAVE TO INSERT A SCREW DRIVER BETWEEN THE PINS WITH ON HAND AND GENTLY APPLY PRESSURE UNSCREWING IT WITHTHE OTHER HAND. HOPR THIS HELPS.JIMMY

From: schneiderandrew <andrew@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, August 18, 2013 8:12 PM
Subject: [TS-520_820_530_830] Kenwwod TS820s remote VFO outlet cap issue

TS820s remote VFO outlet cap issue

I have purchased the REMOTE VFO cap/plug so I can jump pins 8-9.

Who has one of these plug/caps? How do you get the cap off the plug. Simple question/issue but sure has me stumped. I do not wan to damage the plug.

Andy N7EBG
801-529-3033
mailto:andrew%40tklcorp.com

[Non-text portions of this message have been removed]

44099. KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 12:14:50 UTC
From: Don D
Topic: 44099 Message: 44099

k4eaa k1 knob must be worth more than the radio.

http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625

http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d

http://k4eaa.com/k1-knob.htm

Don/Ve2ud

44100. Re: [TS-520_820_530_830] KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 12:55:51 UTC
From: Don Allen
Topic: 44099 Message: 44100

Although the K4EAA K1 knob is no longer available, and certainly a bit pricey used, it doesn't come close to the price of a TS-830S on the used market. I've seen nice 830S' go for as much as $500 to $600. And, I'm not talking about eBay either, but QRZ, eHam, and QTH.

Don W9CW

On 8/19/2013 7:14 AM, Don D wrote:
>
> k4eaa k1 knob must be worth more than the radio.
>
> http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625
>
> http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d
>
> http://k4eaa.com/k1-knob.htm
>
> Don/Ve2ud
>
>

[Non-text portions of this message have been removed]

44101. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 12:56:08 UTC
From: Terry Wagoner
Topic: 44099 Message: 44101

Original KB-1 knobs almost never go for less than $100 and I have seen them go for $200 on Ebay.

Ken Kempski replica K1 knobs can command $100. I would like to have a pristine KB-1, but not willing to mortgage the house. Kens knobs are just fine. I have Kens dark bronze knobs on my 830s and unfinished ones on the VFO-240s.

I plan to experiment with home anodizing on the unfinished ones. Need to find source of scrap 6061 aluminum to experiment with. Ken had tough time finding an anodizer around Sarasota/Tampa area that could match the Kenwood KB-1 color and provide consistent finish between batches.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Don D" <ve2ud@...> wrote:
>
> k4eaa k1 knob must be worth more than the radio.
>
>
>
> http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625
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>
>
> http://k4eaa.com/k1-knob.htm
>
> Don/Ve2ud
>

44102. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 12:47:54 UTC
From: nz8j
Topic: 44081 Message: 44102

Thanks again Terry,
I measured the value when the tx was not exhibiting the problem, came up with that value (about 600 ohms) and put a fixed resistor in place to see if it fixed the problem. It did. Today I'll get a 1k VR at my local surplus store and replace it at a set value of 600 ohms. The radio has been operating normally ever since the replacement of the suspect pot. I'll just operate it as is until I find some concrete info as to its purpose and adjustment values. I appreciate the help from all who responded and commented. Now to find a nice TS-830 to add to the mix.
Tim
NZ8J
Fairborn, Ohio

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> OK if it was a snake I would not be typing! Found manual under my nose on Gordons site.
>
> I dont see VR9 adjust discussed. Also, it does not have TX Level Diagram but does have active device voltages under heading of Battery Chart Table 2. It shows RF voltage at OUT terminal to be 0.5 but does not say if it is rms. My guess is that it is as they also show VFO signal to be 1.0 rf volts and that would be about correct for an rms LO level. So 500mv is about twice the TIF level that I am use to seeing. Kind of unusual to have the RF level to be half the LO level.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Unlikely that Service Manual would describe how to adjust this trimmer. I would have guessed something around 300 ohms. Problem with measuring value at the set point is you never know if any former owner had tweaked it. If you get time suggest you measure source voltage key down.
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> > I would prefer to include measuring the TIF signal level. If you have O-scope can measure it at the Out terminal on the board. As I said should see something like 250mv rms or approx 700mv P-P @ 8.595mhz.
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> > I looked for Service Manual and TX Level Diagram and couldnt find one.
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> > Terry K9TW
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> > --- In TS-520_820_530_830@yahoogroups.com, "nz8j" <nz8j@> wrote:
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> > > I did already and it didn't help, it must have a hairline crack or something. I measured the resistance that it iwas currently set to which turned out to be approximately 600 ohms and just replaced it with a fixed resistor as a temp solution. The radio works

fine now but I want to find out why it was there in the first place and adjust it for whatever the proper setting was supposed to be. It is on my T599D schematic but I'd like to find it in a service manual to see what to adjust it to. All the T-599 service manuals I can find don't show it, the only place I can find it is in the schematic in my 599D operating manual.
> > >
> > > Thanks
> > > Tim
> > > NZ8J
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> > > --- In TS-520_820_530_830@yahoogroups.com, W5RKL <w5rkl@> wrote:
> > > >
> > > > More than likely that pot is very dirty/corroded which is causing the
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> > > > On 8/18/2013 3:07 PM, W5RKL wrote:
> > > > > Pete, the pot in question is labeled as "VR9 1K" and is located on
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> > > > >> Pete, wa2cwa
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> > > > >> On Sun, 18 Aug 2013 15:19:50 -0000 "nz8j" <nz8j@
> > > > >> <mailto:nz8j%40woh.rr.com>> writes:
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> > > > >> > Thanks in advance for any info on the variable resistor in the
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> > > > >> > nz8j@ <mailto:nz8j%40woh.rr.com>
> > > > >>
> > > > >>
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44103. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 13:39:12 UTC
From: Craig Roberts
Topic: 44099 Message: 44103

The plastic Kenwood OEM knob can be filled from the back with a mixture of epoxy cement and lead shot to give it a nice heft and weight. No, you won't have a a sexy KB-1 knob, but you'll save $100 or more. (The idea comes from my friend Bob Sullivan, W0YVA).

73,

Craig
W3CRR

44104. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 14:13:11 UTC
From: Ken Winterling
Topic: 44099 Message: 44104

Be sure you balance the lead shot (or whatever you use for ballast) or you
be cursing the autorotating knob that refuses to stay put!

Ken
WA2LBI

On Mon, Aug 19, 2013 at 9:39 AM, Craig Roberts <crgrbrts@...> wrote:

> **
>
>
> The plastic Kenwood OEM knob can be filled from the back with a mixture
> of epoxy cement and lead shot to give it a nice heft and weight. No,
> you won't have a a sexy KB-1 knob, but you'll save $100 or more. (The
> idea comes from my friend Bob Sullivan, W0YVA).
>
> 73,
>
> Craig
> W3CRR
>
>

[Non-text portions of this message have been removed]

44105. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 14:57:27 UTC
From: Terry Wagoner
Topic: 44081 Message: 44105

Its fundamental purpose is to set the bias on the FET. The question is why did they see the need to make it variable instead of the more traditional fixed source resistor (typically around 300 ohms) that you will see in the Kenwood hybrid FET based mixers?

A source resistor sets the self-bias. Using a source resistor is the simplest and most common form of FET biasing. If you buy a batch of 50 MPF-102 FETs they will all have varying Id drain current perhaps by as much as 10% which means varying transconductance. So instead of installing different values of fixed source resistors (which are cheaper than trim pots) I guess Kenwood thought faster/easier to have person on assembly line tweak a pot to set Id for each 3SK22 that was installed. Since Id not easy to measure maybe they monitored Mixer output level and tweaked the pot?

Maybe your production number is a proto-type T599?

I have virtually no hands-on experience with T599. Be curious to know if other production runs using a 3SK22 FET have a single fixed resistor and no pot.

Where are all the retired Kenwood design engineers? Are none members of this forum? Sure would be fun to pick their brains.

Terry K9TW

44106. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 15:01:13 UTC
From: Terry Wagoner
Topic: 44099 Message: 44106

Ken

You were reading my mind. Dont want an eccentric!

When you dont smoke you have around $300 to $400 a month of discretionary income to spend on quality toys!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@...> wrote:
>
> Be sure you balance the lead shot (or whatever you use for ballast) or you
> be cursing the autorotating knob that refuses to stay put!
>
> Ken
> WA2LBI
>
>
> On Mon, Aug 19, 2013 at 9:39 AM, Craig Roberts <crgrbrts@...> wrote:
>
> > **
> >
> >
> > The plastic Kenwood OEM knob can be filled from the back with a mixture
> > of epoxy cement and lead shot to give it a nice heft and weight. No,
> > you won't have a a sexy KB-1 knob, but you'll save $100 or more. (The
> > idea comes from my friend Bob Sullivan, W0YVA).
> >
> > 73,
> >
> > Craig
> > W3CRR
> >
> >
>
>
> [Non-text portions of this message have been removed]
>

44107. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 18:01:33 UTC
From: Joseph Stiles
Topic: 44099 Message: 44107

Greeting group,

  yes, the original KB-1 knobs are great...but way too expensive...Ken Kemski's version is excellent and, a good
price...too bad it's not being produced.

  To weight a knob..I have used 3 fishing weights. They are small...shaped like a long football...and have rubber on the
ends...which makes for a good fit, and easily removed/modified..if you screw up. They are about 1/8 to 1/4 oz each.

73 Joe
WB7UQU

From: Terry Wagoner <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 19, 2013 5:56 AM
Subject: [TS-520_820_530_830] Re: KB-1 Knob

Original KB-1 knobs almost never go for less than $100 and I have seen them go for $200 on Ebay.

Ken Kempski replica K1 knobs can command $100. I would like to have a pristine KB-1, but not willing to mortgage the house. Kens knobs are just fine. I have Kens dark bronze knobs on my 830s and unfinished ones on the VFO-240s.

I plan to experiment with home anodizing on the unfinished ones. Need to find source of scrap 6061 aluminum to experiment with. Ken had tough time finding an anodizer around Sarasota/Tampa area that could match the Kenwood KB-1 color and provide consistent finish between batches.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Don D" <ve2ud@...> wrote:
>
> k4eaa k1 knob must be worth more than the radio.
>
>
>
> http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625
>
> http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d
>
>

> http://k4eaa.com/k1-knob.htm
>
> Don/Ve2ud
>

[Non-text portions of this message have been removed]

44108. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 18:08:47 UTC
From: Don
Topic: 44099 Message: 44108

Hi Joe
Would be nice to know how many Ken produced.
I would trade my KB-1 for his!

Don/Ve2ud

On 19/08/2013 2:01 PM, Joseph Stiles wrote:
>
> Greeting group,
>
> yes, the original KB-1 knobs are great...but way too expensive...Ken
> Kemski's version is excellent and, a good
> price...too bad it's not being produced.
>
> To weight a knob..I have used 3 fishing weights. They are
> small...shaped like a long football...and have rubber on the
> ends...which makes for a good fit, and easily removed/modified..if you
> screw up. They are about 1/8 to 1/4 oz each.
>
>
> 73 Joe
> WB7UQU
>
> _____
> From: Terry Wagoner <wagstw46@... <mailto:wagstw46%40yahoo.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Monday, August 19, 2013 5:56 AM
> Subject: [TS-520_820_530_830] Re: KB-1 Knob
>
>
>
> Original KB-1 knobs almost never go for less than $100 and I have seen
> them go for $200 on Ebay.
>
> Ken Kempski replica K1 knobs can command $100. I would like to have a
> pristine KB-1, but not willing to mortgage the house. Kens knobs are
> just fine. I have Kens dark bronze knobs on my 830s and unfinished
> ones on the VFO-240s.
>
> I plan to experiment with home anodizing on the unfinished ones. Need
> to find source of scrap 6061 aluminum to experiment with. Ken had
> tough time finding an anodizer around Sarasota/Tampa area that could
> match the Kenwood KB-1 color and provide consistent finish between
> batches.

>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Don D" <ve2ud@...> wrote:
> >
> > k4eaa k1 knob must be worth more than the radio.
> >
> >
> >
> >
> http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_C
ommunication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625
> <http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_
Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625>
> >
> >
> http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/2811
51956381?pt=LH_DefaultDomain_0&hash=item4175f6659d
> <http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281
151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d>
> >
> >
> > http://k4eaa.com/k1-knob.htm
> >
> > Don/Ve2ud
> >
>
> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

44109. Re: [TS-520_820_530_830] Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 18:11:54 UTC
From: <pmarkavage@...>
Topic: 44081 Message: 44109

I checked my T-599D last night. I have no pot (VR09) in mine so it agrees
with the service manual. There's just a 330 resistor from the FET source
to ground.

Pete, wa2cwa
http://www.manualman.com

On Mon, 19 Aug 2013 14:57:27 -0000 "Terry Wagoner" <wagstw46@...>
writes:
> Its fundamental purpose is to set the bias on the FET. The question
> is why did they see the need to make it variable instead of the more
> traditional fixed source resistor (typically around 300 ohms) that
> you will see in the Kenwood hybrid FET based mixers?
>
> A source resistor sets the self-bias. Using a source resistor is the
> simplest and most common form of FET biasing. If you buy a batch of
> 50 MPF-102 FETs they will all have varying Id drain current perhaps
> by as much as 10% which means varying transconductance. So instead
> of installing different values of fixed source resistors (which are
> cheaper than trim pots) I guess Kenwood thought faster/easier to
> have person on assembly line tweak a pot to set Id for each 3SK22
> that was installed. Since Id not easy to measure maybe they
> monitored Mixer output level and tweaked the pot?
>
> Maybe your production number is a proto-type T599?
>
> I have virtually no hands-on experience with T599. Be curious to
> know if other production runs using a 3SK22 FET have a single fixed
> resistor and no pot.
>
> Where are all the retired Kenwood design engineers? Are none members
> of this forum? Sure would be fun to pick their brains.
>
> Terry K9TW

44110. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 18:21:07 UTC
From: <pmarkavage@...>
Topic: 44099 Message: 44110

I did this to my 830 tuning knob back in the 80's. I had a source for steel ball bearing so I filled each knob section with them. Added or removed to get good balance and then added some epoxy to hold them in place. Been working fine ever since.

Pete, wa2cwa
http://www.manualman.com

On Mon, 19 Aug 2013 09:39:12 -0400 Craig Roberts <crgrbrts@...> writes:
> The plastic Kenwood OEM knob can be filled from the back with a
> mixture
> of epoxy cement and lead shot to give it a nice heft and weight.
> No,
> you won't have a a sexy KB-1 knob, but you'll save $100 or more.
> (The
> idea comes from my friend Bob Sullivan, W0YVA).
>
> 73,
>
> Craig
> W3CRR

44111. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 20:58:17 UTC
From: Mark Gilger
Topic: 44099 Message: 44111

I used Bee-Bee's to fill my 820 and 520 knobs.

Mark

At 02:21 PM 8/19/2013, pmarkavage@... wrote:
>
>
>I did this to my 830 tuning knob back in the 80's. I had a source for
>steel ball bearing so I filled each knob section with them. Added or
>removed to get good balance and then added some epoxy to hold them in
>place. Been working fine ever since.
>
>Pete, wa2cwa
><http://www.manualman.com>http://www.manualman.com
>
>On Mon, 19 Aug 2013 09:39:12 -0400 Craig Roberts
><<mailto:crgrbrts%40verizon.net>crgrbrts@verizon.net>
>writes:
> > The plastic Kenwood OEM knob can be filled from the back with a
> > mixture
> > of epoxy cement and lead shot to give it a nice heft and weight.
> > No,
> > you won't have a a sexy KB-1 knob, but you'll save $100 or more.
> > (The
> > idea comes from my friend Bob Sullivan, W0YVA).
> >
> > 73,
> >
> > Craig
> > W3CRR
>
>

[Non-text portions of this message have been removed]

44112. Re: T-599D question?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 22:45:47 UTC
From: Terry Wagoner
Topic: 44081 Message: 44112

Thanks Pete

Appreciate you taking time to do this. Makes more sense for a fixed resistor and 300 ohms is more typical of the values in the hybrids. I have looked at all the gain controlled devices and mixers in all the Hybrids because I was interested in why they kept increasing the RF-1 level (from 3.2 to 3.6 in the 830s) thus raising the DC control voltage to the gate 2 of the dual gate mosfets and increasing the gain of the RF and IF amps. Around 4 volts you are pretty much at the knee of the curve for the devices Kenwood is using. I made a chart of device numbers for each RF and IF amps and each Mixer. I included the source resistor value and whether bypassed or partially bypassed.

Also, there was a fellow promoting a mod to lift gate 2 off the agc bus and take a 10k current limiting resistor and jumpering from drain to gate 1 to turn RF amp mosfets on hard to improve receiver sensitivity. He had made no measurement on the effect on Sig to Noise, 2 signal, or blocking performance. In fact he ignored what this would do on 160 and 80 where strong signal abound. I dont think he realized that all the hybrids other than the 520 had a gain control circuit that cooled off the receiver on 160 thru 15 to improve strong signal performance and ran them hot on 10 meters where signals at the antenna would be weaker. All he had to do was buy or make a high gain directional antenna for 10 meters.

I guess we will never know why some T599s had this trim pot in the source lead. Only thing I can think of is to address differences in production runs of 3SK22 mosfets? Seems silly to me.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> I checked my T-599D last night. I have no pot (VR09) in mine so it agrees
> with the service manual. There's just a 330 resistor from the FET source
> to ground.
>
> Pete, wa2cwa
> http://www.manualman.com
>

44113. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 22:53:14 UTC
From: Terry Wagoner
Topic: 44099 Message: 44113

Yes people have been adding shot to VFO knobs for as long as there have been VFO knobs and as you say if done well and balance is kept in mind not a thing wrong with it.

Some claim it causes premature front bearing or bushing wear, but I doubt it as at the very low rpm we are talking about there just isnt any vibration to worry about. I would worry more about the imbalance causing VFO to drift off frequency before I would worry about bearing or bushing loading and wear.

When we are spinning a 100 ton rotor at 3600 rpm then eccentricity and vibration is a big deal for the bearings.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> I did this to my 830 tuning knob back in the 80's. I had a source for
> steel ball bearing so I filled each knob section with them. Added or
> removed to get good balance and then added some epoxy to hold them in
> place. Been working fine ever since.
>
> Pete, wa2cwa
> http://www.manualman.com
>
>
> On Mon, 19 Aug 2013 09:39:12 -0400 Craig Roberts <crgrbrts@...>
> writes:
> > The plastic Kenwood OEM knob can be filled from the back with a
> > mixture
> > of epoxy cement and lead shot to give it a nice heft and weight.
> > No,
> > you won't have a a sexy KB-1 knob, but you'll save $100 or more.
> > (The
> > idea comes from my friend Bob Sullivan, W0YVA).
> >
> > 73,
> >
> > Craig
> > W3CRR
>

44114. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 22:59:57 UTC
From: Don Allen
Topic: 44099 Message: 44114

There's a KB-1 available on QTH.com at this time. It's not marked sold, so it appears to still be available, and at less than the typical "going price."

Don W9CW

On 8/19/2013 5:53 PM, Terry Wagoner wrote:
>
> Yes people have been adding shot to VFO knobs for as long as there
> have been VFO knobs and as you say if done well and balance is kept in
> mind not a thing wrong with it.
>
> Some claim it causes premature front bearing or bushing wear, but I
> doubt it as at the very low rpm we are talking about there just isnt
> any vibration to worry about. I would worry more about the imbalance
> causing VFO to drift off frequency before I would worry about bearing
> or bushing loading and wear.
>
> When we are spinning a 100 ton rotor at 3600 rpm then eccentricity and
> vibration is a big deal for the bearings.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, <pmarkavage@...> wrote:
> >
> > I did this to my 830 tuning knob back in the 80's. I had a source for
> > steel ball bearing so I filled each knob section with them. Added or
> > removed to get good balance and then added some epoxy to hold them in
> > place. Been working fine ever since.
> >
> > Pete, wa2cwa
> > http://www.manualman.com
> >
> >
> > On Mon, 19 Aug 2013 09:39:12 -0400 Craig Roberts <crgrbrts@...>
> > writes:
> > > The plastic Kenwood OEM knob can be filled from the back with a
> > > mixture
> > > of epoxy cement and lead shot to give it a nice heft and weight.
> > > No,
> > > you won't have a a sexy KB-1 knob, but you'll save $100 or more.
> > > (The
> > > idea comes from my friend Bob Sullivan, W0YVA).
> > >

> > > 73,
> > >
> > > Craig
> > > W3CRR
> >
>
>

[Non-text portions of this message have been removed]

44115. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-19 23:10:09 UTC
From: Brian Allen
Topic: 44099 Message: 44115

Would this knob have a negative effect on wearing of the tuning mechanism on the 830?

[Non-text portions of this message have been removed]

44116. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 00:15:58 UTC
From: Timothy Johnston
Topic: 44052 Message: 44116

I do this procedure slightly differently, forgot who showed me. But here is how I do it, if it helps.

Set mode to TUN
Set function to 25KHz.
Set your band as needed. (I will use 40m and 7.200 for this example.)

I will tune around 7.200 until I hear the marker. It will be noticeable because you will hear a dip in the tone as it goes away and then comes back. Make note of where it is at and move the outer ring of the main dial to correspond to 7.200 using the center mark between LSB and USB. Now hold the outer ring from moving while you tune for the center of the dip. This can be determined by watching the s-meter. Tune real real slow.... watch the s-meter peak, then start to vibrate. That is now dead on the marker. Release the outer ring. Turn off the 25KHz.

I can make a video of this procedure if you want.

TJ, K4TFJ
Comments always welcome.

On Sat, Aug 17, 2013 at 9:37 PM, John <jbdkz@...> wrote:

> **
>
>
> Thanks Joe, will try this the next time I can slip away to my shack.
>
> John
> KD8SCX
>
>
> --- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...>
> wrote:
> >
> > You do not need an RF generator to do the calibration. Start with the
> rig on for maybe about 20-30 minutes or so...just to get
> > everything nice and warmed up and stable. Make sure that the "RIT" is
> OFF!!!? Turn "function switch" to? "CAL -25"...rotate main tuning
> knob...until you hear a tone..
>
> > that should be the "marker/cal" signal...depending which "MODE" you want
> to cal...USB, LSB, or CW refer to the markings above the main tuning
> > knob. Rotate the main tuning knob back and forth through the tone
> several time to get the feel of it...then using the above mentioned

> markings,
> > zero beat..(no tone) the marker signal. If the dial scale...that the
> silver ring with the numbers on it...just behind the main tuning knob is
> NOT on an even
> > 25kHz marking...hold the main tuning knob and move the dial skirt until
> it does. The dial skirt is a friction device and should be stiff..but not
> hard to move.. and
> > most important...does not move real easy. If rig has a CW filter
> installed...see the directions under section 4.4 as mentioned.
> > This is basic calibration...and you'll need to get used to doing it, as
> the VFO is not quite linear from on end to the other.
> >
> >
> > ?
> > 73? Joe
> > WB7UQU
> >
> >
> >
> > _____
> > From: John <jbdkz@...>
>
> > To: TS-520_820_530_830@yahoogroups.com
> > Sent: Friday, August 16, 2013 8:46 PM
> > Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes me
> >
> >
> >
> > ?
> > I just received a TS-520SE from a family member, and I am having
> difficulty understaning section 4.4 in the Operating Manual labeled "Normal
> Tranciever Calibration". Is there an alternative way for performing said
> calibration? I do not own an RF generator.
> >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
>
>
>

[Non-text portions of this message have been removed]

44117. Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 01:27:32 UTC
From: John
Topic: 44052 Message: 44117

Tim, I would certainly appreciate if you created a video of this procedure.

Thanks!

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston <timothy.f.johnston@...>
wrote:
>
> I do this procedure slightly differently, forgot who showed me. But here is
> how I do it, if it helps.
>
> Set mode to TUN
> Set function to 25KHz.
> Set your band as needed. (I will use 40m and 7.200 for this example.)
>
> I will tune around 7.200 until I hear the marker. It will be noticeable
> because you will hear a dip in the tone as it goes away and then comes
> back. Make note of where it is at and move the outer ring of the main dial
> to correspond to 7.200 using the center mark between LSB and USB. Now hold
> the outer ring from moving while you tune for the center of the dip. This
> can be determined by watching the s-meter. Tune real real slow.... watch
> the s-meter peak, then start to vibrate. That is now dead on the marker.
> Release the outer ring. Turn off the 25KHz.
>
> I can make a video of this procedure if you want.
>
> TJ, K4TFJ
> Comments always welcome.
>
>
> On Sat, Aug 17, 2013 at 9:37 PM, John <jbdkz@...> wrote:
>
> > **
> > >
> > >
> > > Thanks Joe, will try this the next time I can slip away to my shack.
> > >
> > > John
> > > KD8SCX
> > >
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@>
> > > wrote:
> > > >

> > > You do not need an RF generator to do the calibration. Start with the
> > rig on for maybe about 20-30 minutes or so...just to get
> > > everything nice and warmed up and stable. Make sure that the "RIT" is
> > OFF!!!Â Turn "function switch" toÂ "CAL -25"...rotate main tuning
> > knob...until you hear a tone..
> >
> > > that should be the "marker/cal" signal...depending which "MODE" you want
> > to cal...USB, LSB, or CW refer to the markings above the main tuning
> > > knob. Rotate the main tuning knob back and forth through the tone
> > several time to get the feel of it...then using the above mentioned
> > markings,
> > > zero beat..(no tone) the marker signal. If the dial scale...that the
> > silver ring with the numbers on it...just behind the main tuning knob is
> > NOT on an even
> > > 25kHz marking...hold the main tuning knob and move the dial skirt until
> > it does. The dial skirt is a friction device and should be stiff..but not
> > hard to move.. and
> > > most important...does not move real easy. If rig has a CW filter
> > installed...see the directions under section 4.4 as mentioned.
> > > This is basic calibration...and you'll need to get used to doing it, as
> > the VFO is not quite linear from on end to the other.
> > >
> > >
> > > Â
> > > 73Â Joe
> > > WB7UQU
> > >
> > >
> > >
> > > _____
> > > From: John <jbdkz@>
> >
> > > To: TS-520_820_530_830@yahoogroups.com
> > > Sent: Friday, August 16, 2013 8:46 PM
> > > Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes me
> > >
> > >
> > >
> > > Â
> > > I just received a TS-520SE from a family member, and I am having
> > difficulty understaning section 4.4 in the Operating Manual labeled "Normal
> > Tranciever Calibration". Is there an alternative way for performing said
> > calibration? I do not own an RF generator.
> > >
> > >
> > >
> > >
> > > [Non-text portions of this message have been removed]
> > >
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> >
> >
>
>
> [Non-text portions of this message have been removed]
>

44118. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 02:09:48 UTC
From: Timothy Johnston
Topic: 44052 Message: 44118

Here ya go John: http://www.youtube.com/watch?v=liASEz4B94s
73, TJ

On Mon, Aug 19, 2013 at 9:27 PM, John <jbdkz@...> wrote:

> **
>
>
> Tim, I would certainly appreciate if you created a video of this procedure.
>
> Thanks!
>
> John
> KD8SCX
>
>
> --- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston
> <timothy.f.johnston@...> wrote:
> >
> > I do this procedure slightly differently, forgot who showed me. But here
> is
> > how I do it, if it helps.
> >
> > Set mode to TUN
> > Set function to 25KHz.
> > Set your band as needed. (I will use 40m and 7.200 for this example.)
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> > I will tune around 7.200 until I hear the marker. It will be noticeable
> > because you will hear a dip in the tone as it goes away and then comes
> > back. Make note of where it is at and move the outer ring of the main
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> > to correspond to 7.200 using the center mark between LSB and USB. Now
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> > the outer ring from moving while you tune for the center of the dip. This
> > can be determined by watching the s-meter. Tune real real slow.... watch
> > the s-meter peak, then start to vibrate. That is now dead on the marker.
> > Release the outer ring. Turn off the 25KHz.
> >
> > I can make a video of this procedure if you want.
> >
> > TJ, K4TFJ
> > Comments always welcome.
> >
> >

> > On Sat, Aug 17, 2013 at 9:37 PM, John <jbdkz@...> wrote:
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> > > **
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> > > Thanks Joe, will try this the next time I can slip away to my shack.
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> > > --- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles
> <stilesjoseph@>
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> > > > You do not need an RF generator to do the calibration. Start with the
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> > > knob...until you hear a tone..
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> > > > that should be the "marker/cal" signal...depending which "MODE" you
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> > > several time to get the feel of it...then using the above mentioned
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> > > > zero beat..(no tone) the marker signal. If the dial scale...that the
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> > > NOT on an even
> > > > 25kHz marking...hold the main tuning knob and move the dial skirt
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> > > it does. The dial skirt is a friction device and should be stiff..but
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> > > > most important...does not move real easy. If rig has a CW filter
> > > installed...see the directions under section 4.4 as mentioned.
> > > > This is basic calibration...and you'll need to get used to doing it,
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> > > the VFO is not quite linear from on end to the other.
> > > >
> > > >
> > > > ?
> > > > 73? Joe
> > > > WB7UQU
> > > >
> > > >
> > > >

> > > > _____
> > > > From: John <jbdkz@>
> > > >
> > > > To: TS-520_820_530_830@yahoogroups.com
> > > > Sent: Friday, August 16, 2013 8:46 PM
> > > > Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes
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44119. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 13:39:39 UTC
From: Terry Wagoner
Topic: 44099 Message: 44119

Section 5 of the TS-830S Instruction Manual details the Optional Accessories available for the TS-830S. The KB-1 was designed and sold as an option.

Kenwood engineers would have had to made an error by designing and producing and selling the KB-1 Deluxe Flywheel VFO Tuning Knob. I know of no evidence that this design has proven flawed with long operational experience.

I always assume that the Kenwood design engineers did a pretty good job until field experience has proven otherwise. In that event you would normally expect to see a Service Bulletin to be issued or an optional accessory to be removed from production and sales.

I dont know if they performed laboratory accelerated wear test on any of the Hybrid VFO drive trains or not. I suspect not.

VFOs with the stock knobs do show wear(excess axial and radial movement of the knob)after many many years. I dont think the KB-1 knob would noticeably accelerate that condition. I see stock VFO knobs that wobble like on an eccentric and the current owners are oblivious to it or just live with it.

All radios have a economic design life and my guess is all the Hybrids with stock or optional flywheel knobs have long exceeded that.

I run the K-1 replica knobs and have no concern about accelerated VFO gear train wear. I do balance the wear by using the external VFO some of the time but I am not anal about it. I suspect my TS-830S and the VFOs will long outlive me. Of course my operating time and VFO lock to lock cycling is probably very low compared to average owner.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Brian Allen <bsa0791@...> wrote:
>
> Would this knob have a negative effect on wearing of the tuning mechanism on the 830?
>
> [Non-text portions of this message have been removed]
>

44120. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 14:28:44 UTC
From: Don Allen
Topic: 44099 Message: 44120

In addition to owning a 520S and 830S, both with the stock VFO knobs, I own an Elecraft K2 with the N8BX machined bronze knob. The stock K2 plastic knob's weight is 2 oz., and the N8BX bronze knob is 6.5 oz. The K2's VFO uses an optical encoder, unlike the Kenwood hybrids' mechanical VFO gear train. After a couple of year's of use, the K2's optical encoder's shaft bearing is starting to show some wear, and resultant "play." It's not bothersome, or creating any problems electrically, and really not noticeable... unless you really spin the weighted knob where a faint "scraping" noise is heard.

I agree with Terry, I am certain the Kenwood engineers took the weight of the KB-1 knob into account. The KB-1, or a design equivalent, was also used on the TS-780 Multi-Mode 2M transceiver (1982-late '80s) as the stock knob, thus the engineers likely would have taken the knob's weight into account when designing the TS-780.

73
Don W9CW

On 8/20/2013 8:39 AM, Terry Wagoner wrote:
>
> Section 5 of the TS-830S Instruction Manual details the Optional
> Accessories available for the TS-830S. The KB-1 was designed and sold
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>
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> All radios have a economic design life and my guess is all the Hybrids
> with stock or optional flywheel knobs have long exceeded that.

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> gear train wear. I do balance the wear by using the external VFO some
> of the time but I am not anal about it. I suspect my TS-830S and the
> VFOs will long outlive me. Of course my operating time and VFO lock to
> lock cycling is probably very low compared to average owner.
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> Terry K9TW
>

> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Brian Allen
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> >
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> > [Non-text portions of this message have been removed]
> >
>
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44121. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 15:25:18 UTC
From: John Davidson
Topic: 44052 Message: 44121

Tim, You neglected to state what mode you set. The Center mark is for CW where the tone in the speaker = your peak volume in the narrowest filter and on USB or LSB you tune for Zero tone over that mark corresponding to the mode set. (For the 520 rigs at least)

From: Timothy Johnston <timothy.f.johnston@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, August 19, 2013 8:15 PM
Subject: Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

I do this procedure slightly differently, forgot who showed me. But here is how I do it, if it helps.

Set mode to TUN
Set function to 25KHz.
Set your band as needed. (I will use 40m and 7.200 for this example.)

I will tune around 7.200 until I hear the marker. It will be noticeable because you will hear a dip in the tone as it goes away and then comes back. Make note of where it is at and move the outer ring of the main dial to correspond to 7.200 using the center mark between LSB and USB. Now hold the outer ring from moving while you tune for the center of the dip. This can be determined by watching the s-meter. Tune real real slow.... watch the s-meter peak, then start to vibrate. That is now dead on the marker. Release the outer ring. Turn off the 25KHz.

I can make a video of this procedure if you want.

TJ, K4TFJ
Comments always welcome.

On Sat, Aug 17, 2013 at 9:37 PM, John <jbdkz@...> wrote:

> **
>
>
> Thanks Joe, will try this the next time I can slip away to my shack.
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> John
> KD8SCX
>
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> --- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...>
> wrote:
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> > You do not need an RF generator to do the calibration. Start with the
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> OFF!!!Â Turn "function switch" toÂ "CAL -25"...rotate main tuning
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> > 73Â Joe
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> > Sent: Friday, August 16, 2013 8:46 PM
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Yahoo! Groups Links

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44122. AF level on TS-530 S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 12:19:34 UTC
From: Bill
Topic: 44122 Message: 44122

I have a TS 530 s in which the audio level is fine when you first turn it on. After a 1/2 hour it starts to drop in level and you have to advance the AF control. All the voltages are within spec and stay that way. I had a power surge here 3 weeks ago which upset a lot of things. I changed the HV caps (lost HV to 300 volts) and the screen caps and the Cathode resistors to get transmit back up to par. Also had a bad cap on the IF board. C 75 was dragging down the 9 volt supply. Everything else seems to work fine now. Any ideas would greatly help.
Bill WD8OSJ

44123. partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 13:37:14 UTC
From: bigfoot
Topic: 44123 Message: 44123

turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!

44124. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 15:43:54 UTC
From: Timothy Johnston
Topic: 44052 Message: 44124

@John: I did state I was in the TUN position (see 00:15-00:20), but otherwise your procedure matches the manual. The TUN mode also corresponds to the CW mark, but instead of the 700Hz offset to the lower side only, you can use the valley null to zero. I am not saying this is the proper way, it's just the way I was shown, and it works great for me for a reason.

Maybe I should explain why I use this over the manual's procedure. I had some hearing damage while in the service, both over-all loss and some tonal loss, specifically in the low-low frequencies. By using the valley or dip method on the TUN function, I can watch for the vibration/warble of the s-meter. It is difficult to hear the tone if I attempt this in the other modes.

Besides, it doesn't differ all that much from the manual and the most important thing was for someone to understand and "SEE" that the outer ring of the main dial can be moved (or held) separately. That one fact is not very clear in Section 4.4, hence the primary reason for the video.

Tj Johnston, K4TFJ ==========
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

On Tue, Aug 20, 2013 at 11:25 AM, John Davidson <k8jd@...> wrote:

> **
>
>
> Tim, You neglected to state what mode you set. The Center mark is for CW
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> _____
> From: Timothy Johnston <timothy.f.johnston@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Monday, August 19, 2013 8:15 PM
> Subject: Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration
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> Release the outer ring. Turn off the 25KHz.
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> TJ, K4TFJ
> Comments always welcome.
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> > >
> > >
> > > _____
> > > From: John <jbdkz@...>
> >
> > > To: TS-520_820_530_830@yahoogroups.com
> > > Sent: Friday, August 16, 2013 8:46 PM
> > > Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes me
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44125. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 16:18:37 UTC
From: John Davidson
Topic: 44052 Message: 44125

That's OK if you STAY AWAY from band edges since you are almost 1K off freq.

From: Timothy Johnston <timothy.f.johnston@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 11:43 AM
Subject: Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

@John: I did state I was in the TUN position (see 00:15-00:20), but
otherwise your procedure matches the manual. The TUN mode also corresponds
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can use the valley null to zero. I am not saying this is the proper way,
it's just the way I was shown, and it works great for me for a reason.

>
    http://docs.yahoo.com/info/terms/

[Non-text portions of this message have been removed]

44126. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 16:36:55 UTC
From: Timothy Johnston
Topic: 44052 Message: 44126

As I understand the 520's manual, the TUN mode (CAR) frequency is the
actual center frequency and also used for CW transmit. The CW receive
frequency is actually offset by 700hz and LSB/USB 1.5KHz respectively.
(Reference Table 1, Pg 25). This has procedure has been proven to be dead
on with a few Hz as I have done this many times before checking into nets
and the dial will read correctly, definately not 1KHz off.

I am open to hearing your theory as to why you think it would be 1khz off.

Tj Johnston, K4TFJ ==
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

On Tue, Aug 20, 2013 at 12:18 PM, John Davidson <k8jd@...> wrote:

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> That's OK if you STAY AWAY from band edges since you are almost 1K off
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>
> _____________________________
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> Sent: Tuesday, August 20, 2013 11:43 AM
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> Subject: Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration
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44127. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 17:01:51 UTC
From: Brian Allen
Topic: 44099 Message: 44127

Ken's site leaves the impression that he may restart the K1 knob process. I assume this is old information and it will not start back

I wish I could have bought one. What was his original price? I guess you could do you own replication if you had access to a cnc machine. The price to do just one would be more that one would want to pay.

[Non-text portions of this message have been removed]

44128. Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 20:12:52 UTC
From: Terry Wagoner
Topic: 44099 Message: 44128

Brian:

Yes-tooling up for one would be cost prohibitive unless you had your own machine shop.

You might try emailing him and ask if he has any unfinished ones left. About a year and half ago I bought 2 from him that had been blasted but not anodized at a pretty deep discount. He assembled them with the finger hole spinner for me. I prefer he tell you what he sells them for.

I have not spoken to him in some time and my last email went unanswered. I winter in Fort Myers Beach south of him and would stop and visit with him. Saw him last winter and had no contact since then.

He had quite a few at that time. Dont know if he still has them or not. Actually they dont look too bad in natural color, but with time oils from fingers will discolor them. As I mentioned my plan is to try my hand at home anodizing. Igloo cooler, sulfuric acid bath, DC power supply, RIT dye bath (if you like natural clear finish no dye cycle involved). Lots of good info on web on home anodizing. You dont need glycol chillers etc. Look at the simple processes. Just need to practice before trying on the good knob.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Brian Allen <bsa0791@...> wrote:
>
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44129. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 20:21:44 UTC
From: Mark Gilger
Topic: 44099 Message: 44129

If anyone is real serious about bring back a nice
weighted knob for the TS-830, or others, they
might want to contact www.73CNC.com
and have a discussion with them. He's designed
knobs for a lot of different radio's and sets up
at the Dayton Hamvention every year for those that like that.

http://www.73cnc.com/category_s/43.htm

Mark

At 04:12 PM 8/20/2013, Terry Wagoner wrote:
>
>
>Brian:
>
>Yes-tooling up for one would be cost prohibitive
>unless you had your own machine shop.
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>You might try emailing him and ask if he has any
>unfinished ones left. About a year and half ago
>I bought 2 from him that had been blasted but
>not anodized at a pretty deep discount. He
>assembled them with the finger hole spinner for
>me. I prefer he tell you what he sells them for.
>
>I have not spoken to him in some time and my
>last email went unanswered. I winter in Fort
>Myers Beach south of him and would stop and
>visit with him. Saw him last winter and had no contact since then.
>
>He had quite a few at that time. Dont know if he
>still has them or not. Actually they dont look
>too bad in natural color, but with time oils
>from fingers will discolor them. As I mentioned
>my plan is to try my hand at home anodizing.
>Igloo cooler, sulfuric acid bath, DC power
>supply, RIT dye bath (if you like natural clear
>finish no dye cycle involved). Lots of good info
>on web on home anodizing. You dont need glycol
>chillers etc. Look at the simple processes. Just
>need to practice before trying on the good knob.
>
>Terry K9TW
>
>--- In

><mailto:TS-520_820_530_830%40yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
>Brian Allen <bsa0791@...> wrote:
> >
> > Ken's site leaves the impression that he may
> restart the K1 knob process. I assume this is
> old information and it will not start back
> >
> > I wish I could have bought one. What was his
> original price? I guess you could do you own
> replication if you had access to a cnc machine.
> The price to do just one would be more that one would want to pay.
> >
> > [Non-text portions of this message have been removed]
> >
>
>

[Non-text portions of this message have been removed]

44130. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-20 23:51:01 UTC
From: James
Topic: 43925 Message: 44130

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Man its like pulling teeth here.
Give me a break I have never owned a tube rig before. I do not know anything about fixing or working on electronics.

Your last response said it transmits in CW but not in USB.
>
> At one time you said it transmitted in both LSB and USB intermittently.
Sometime it would transmit when the key was down and some times it would not. The key would be down and it would transmit. The next time I would key up it would not transmit that is intermitent.

>
> That means you key the mic and speak into it and get ALC indication and RF output power indicated on your wattmeter from time to time but not every time you key the mic. Perhaps the use of the term intermittent was not correct? If you get just a small/short duration flick of ALC and output power that is not intermittent operation. That is momentary operation.
>
> It really helps to understand what the real operational issue is.
>
> If this fellow has problems I offer this final thought.
>
> 1. In CW you need Carrier Osc and dc voltage from the Car level pot to produce output from the Balanced Mod. If you have good CW output into dummy load then you know you have these two things.
>
> 2. In LSB and USB you need Audio and Carrier Oscillator input to the Balanced Modulator. This means two different Carrier Oscillator signals and not likely that both would be missing, but very easy to check at the CAR post on the Gen Board. Audio is needed at the BM post (approx 150 to 200mv for full scale ALC indication). Again very easy to measure.
>
> 3. You said you tried a different mic and set mic gain full CW and no results. It is possible that you have a bad front panel mic jack connection but not a very common failure.
>
> 4. Tell this guy after loading in CW to turn off the SG switch, place mode switch in LSB/USB, remove mic and set mic gain full CW and then flip to Send. Now touch finger or tap a jumper lead to the bottom right pin on the mic jack. Should get full scale ALC deflection as he taps this pin. (assumes he has no way to inject any kind of audio test signal). If no ALC deflection then go to the Phone Patch jack on rear panel and touch center pin there(assumes this is a TS-520S). If you get good ALC indication it means you have a bad connection on the front panel mic jack. If no ALC indication then need to measure Audio and Carrier inputs at Gen Board.
>

> 5. As I mentioned he should find approx 100 to 200 mv of audio at BM and 1.0 volt of Carrier at the inputs to the Balanced Mod on the GEN Board.

I finnaly gave up with this rig it went to the electronic recyclers yesterday.
>
>
> Good luck
> Terry K9TW
>
>
> "No is is not work in LSB
> As is now it will transmit in CW but not USB.
> When I tune up in every thing looks fine."
>

44131. Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 02:08:09 UTC
From: Terry Wagoner
Topic: 43925 Message: 44131

I am trying to help you. You dont need to know much about radio to describe the symptoms.

It is understandable that it may take some follow up and probing questions. Unless we clearly understand what the operational issue is we will waste our time and your time. The answers you provide make all the difference in the world in the quality of the advice anyone can give you.

You would never say to your mechanic that your car wont start sometimes and expect him to point you in right direction. What would that mean to him? It doesnt crank? It doesnt turn over? It fires and stalls? It makes a rapid clicking noise? It makes one click and dash lamps go out? Starter spins fast but does not engage?

I am sorry to hear you gave up on the radio.

If you come back someone else other than this crabby old man will help you.

Terry K9TW

> >
> > Man its like pulling teeth here.
> Give me a break I have never owned a tube rig before. I do not know anything about fixing or working on electronics.
>
>

44132. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 02:34:33 UTC
From: Bob Lazarow
Topic: 43925 Message: 44132

Terry and our other experienced guys:

I think this is the key here "
Give me a break I have never owned a tube rig before. I do not know
anything about fixing or working on electronics."

An honest answer, and perhaps for the future the first proposed answer
would be to name some repair guy references or maybe a local ham, when
the owner of the rig is simply NOT Qualified to attempt repairs.

I HAVE worked in electronics, sometime professionally, since 1958. I
HAVE owned, built, and repaired dozens of tube rigs. I DO have and know
how to use test equipment. I AM also nearly 69 years old, DON'T see as
well as I used to and DON'T have a lot of experience with sophisticated
solid state rigs that have hard to get parts and inconsistent manuals!!

SO, if my TS-830s ever takes a hit, and it's NOT just a TUBE, she's
going someplace where they know how to fix rigs like this. (I know money
is tight but so is a screwed up useless rig)

You can't be expected to help people with limited knowledge or radios
and or electronics and or without test equipment.

I don't think it's a good idea either, BECAUSE SOONER OR LATER someone
without the proper tools or experience is going to try following a
simple suggested repair or measurement and really SCREW UP BIG TIME and
GUESS WHO HE"S GOING TO BLAME?

Just my thoughts

Bob/WA2JAJ

On 8/20/2013 7:51 PM, James wrote:
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@...> wrote:
> >
> > Man its like pulling teeth here.
> Give me a break I have never owned a tube rig before. I do not know
> anything about fixing or working on electronics.
>
> Your last response said it transmits in CW but not in USB.
> >

> > At one time you said it transmitted in both LSB and USB intermittently.
> Sometime it would transmit when the key was down and some times it
> would not. The key would be down and it would transmit. The next time
> I would key up it would not transmit that is intermitent.
>
> >
> > That means you key the mic and speak into it and get ALC indication
> and RF output power indicated on your wattmeter from time to time but
> not every time you key the mic. Perhaps the use of the term
> intermittent was not correct? If you get just a small/short duration
> flick of ALC and output power that is not intermittent operation. That
> is momentary operation.
> >
> > It really helps to understand what the real operational issue is.
> >
> > If this fellow has problems I offer this final thought.
> >
> > 1. In CW you need Carrier Osc and dc voltage from the Car level pot
> to produce output from the Balanced Mod. If you have good CW output
> into dummy load then you know you have these two things.
> >
> > 2. In LSB and USB you need Audio and Carrier Oscillator input to the
> Balanced Modulator. This means two different Carrier Oscillator
> signals and not likely that both would be missing, but very easy to
> check at the CAR post on the Gen Board. Audio is needed at the BM post
> (approx 150 to 200mv for full scale ALC indication). Again very easy
> to measure.
> >
> > 3. You said you tried a different mic and set mic gain full CW and
> no results. It is possible that you have a bad front panel mic jack
> connection but not a very common failure.
> >
> > 4. Tell this guy after loading in CW to turn off the SG switch,
> place mode switch in LSB/USB, remove mic and set mic gain full CW and
> then flip to Send. Now touch finger or tap a jumper lead to the bottom
> right pin on the mic jack. Should get full scale ALC deflection as he
> taps this pin. (assumes he has no way to inject any kind of audio test
> signal). If no ALC deflection then go to the Phone Patch jack on rear
> panel and touch center pin there(assumes this is a TS-520S). If you
> get good ALC indication it means you have a bad connection on the
> front panel mic jack. If no ALC indication then need to measure Audio
> and Carrier inputs at Gen Board.
> >
> > 5. As I mentioned he should find approx 100 to 200 mv of audio at BM
> and 1.0 volt of Carrier at the inputs to the Balanced Mod on the GEN
> Board.
>
> I finnaly gave up with this rig it went to the electronic recyclers
> yesterday.
> >

> >
> > Good luck
> > Terry K9TW
> >
> >
> > "No is is not work in LSB
> > As is now it will transmit in CW but not USB.
> > When I tune up in every thing looks fine."
> >
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6594 - Release Date: 08/20/13
>

[Non-text portions of this message have been removed]

44133. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 02:56:43 UTC
From: Bob Lazarow
Topic: 43925 Message: 44133

Terry: For goodness sakes, you don't owe him (is he a Ham?) or anyone else an apology!!! He wants someone to spend hours helping to remotely troubleshoot and fix a 30 year old radio and then complains?

Please read my message copied to the group about some other issues you may get yourself with this type of person

Perhaps the group needs some type of warning caveat such as:

"Since this group is aimed primarily at licensed Amateur Radio Operators, it is presumed that users requesting help have at least a basic knowledge of electronics and repair techniques as well as access to appropriate test devices. Additionally, any and all suggestions, recommendations, etc, are offered in the spirit of Ham Radio assistance to fellow hams and are not a substitute for paid professional work. It is understood that our ability to assist is limited by having no physical access and our dependency upon the requester to accurately describe problems and settings and take correct measurements when requested. In this group offer of mutual assistance, NO LIABILITY for damage to equipment equipment or harm to an individual is provided or available under any circumstance."

Terry please feel free to change or ignore as you see fit

Please share only with Moderator or others OFF LINe..I don't want to start or be in the middle of a 15 shouting match LOL

Best '73

Bob/WA2JAJ

On 8/20/2013 10:08 PM, Terry Wagoner wrote:
>
> I am trying to help you. You dont need to know much about radio to
> describe the symptoms.
>
> It is understandable that it may take some follow up and probing
> questions. Unless we clearly understand what the operational issue is
> we will waste our time and your time. The answers you provide make all
> the difference in the world in the quality of the advice anyone can
> give you.
>
> You would never say to your mechanic that your car wont start
> sometimes and expect him to point you in right direction. What would
> that mean to him? It doesnt crank? It doesnt turn over? It fires and

> stalls? It makes a rapid clicking noise? It makes one click and dash
> lamps go out? Starter spins fast but does not engage?
>
> I am sorry to hear you gave up on the radio.
>
> If you come back someone else other than this crabby old man will help
> you.
>
> Terry K9TW
>
> > >
> > > Man its like pulling teeth here.
> > Give me a break I have never owned a tube rig before. I do not know
> anything about fixing or working on electronics.
> >
> >
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6594 - Release Date: 08/20/13
>

[Non-text portions of this message have been removed]

44134. WHOOPS

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 03:02:04 UTC
From: Bob Lazarow
Topic: 43925 Message: 44134

Well, obviously a message I had intended on fro Terry made it out to the
group. Sorry and now you know why I've given up complex repairs..LOL
Still think this should be an OFF-LINE discussion

Bob

On 8/20/2013 10:56 PM, Bob Lazarow wrote:
>
> Terry: For goodness sakes, you don't owe him (is he a Ham?) or anyone
> else an apology!!! He wants someone to spend hours helping to remotely
> troubleshoot and fix a 30 year old radio and then complains?
>
> Please read my message copied to the group about some other issues you
> may get yourself with this type of person
>
> Perhaps the group needs some type of warning caveat such as:
>
> "Since this group is aimed primarily at licensed Amateur Radio
> Operators, it is presumed that users requesting help have at least a
> basic knowledge of electronics and repair techniques as well as access
> to appropriate test devices. Additionally, any and all suggestions,
> recommendations, etc, are offered in the spirit of Ham Radio assistance
> to fellow hams and are not a substitute for paid professional work. It
> is understood that our ability to assist is limited by having no
> physical access and our dependency upon the requester to accurately
> describe problems and settings and take correct measurements when
> requested. In this group offer of mutual assistance, NO LIABILITY for
> damage to equipment equipment or harm to an individual is provided or
> available under any circumstance."
>
> Terry please feel free to change or ignore as you see fit
>
> Please share only with Moderator or others OFF LINe..I don't want to
> start or be in the middle of a 15 shouting match LOL
>
> Best '73
>
> Bob/WA2JAJ
>
> On 8/20/2013 10:08 PM, Terry Wagoner wrote:
> >
> > I am trying to help you. You dont need to know much about radio to
> > describe the symptoms.
> >
> > It is understandable that it may take some follow up and probing

> > questions. Unless we clearly understand what the operational issue is
> > we will waste our time and your time. The answers you provide make all
> > the difference in the world in the quality of the advice anyone can
> > give you.
> >
> > You would never say to your mechanic that your car wont start
> > sometimes and expect him to point you in right direction. What would
> > that mean to him? It doesnt crank? It doesnt turn over? It fires and
> > stalls? It makes a rapid clicking noise? It makes one click and dash
> > lamps go out? Starter spins fast but does not engage?
> >
> > I am sorry to hear you gave up on the radio.
> >
> > If you come back someone else other than this crabby old man will help
> > you.
> >
> > Terry K9TW
> >
> > > >
> > > > Man its like pulling teeth here.
> > > Give me a break I have never owned a tube rig before. I do not know
> > anything about fixing or working on electronics.
> > >
> > >
> >
> >
> >
> > No virus found in this message.
> > Checked by AVG - www.avg.com <http://www.avg.com>
> > Version: 2013.0.3392 / Virus Database: 3211/6594 - Release Date:
> 08/20/13
> >
>
> [Non-text portions of this message have been removed]
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6594 - Release Date: 08/20/13
>

[Non-text portions of this message have been removed]

44135. Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 03:18:32 UTC
From: John
Topic: 44052 Message: 44135

Tim,

The youtube video helped a lot, I was able to follow your video and calibrate the dial scale.

Thank You!

John

--- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston <timothy.f.johnston@...> wrote:
>
> Here ya go John: http://www.youtube.com/watch?v=liASEz4B94s
> 73, TJ
>
>
> On Mon, Aug 19, 2013 at 9:27 PM, John <jbdkz@...> wrote:
>
> > **
> >
> >
> > Tim, I would certainly appreciate if you created a video of this procedure.
> >
> > Thanks!
> >
> > John
> > KD8SCX
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston
> > <timothy.f.johnston@> wrote:
> > >
> > > I do this procedure slightly differently, forgot who showed me. But here
> > is
> > > how I do it, if it helps.
> > >
> > > Set mode to TUN
> > > Set function to 25KHz.
> > > Set your band as needed. (I will use 40m and 7.200 for this example.)
> > >
> > > I will tune around 7.200 until I hear the marker. It will be noticeable
> > > because you will hear a dip in the tone as it goes away and then comes
> > > back. Make note of where it is at and move the outer ring of the main
> > dial
> > > to correspond to 7.200 using the center mark between LSB and USB. Now
> > hold

> > > the outer ring from moving while you tune for the center of the dip. This
> > > can be determined by watching the s-meter. Tune real real slow.... watch
> > > the s-meter peak, then start to vibrate. That is now dead on the marker.
> > > Release the outer ring. Turn off the 25KHz.
> > >
> > > I can make a video of this procedure if you want.
> > >
> > > TJ, K4TFJ
> > > Comments always welcome.
> > >
> > >
> > > On Sat, Aug 17, 2013 at 9:37 PM, John <jbdkz@> wrote:
> > >
> > > > **
> >
> > > >
> > > >
> > > > Thanks Joe, will try this the next time I can slip away to my shack.
> > > >
> > > > John
> > > > KD8SCX
> > > >
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles
> > <stilesjoseph@>
> > > > wrote:
> > > > >
> > > > > You do not need an RF generator to do the calibration. Start with the
> > > > rig on for maybe about 20-30 minutes or so...just to get
> > > > > everything nice and warmed up and stable. Make sure that the "RIT" is
> > > > OFF!!!Â Turn "function switch" toÂ "CAL -25"...rotate main tuning
> > > > knob...until you hear a tone..
> > > >
> > > > > that should be the "marker/cal" signal...depending which "MODE" you
> > want
> > > > to cal...USB, LSB, or CW refer to the markings above the main tuning
> > > > > knob. Rotate the main tuning knob back and forth through the tone
> > > > several time to get the feel of it...then using the above mentioned
> > > > markings,
> > > > > zero beat..(no tone) the marker signal. If the dial scale...that the
> > > > silver ring with the numbers on it...just behind the main tuning knob
> > is
> > > > NOT on an even
> > > > > 25kHz marking...hold the main tuning knob and move the dial skirt
> > until
> > > > it does. The dial skirt is a friction device and should be stiff..but
> > not
> > > > hard to move.. and
> > > > > most important...does not move real easy. If rig has a CW filter
> > > > installed...see the directions under section 4.4 as mentioned.

> > > > > This is basic calibration...and you'll need to get used to doing it,
> > as
> > > > > the VFO is not quite linear from on end to the other.
> > > > > >
> > > > > >
> > > > > > Â
> > > > > > 73Â Joe
> > > > > > WB7UQU
> > > > > >
> > > > > >
> > > > > >
> > > > > > _____
> > > > > > From: John <jbdkz@>
> > > > >
> > > > > > To: TS-520_820_530_830@yahoogroups.com
> > > > > > Sent: Friday, August 16, 2013 8:46 PM
> > > > > > Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration eludes
> > me
> > > > > > >
> > > > > > >
> > > > > > >
> > > > > > > Â
> > > > > > > I just received a TS-520SE from a family member, and I am having
> > > > > difficulty understaning section 4.4 in the Operating Manual labeled
> > "Normal
> > > > > Tranciever Calibration". Is there an alternative way for performing
> > said
> > > > > calibration? I do not own an RF generator.
> > > > > >
> > > > > >
> > > > > >
> > > > > >
> > > > > > [Non-text portions of this message have been removed]
> > > > > >
> > > > >
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> > > > >
> > > > >
> > > >
> > > >
> > > > [Non-text portions of this message have been removed]
> > > >
> > >
> > >
> > >
> >
> >
> [Non-text portions of this message have been removed]
>

44136. TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 03:58:01 UTC
From: John
Topic: 44136 Message: 44136

I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c is then connected to an outdoor MFJ G5RV antenna strung between trees in my backyard. I want to transmit on 40m SSB. Can someone describe the antenna tuner procedure I should follow before transmitting?

Thanks!

John
KD8SCX

44137. Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 04:31:23 UTC
From: Don Cunningham
Topic: 44136 Message: 44137

John,

I am NOT an expert, by any means, but have been a ham for MANY years now. To operate a tube rig into a complex antenna like the G5RV, you have to take away some of the variables you have in that system. You MUST tune the finals of the 520 to a known 50 ohm load first, or you will never know where you are. A dummy load is a must for tuning up a tube rig properly, regardless of other circumstances. Once the rig is tuned to the dummy load, you will need only to "touch up" tuning once the tuner is set. I do an initial "set" of the tuner using an MFJ-259B to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the frequency I want to operate. I MAKE SURE that the antenna load impedance is close to 50 ohms resistive and that the reactance is not some strange value but is close to zero so the rig sees a proper load.

Others will have other "procedures" using different techniques. I have just described my process to protect the tubes, tuner and antenna. Some test equipment is a necessity for operating an amateur station (wattmeter/SWR bridge, dummy load, etc), just check with others and see what has worked for them and try several if you can.
I hope this helps some, surely others will chime in as well.
73,
Don, WB5HAK
On 8/20/2013 10:58 PM, John wrote:
>
> I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> is then connected to an outdoor MFJ G5RV antenna strung between trees
> in my backyard. I want to transmit on 40m SSB. Can someone describe
> the antenna tuner procedure I should follow before transmitting?
>
> Thanks!
>
> John
> KD8SCX
>
>

[Non-text portions of this message have been removed]

44138. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 05:01:09 UTC
From: Joseph Stiles
Topic: 44099 Message: 44138

I do know that Ken spent a lot of time getting everything just right...machining, even anodizing just the exact shade...etc.
  His stock of knobs sold out QUICK! even at $100 a pop.

73 Joe
WB7UQU

_____
From: Brian Allen <bsa0791@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, August 20, 2013 10:01 AM
Subject: [TS-520_820_530_830] Re: KB-1 Knob

Ken's site leaves the impression that he may restart the K1 knob process. I assume this is old information and it will not start back

I wish I could have bought one. What was his original price? I guess you could do you own replication if you had access to a cnc machine. The price to do just one would be more that one would want to pay.

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44139. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 05:02:36 UTC
From: K5MYJ
Topic: 43925 Message: 44139

I've had similar discussions privately with Terry.

I've made the same observations you have.

My question is "why are inexperienced people buying these rigs? Is it because they are cheaper than modern fully solid state rigs?"

I get the feeling a lot of the people I see on this list and other boatanchor lists are in over their heads.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Bob Lazarow
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 7:56 PM
Subject: Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Terry: For goodness sakes, you don't owe him (is he a Ham?) or anyone
else an apology!!! He wants someone to spend hours helping to remotely
troubleshoot and fix a 30 year old radio and then complains?

Please read my message copied to the group about some other issues you
may get yourself with this type of person

Perhaps the group needs some type of warning caveat such as:

"Since this group is aimed primarily at licensed Amateur Radio
Operators, it is presumed that users requesting help have at least a
basic knowledge of electronics and repair techniques as well as access
to appropriate test devices. Additionally, any and all suggestions,
recommendations, etc, are offered in the spirit of Ham Radio assistance
to fellow hams and are not a substitute for paid professional work. It
is understood that our ability to assist is limited by having no
physical access and our dependency upon the requester to accurately
describe problems and settings and take correct measurements when
requested. In this group offer of mutual assistance, NO LIABILITY for
damage to equipment equipment or harm to an individual is provided or
available under any circumstance."

Terry please feel free to change or ignore as you see fit

Please share only with Moderator or others OFF LINe..I don't want to
start or be in the middle of a 15 shouting match LOL

Best '73

Bob/WA2JAJ

On 8/20/2013 10:08 PM, Terry Wagoner wrote:
>
> I am trying to help you. You dont need to know much about radio to
> describe the symptoms.
>
> It is understandable that it may take some follow up and probing
> questions. Unless we clearly understand what the operational issue is
> we will waste our time and your time. The answers you provide make all
> the difference in the world in the quality of the advice anyone can
> give you.
>
> You would never say to your mechanic that your car wont start
> sometimes and expect him to point you in right direction. What would
> that mean to him? It doesnt crank? It doesnt turn over? It fires and
> stalls? It makes a rapid clicking noise? It makes one click and dash
> lamps go out? Starter spins fast but does not engage?
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> I am sorry to hear you gave up on the radio.
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> If you come back someone else other than this crabby old man will help
> you.
>
> Terry K9TW
>
> > >
> > > Man its like pulling teeth here.
> > Give me a break I have never owned a tube rig before. I do not know
> anything about fixing or working on electronics.
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> >
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6594 - Release Date: 08/20/13
>

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[Non-text portions of this message have been removed]

44140. Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 05:17:00 UTC
From: n6wk_skcc3
Topic: 44140 Message: 44140

Hi Guys and Girls,
I would like to Thank everyone that contributes to this group.
Terry and Mike, Special Thanks to you two guys. You go above and beyond and it is noticed !!
I would just like to remind everyone that we ALL were new to this stuff at one time or another. I love seeing the help and the knowledge being shared. I do not feel any question is a "Dumb" question. Asking questions is how we learn.
I encourage everyone to continue to share their experiences and their Knowledge. I remember many years ago when I was afraid to ask a question for fear of being labeled as stupid! I don't want anyone to feel that way! I think it is wonderful that guys want to learn more about their radios and how to keep them going for many years.
I Also want to Emphasize that Extreme caution should be taken when working on these old Radios. There are Voltages in there that will KILL you.
Again, Thank you to everyone for contributing and Thanks to Coors Bill for starting this Great group! RIP Bill !

73,
Gordon
N6WK

44141. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 05:36:46 UTC
From: K5MYJ
Topic: 44140 Message: 44141

I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?

My feeling is the problem started with the elimination of the Novice license. When a lot of us stated we built kits like the Heathkit DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios than a complex solid state transceiver.

We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.

This stuff is easier to get working than any of the Kenwood hybrids. But for the most part they are CW rigs. Actually CW/AM.

But they are far easier to get working than a old solid state rig.

The other thing is test equipment. The first thing you need is a decent VTVM and the manual. My preference is most any of the Heathkit VTVMs because they have the best manual. And don't hesitate to buy a good repro manual for your VTVM. If you are not able to repair and calibrate your VTVM you will not be able to repair a radio,

I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: n6wk_skcc3
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 10:17 PM
Subject: [TS-520_820_530_830] Please help, Don't bash the Newbies

Hi Guys and Girls,
I would like to Thank everyone that contributes to this group.
Terry and Mike, Special Thanks to you two guys. You go above and beyond and it is noticed !!
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I encourage everyone to continue to share their experiences and their Knowledge. I remember many years ago when I was afraid to ask a question for fear of being labeled as stupid! I don't want anyone to feel that way! I think it is wonderful that guys want to learn more about their radios and how to keep them going for many years.
I Also want to Emphasize that Extreme caution should be taken when working on these old Radios. There are Voltages in there that will KILL you.
Again, Thank you to everyone for contributing and Thanks to Coors Bill for starting this

Great group! RIP Bill !

73,
Gordon
N6WK

[Non-text portions of this message have been removed]

44142. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 05:52:52 UTC
From: K5MYJ
Topic: 44140 Message: 44142

One of the first items you need is a set of alignment tools.
http://www.gcelectronics.com/order/catdisplay.asp?CatID=16

Buy a set of these before messing with any adjustments:
http://www.gcelectronics.com/order/SubCatPDF/alignment%20tools%20Kits%20380-387.pdf

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----
From: n6wk_skcc3
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 10:17 PM
Subject: [TS-520_820_530_830] Please help, Don't bash the Newbies

Hi Guys and Girls,
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I encourage everyone to continue to share their experiences and their Knowledge. I remember many years ago when I was afraid to ask a question for fear of being labeled as stupid! I don't want anyone to feel that way! I think it is wonderful that guys want to learn more about their radios and how to keep them going for many years.
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73,
Gordon
N6WK

[Non-text portions of this message have been removed]

44143. Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 06:12:33 UTC
From: K5MYJ
Topic: 44136 Message: 44143

Why do people start with a G5RV?

If you start with a simple single band dipole you will not need a tuner with Kenwood hybrid.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Don Cunningham
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 9:31 PM
Subject: Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure

John,

I am NOT an expert, by any means, but have been a ham for MANY years now. To operate a tube rig into a complex antenna like the G5RV, you have to take away some of the variables you have in that system. You MUST tune the finals of the 520 to a known 50 ohm load first, or you will never know where you are. A dummy load is a must for tuning up a tube rig properly, regardless of other circumstances. Once the rig is tuned to the dummy load, you will need only to "touch up" tuning once the tuner is set. I do an initial "set" of the tuner using an MFJ-259B to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the frequency I want to operate. I MAKE SURE that the antenna load impedance is close to 50 ohms resistive and that the reactance is not some strange value but is close to zero so the rig sees a proper load.

Others will have other "procedures" using different techniques. I have just described my process to protect the tubes, tuner and antenna. Some test equipment is a necessity for operating an amateur station (wattmeter/SWR bridge, dummy load, etc), just check with others and see what has worked for them and try several if you can.
I hope this helps some, surely others will chime in as well.
73,
Don, WB5HAK
On 8/20/2013 10:58 PM, John wrote:
>
> I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> is then connected to an outdoor MFJ G5RV antenna strung between trees
> in my backyard. I want to transmit on 40m SSB. Can someone describe
> the antenna tuner procedure I should follow before transmitting?
>
> Thanks!

>
> John
> KD8SCX
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44144. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 06:02:49 UTC
From: Michael Rolph
Topic: 43925 Message: 44144

Hi
I have recently bought a ts830s because I like old radios. I have only had my licence for 20 months and come from a none technical background, and i find the idea that only people who have an understanding of how it works can enjoy these wonderful rigs abhorrent. It has been a very steep learning curve for me at the age of 64 the brain does not work so fast as when younger but I thought the idea of groups like this was to help people understand and keep these wonderful rigs alive. I will learn how to service and look after it because that is the nature of the hobby but please don't knock those who perhaps have less understanding than yourselves. We all had to start somewhere. Ok rant over does anyone know of someone in the UK who will be able to help with repairs or servicing if I get out of my depth please as most of the expertise seems to be in the States.
73 de Mike 2e0mcy (hopefully soon to be M0??? as just sat the exam)

On 21 August 2013 06:02, K5MYJ <macklinbob@...> wrote:

> I've had similar discussions privately with Terry.
>
> I've made the same observations you have.
>
> My question is "why are inexperienced people buying these rigs? Is it
> because they are cheaper than modern fully solid state rigs?"
>
> I get the feeling a lot of the people I see on this list and other
> boatanchor lists are in over their heads.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: Bob Lazarow
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Tuesday, August 20, 2013 7:56 PM
> Subject: Re: [TS-520_820_530_830] Re: Intermittent transmit problem on
> TS-520S
>
>
>
>
> Terry: For goodness sakes, you don't owe him (is he a Ham?) or anyone
> else an apology!!! He wants someone to spend hours helping to remotely
> troubleshoot and fix a 30 year old radio and then complains?
>

> Please read my message copied to the group about some other issues you
> may get yourself with this type of person
>
> Perhaps the group needs some type of warning caveat such as:
>
> "Since this group is aimed primarily at licensed Amateur Radio
> Operators, it is presumed that users requesting help have at least a
> basic knowledge of electronics and repair techniques as well as access
> to appropriate test devices. Additionally, any and all suggestions,
> recommendations, etc, are offered in the spirit of Ham Radio assistance
> to fellow hams and are not a substitute for paid professional work. It
> is understood that our ability to assist is limited by having no
> physical access and our dependency upon the requester to accurately
> describe problems and settings and take correct measurements when
> requested. In this group offer of mutual assistance, NO LIABILITY for
> damage to equipment equipment or harm to an individual is provided or
> available under any circumstance."
>
> Terry please feel free to change or ignore as you see fit
>
> Please share only with Moderator or others OFF LINe..I don't want to
> start or be in the middle of a 15 shouting match LOL
>
> Best '73
>
> Bob/WA2JAJ
>
> On 8/20/2013 10:08 PM, Terry Wagoner wrote:
> >
> > I am trying to help you. You dont need to know much about radio to
> > describe the symptoms.
> >
> > It is understandable that it may take some follow up and probing
> > questions. Unless we clearly understand what the operational issue is
> > we will waste our time and your time. The answers you provide make all
> > the difference in the world in the quality of the advice anyone can
> > give you.
> >
> > You would never say to your mechanic that your car wont start
> > sometimes and expect him to point you in right direction. What would
> > that mean to him? It doesnt crank? It doesnt turn over? It fires and
> > stalls? It makes a rapid clicking noise? It makes one click and dash
> > lamps go out? Starter spins fast but does not engage?
> >
> > I am sorry to hear you gave up on the radio.
> >
> > If you come back someone else other than this crabby old man will help
> > you.
> >
> > Terry K9TW

> >
> > > >
> > > > Man its like pulling teeth here.
> > > Give me a break I have never owned a tube rig before. I do not know
> > anything about fixing or working on electronics.
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> [Non-text portions of this message have been removed]
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44145. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 08:21:48 UTC
From: Dave & Loraine
Topic: 44140 Message: 44145

Well said Gordon.
73 Dave f4eyk

[Non-text portions of this message have been removed]

44146. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 11:51:07 UTC
From: Bob Lazarow
Topic: 43925 Message: 44146

Bob I think that Kenwood has a great reputation. Their transmit audio has always been terrific. Older radio's appeal to many of us for nostalgia and because there are no damn Menus !!!. To the inexperienced, these and maybe a low price make a tempting combination.

Having said that, many issues are not immediately obvious to those unfamiliar with tube and hybrid rigs, as well as early generations of 100% solid state rigs:

1. Lack of knowledge about pi network loading
2. Frequently less knowledge about electronics, trouble shooting, use and access to test equipment, etc, that was much less the case when these rigs were new 40 or so year's ago
3. Limited or unavailable exact parts replacement
4. LACK OF DEALER SERVICING for these rigs
5. Fragility of old circuit boards,connectors, wires, switches etc.
6. NON-HAMS and intended non-ham use
7. Modified rigs - undocumented

So, they see a nice shiny rig somewhere and they buy it, and it is not PLUG 'N Play, more like PLUG and PRAY !!

Best

Bob/WA2JAJ

On 8/21/2013 1:02 AM, K5MYJ wrote:
>
> I've had similar discussions privately with Terry.
>
> I've made the same observations you have.
>
> My question is "why are inexperienced people buying these rigs? Is it
> because they are cheaper than modern fully solid state rigs?"
>
> I get the feeling a lot of the people I see on this list and other
> boatanchor lists are in over their heads.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: Bob Lazarow
> To: TS-520_820_530_830@yahoogroups.com

> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Tuesday, August 20, 2013 7:56 PM
> Subject: Re: [TS-520_820_530_830] Re: Intermittent transmit problem on
> TS-520S
>
> Terry: For goodness sakes, you don't owe him (is he a Ham?) or anyone
> else an apology!!! He wants someone to spend hours helping to remotely
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> Please read my message copied to the group about some other issues you
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> On 8/20/2013 10:08 PM, Terry Wagoner wrote:
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> > I am trying to help you. You dont need to know much about radio to
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>

[Non-text portions of this message have been removed]

44147. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 12:00:09 UTC
From: Terry Wagoner
Topic: 44140 Message: 44147

No need to drag this out so my final words on it.

1. New people are swelling the ranks and not their fault they are entering the hobby in this era and new manner. In some respects good as it sells gear and hopefully helps retain spectrum. Hopefully something will be done about IMD/splatter specs for new gear or we will get expansion of the existing bands. It is getting ugly.

2. These folks are buying technically complex KW hybrids as first rigs with no fundamental radio electronics knowledge, no experience and/or no test gear because these rigs are readily available and far cheaper than newer DSP menu driven rigs. I doubt there is any thought of how overwhelming and daunting a task they have just taken on.

3. There is no interest in a DX-40 and Knight Kit Ocean Hopper regen receiver or similar Novice stations as no CW ability.

We cannot change these facts. With that in mind Mike and I and others have to accept fact that we will have to play twenty questions and at times it really gets old especially when it becomes apparent that the new owner really has little aptitude or interest in learning. We have a choice to continue to play here or move on.

So knowing all of that:

Number One Priority is....PERSONAL SAFETY. I am very very concerned about that. Mike, Gordon and I have talked about adding a Disclaimer.

Number Two Priority is....Rig Damage and frankly I dont worry too much about this. We all caution about cracking cores, pulling off molex connectors, lifting solder foils, damaging final tubes etc, but most of these events wont relegate the rig to the trash heap.

Lastly, Gordon and I will have to agree to disagree about no Dumb Questions. I do not agree. This isnt about damaging the self esteem of a child. Questions with no effort expended, questions without opening the instruction manual, questions without any interest in the underlying fundamentals (just give me the answer) etc. are in my opinion all "dumb" questions. We have had this debate here before. We are dealing with adults and not bright eyed 6 year olds.

I just need to get smarter and learn to walk away sooner after about one or two follow up questions as by then I have pretty good idea of where things are going. My own fault.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Dave & Loraine" <dave.crooks@...> wrote:
>
> Well said Gordon.
> 73 Dave f4eyk
>
> [Non-text portions of this message have been removed]
>

44148. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 14:34:11 UTC
From: Terry Wagoner
Topic: 44140 Message: 44148

Just got a note from (KD2...) who wants to remain on sidelines expressing his disappointment that the thread on the TS520S with no output in SSB mode will not come to closure. He relates to me that he is a new ham and new owner and has been following the thread by looking at the block diagram and trying to follow along on the schematic to learn how a SSB signal is produced in his rig. Man that is great to hear! It is what the original poster should have been doing as well.

First I need to thank you as you are exactly the kind of Ham that I am here to help. I also am disappointed. The lesson will not come to a conclusion that you can learn from. But not all is lost.

Quickly what we believe is that the rig does have good RF output and ALC indication in CW mode. If this is true then you do know that the Balanced Modulator (fundamental component in SSB transmitter) is getting required Carrier Osc signal (1.0volts) and dc bias voltage (0.0vdc to 0.7vdc) from the Car Level Pot resulting in output from the Gen Board to the IF board.

So what is different about SSB? In SSB the Car Level pot is out of the picture. We still need Car Osc signal (at LSB or USB frequency)and we need Audio signal in lieu of the dc bias voltage to the ring diodes to produce output from the Balanced Mod. So which one or both of these signals are missing is now the question.

In 10 minutes we could have done the simple test I suggested to determine if the audio amp is working. Tap test at mic jack and phone patch jack and injecting some kind of audio at BM terminal is easy to do and tells us if we need to focus efforts on Mic amp circuit or the Carrier Osc board.

The best thing that you can now do for me and more importantly for yourself is to go to older version of the ARRL handbook and read section on Balanced Modulators with emphasis on ring diode type. Can also Goggle on RF mixer and ring diode balanced modulator tutorials. You will learn how they work including the typical signal levels for the Carrier Osc and the AF input.

Also take the time to study the TX Level Diagram in your service manual. It tells you all the RF levels in CW mode at approx 14.2mhz with SG switch off. A valuable tool.

This isnt how you would learn how a SSB transmitter works from classic texts as not in normal progression, but using a rig problem to learn how the circuit works, what the goes ins and goes outs are, and what levels they need to be is a very good way to learn and eventually you can piece it all together.

Suggest you log the typical Balanced Mod input signal levels on your schematic or in your notes for future troubleshooting as you develop out your RF service bench. I have marked up schematics and several 2 inch three ring binders full of notes. Just do better job than I did and at minimum organize info under alpha tabs! A winter project for me someday.

Once again thanks for your email. It sure made my day. You are on the right track. It will just take time. Thirst for knowledge and passion for the hobby will serve you well. You cannot learn it behind the mic or the key. That part is fun, but for me not as fun as figuring out how these things work. Maybe when you get some dollars aside can think about another TS-520S to work on. Really a very big help to have two same model rigs in good trim. When you have problems with one can use the other for comparison.

Best 73s (KD2...)
Terry K9TW

-

44149. Recommended Book on Electron Tubes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:08:03 UTC
From: roberteleazer@rocketmail.com
Topic: 44149 Message: 44149

A while back I suggested a website, WWW.tubebooks.org, as a source of basic information. Relative to that website, I posted this on QRZ last night, and I think it's appropriate here as well.

For anyone seeking to improve their boatanchor knowledge, I'd like to recommend what I have found to be an excellent book.

It is US Army Technical Manual TM 11-662, also known as US Air Force Technical order TO 16-1-255, entitled, "Basic Theory and Application of Electron Tubes."

The book came out in February 1952 and does a great job of explaining how electron or vacuum tubes work in an manner that is neither too technical or excessively infantile. I have read up through the Triode section so far.

I have fooled around with tube electronics for about 40 years now, and now, finally, I understand what I know!

The book is available for download for free at www.Tubebooks.org

Robert
WB5WSV

44150. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:15:58 UTC
From: Don Allen
Topic: 44099 Message: 44150

Here's something that will make us (well, most of us) ill. Ross Distributing in Idaho has been selling off its inventory of parts and accessories for a number of years. He sold his remaining Kenwood KB-1, new in the box, for $36.95.

73
Don W9CW

On 8/21/2013 12:01 AM, Joseph Stiles wrote:
>
> I do know that Ken spent a lot of time getting everything just
> right...machining, even anodizing just the exact shade...etc.
> His stock of knobs sold out QUICK! even at $100 a pop.
>
>
>
> 73 Joe
> WB7UQU
>

[Non-text portions of this message have been removed]

44151. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:26:48 UTC
From: roberteleazer@rocketmail.com
Topic: 44123 Message: 44151

Well, could be a number of things.

Get a copy of the manual if you do not have one, available free online from various sources.

A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?

Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.

Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.

Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.

What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.

Good luck!

Robert
WB5WSV
--- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@...> wrote:
>
> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
>

44152. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:33:02 UTC
From: W5RKL
Topic: 44140 Message: 44152

There are a number of good reference books available for the inexperienced ham(s) who does'ot have any electronic knowledge/training. One of my favorites is

"The Basic Radio Course" by "John T. Frye"

This book may be available at your local library, at hamfest, used books stores, and on CD on eBay (search ebay for Basic Radio Course). This book is written so the inexperienced/non-trained person can easily understand the subject matter. I highly recommend it.

Another reference is old editions of the ARRL handbooks. Edition from 1975 and older are good choices. These can be found at local libraries, hamfest, and eBay.

Here are some basic electronic questions that you should be able to answer. Experience members please let the inexperience members answer the questions. For the inexperience members, don't "guess" at the answers (you never learn a darn thing by guessing), just answer the questions.

Circuit:
3 resistors with the resistance values of 1, 2, and 3 ohms are connected in series then the series string is connected across the 12 volt battery.

1. What is the total resistance of the circuit?

2. What is the total current flowing in the circuit?

3. What is the voltage drop across each resistor?

4. What is the total power consumed in the simple circuit?

==========

What is the power consumed in a resistor that has a total resistance of 120 ohms connected across a 75 VDC power source?

==========

A relay coil, 12 volt battery, an amp meter, a 12 volt lamp, and a simple switch circuit is connected together as follows:

The "Positive" terminal of the battery is connected to one side of the switch.
The other side of the switch is connected to one side of the relay coil
The other side of the relay coil is connected to the positive terminal of the amp meter

The "Negative" terminal of the amp meter is connected to the "Negative" terminal of the battery
The lamp is connected in parallel with the relay coil.

The switch is turned ON and the lamp glows dim but the amp meter rises very slowly above zero.

The switch is then turned OFF and the amp meter falls rapidly to zero but the lamp glows very brightly for a second then goes dark.

1. Why does the amp meter rise very slowly when power is applied to the circuit?

2. Why does the lamp glow very brightly for a second then go dark "after" the switch has been turned OFF?

==========

These are only a very small sampling of the simple "Basic Electronic" questions you should know and be able to answer.

73
Mike W5RKL

The above basic electronic questions are all part of learning basic electronics.

On 8/21/2013 12:17 AM, n6wk_skcc3 wrote:
>
> Hi Guys and Girls,
> I would like to Thank everyone that contributes to this group.
> Terry and Mike, Special Thanks to you two guys. You go above and
> beyond and it is noticed !!
> I would just like to remind everyone that we ALL were new to this
> stuff at one time or another. I love seeing the help and the knowledge
> being shared. I do not feel any question is a "Dumb" question. Asking
> questions is how we learn.
> I encourage everyone to continue to share their experiences and their
> Knowledge. I remember many years ago when I was afraid to ask a
> question for fear of being labeled as stupid! I don't want anyone to
> feel that way! I think it is wonderful that guys want to learn more
> about their radios and how to keep them going for many years.
> I Also want to Emphasize that Extreme caution should be taken when
> working on these old Radios. There are Voltages in there that will
> KILL you.
> Again, Thank you to everyone for contributing and Thanks to Coors Bill
> for starting this Great group! RIP Bill !
>
> 73,
> Gordon
> N6WK
>

>

[Non-text portions of this message have been removed]

44153. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 10:13:24 UTC
From: <zen18531@...>
Topic: 44140 Message: 44153

Bob

Possibly quite simple - the older rigs are cheaper than even second-hand modern equipment. From my own experience, I was looking for an HF rig within my price range. Sure, I'd really have liked an FT-9000 (keep dreaming!) or even an FT1000 or FT2000. But splashing out ?1500 on a new hobby was simply not an option. An older ham (now sadly SK) had a TS-530 for sale. A little googling returned highpoints such as fantastic audio.

What google DIDN'T show was the complexity of the set when troubleshooting. Neither did it really show the "complexity" of using it compared to a solid-state "power on and press the tune button". Neither did my good friend go into detail about that, hi hi. So no, I didn't know I needed probes, oscilloscopes, test meters and the odd sacrificial virgin. Glad I didn't know, might not have bought three damn fine rigs.

But, so what. Its good to learn, and so what if 'novices' are buying the older rigs - if 'experienced'* hams are not buying them, then who will?

*Based on my limited experience, even many M0/M1 (advanced/full/'experienced') licence holders would struggle troubleshooting a hybrid, as their experience is with solid state, and to be frank many study for the advanced exam and then have nothing to do with the more practical side of the hobby, beyond calculating antenna lengths - and I've been asked by M1's for help with this, me, a mere M6 licencee.

73's
Alan

-- Original Message --
From: K5MYJ <macklinbob@...>
To: TS-520_820_530_830@yahoogroups.com
Send: Tue, 20 Aug 2013 22:36:46 -0700
Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?

My feeling is the problem started with the elimination of the Novice license. When a lot of us stated we built kits like the Heathkit DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios than a complex solid state transceiver.

We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.

This stuff is easier to get working than any of the Kenwood hybrids. But for the most part they are CW rigs. Actually CW/AM.

But they are far easier to get working than a old solid state rig.

The other thing is test equipment. The first thing you need is a decent VTVM and the manual. My preference is most any of the Heathkit VTVMs because they have the best manual. And don't hesitate to buy a good repro manual for your VTVM. If you are not able to repair and calibrate your VTVM you will not be able to repair a radio,

I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: n6wk_skcc3
To:

44154. Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 12:07:55 UTC
From: Timothy Johnston
Topic: 44136 Message: 44154

Start by adding two more items to the mix... a dummy load and a good swr/power meter between the rig and the ant/dummy load.

The procedure I use is: Tune the rig following the instructions in the manual into the dummy load. When done, go back to the TUN mode and tune the ant with the tuner. Switch to CW and do the final tune of the ant and touch up the rig. Done

Tj Johnston, K4TFJ ==========
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

[Non-text portions of this message have been removed]

44155. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 12:37:26 UTC
From: Timothy Johnston
Topic: 44052 Message: 44155

Your are welcome John. Sometime it makes more sense to SEE it.
73, TJ

Tj Johnston, K4TFJ ==
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

On Tue, Aug 20, 2013 at 11:18 PM, John <jbdkz@...> wrote:

> **
>
>
>
> Tim,
>
> The youtube video helped a lot, I was able to follow your video and
> calibrate the dial scale.
>
> Thank You!
>
> John
>
>
> --- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston
> <timothy.f.johnston@...> wrote:
> >
> > Here ya go John: http://www.youtube.com/watch?v=liASEz4B94s
> > 73, TJ
> >
> >
> > On Mon, Aug 19, 2013 at 9:27 PM, John <jbdkz@...> wrote:
> >
> > > > **
>
> > >
> > >
> > > Tim, I would certainly appreciate if you created a video of this
> procedure.
> > >
> > > Thanks!
> > >
> > > John
> > > KD8SCX

> > >
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston
> > > <timothy.f.johnston@> wrote:
> > > >
> > > > I do this procedure slightly differently, forgot who showed me. But
> here
> > > is
> > > > how I do it, if it helps.
> > > >
> > > > Set mode to TUN
> > > > Set function to 25KHz.
> > > > Set your band as needed. (I will use 40m and 7.200 for this example.
>)
> > > >
> > > > I will tune around 7.200 until I hear the marker. It will be
> noticeable
> > > > because you will hear a dip in the tone as it goes away and then
> comes
> > > > back. Make note of where it is at and move the outer ring of the main
> > > dial
> > > > to correspond to 7.200 using the center mark between LSB and USB. Now
> > > hold
> > > > the outer ring from moving while you tune for the center of the dip.
> This
> > > > can be determined by watching the s-meter. Tune real real slow....
> watch
> > > > the s-meter peak, then start to vibrate. That is now dead on the
> marker.
> > > > Release the outer ring. Turn off the 25KHz.
> > > >
> > > > I can make a video of this procedure if you want.
> > > >
> > > > TJ, K4TFJ
> > > > Comments always welcome.
> > > >
> > > >
> > > > On Sat, Aug 17, 2013 at 9:37 PM, John <jbdkz@> wrote:
> > > >
> > > > > **
> > >
> > > > >
> > > > >
> > > > > Thanks Joe, will try this the next time I can slip away to my
> shack.
> > > > >
> > > > > John
> > > > > KD8SCX
> > > > >
> > > > >

> > > > > --- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles
> > > <stilesjoseph@>
> > > > > wrote:
> > > > > >
> > > > > > You do not need an RF generator to do the calibration. Start
> with the
> > > > > rig on for maybe about 20-30 minutes or so...just to get
> > > > > > everything nice and warmed up and stable. Make sure that the
> "RIT" is
> > > > > OFF!!!? Turn "function switch" to? "CAL -25"...rotate main tuning
> > > > > knob...until you hear a tone..
> > > > > >
> > > > > > that should be the "marker/cal" signal...depending which "MODE"
> you
> > > want
> > > > > to cal...USB, LSB, or CW refer to the markings above the main
> tuning
> > > > > > knob. Rotate the main tuning knob back and forth through the tone
> > > > > several time to get the feel of it...then using the above mentioned
> > > > > markings,
> > > > > > zero beat..(no tone) the marker signal. If the dial scale...that
> the
> > > > > silver ring with the numbers on it...just behind the main tuning
> knob
> > > is
> > > > > NOT on an even
> > > > > > 25kHz marking...hold the main tuning knob and move the dial skirt
> > > until
> > > > > it does. The dial skirt is a friction device and should be
> stiff..but
> > > not
> > > > > hard to move.. and
> > > > > > most important...does not move real easy. If rig has a CW filter
> > > > > installed...see the directions under section 4.4 as mentioned.
> > > > > > This is basic calibration...and you'll need to get used to doing
> it,
> > > as
> > > > > the VFO is not quite linear from on end to the other.
> > > > > >
> > > > > >
> > > > > > ?
> > > > > > 73? Joe
> > > > > > WB7UQU
> > > > > >
> > > > > >
> > > > > >
> > > > > > _____
> > > > > > From: John <jbdkz@>
> > > > > >
> > > > > > To: TS-520_820_530_830@yahoogroups.com

> > > > > > Sent: Friday, August 16, 2013 8:46 PM
> > > > > > Subject: [TS-520_820_530_830] TS-520SE Dial Scale Calibration
> eludes
> > > me
> > > > > >
> > > > > >
> > > > > >
> > > > > > ?
> > > > > > I just received a TS-520SE from a family member, and I am having
> > > > > difficulty understaning section 4.4 in the Operating Manual labeled
> > > "Normal
> > > > > Tranciever Calibration". Is there an alternative way for performing
> > > said
> > > > > calibration? I do not own an RF generator.
> > > > > >
> > > > > >
> > > > > >
> > > > > >
> > > > > > [Non-text portions of this message have been removed]
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> > > >
> > > >
> > > > [Non-text portions of this message have been removed]
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> > [Non-text portions of this message have been removed]
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>

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44156. Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:25:54 UTC
From: John
Topic: 44136 Message: 44156

Bob, I started with a G5RV antenna because it seemed the best fit to cover all the bands I wanted to explore.

As I recall with a simple dipole, I could remove the Antenna Tuner from the equation if the antenna was the proper length for a single band, but I would be limited to the single band the antenna was tuned to.

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@...> wrote:
>
> Why do people start with a G5RV?
>
> If you start with a simple single band dipole you will not need a tuner with Kenwood hybrid.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: Don Cunningham
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Tuesday, August 20, 2013 9:31 PM
> Subject: Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure
>
>
>
> John,
>
> I am NOT an expert, by any means, but have been a ham for MANY years
> now. To operate a tube rig into a complex antenna like the G5RV, you
> have to take away some of the variables you have in that system. You
> MUST tune the finals of the 520 to a known 50 ohm load first, or you
> will never know where you are. A dummy load is a must for tuning up a
> tube rig properly, regardless of other circumstances. Once the rig is
> tuned to the dummy load, you will need only to "touch up" tuning once
> the tuner is set. I do an initial "set" of the tuner using an MFJ-259B
> to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the
> frequency I want to operate. I MAKE SURE that the antenna load
> impedance is close to 50 ohms resistive and that the reactance is not
> some strange value but is close to zero so the rig sees a proper load.
>
> Others will have other "procedures" using different techniques. I have
> just described my process to protect the tubes, tuner and antenna. Some

> test equipment is a necessity for operating an amateur station
> (wattmeter/SWR bridge, dummy load, etc), just check with others and see
> what has worked for them and try several if you can.
> I hope this helps some, surely others will chime in as well.
> 73,
> Don, WB5HAK
> On 8/20/2013 10:58 PM, John wrote:
> >
> > I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> > is then connected to an outdoor MFJ G5RV antenna strung between trees
> > in my backyard. I want to transmit on 40m SSB. Can someone describe
> > the antenna tuner procedure I should follow before transmitting?
> >
> > Thanks!
> >
> > John
> > KD8SCX
> >
> >
>
> [Non-text portions of this message have been removed]
>
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>
>
> [Non-text portions of this message have been removed]
>

44157. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:42:23 UTC
From: Bob Lazarow
Topic: 44099 Message: 44157

I'm actually more sick about what's happened to Ross and so many others
than I am about the knob. But that too, of course

Bob/WA2JAJ

On 8/21/2013 11:15 AM, Don Allen wrote:
>
> Here's something that will make us (well, most of us) ill. Ross
> Distributing in Idaho has been selling off its inventory of parts and
> accessories for a number of years. He sold his remaining Kenwood KB-1,
> new in the box, for $36.95.
>
> 73
> Don W9CW
>
> On 8/21/2013 12:01 AM, Joseph Stiles wrote:
> >
> > I do know that Ken spent a lot of time getting everything just
> > right...machining, even anodizing just the exact shade...etc.
> > His stock of knobs sold out QUICK! even at $100 a pop.
> >
> >
> >
> > 73 Joe
> > WB7UQU
> >
>
> [Non-text portions of this message have been removed]
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6595 - Release Date: 08/21/13
>

[Non-text portions of this message have been removed]

44158. Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:46:41 UTC
From: Don Allen
Topic: 43925 Message: 44158

Bob raises excellent questions. My take is that they've either been told, or read, how good the Kenwood hybrids are, plus their price-points are certainly lower than most new gear, even new entry-level rigs. However, any rig 30+ years old requires attention, and most of us are looking through glasses of being hams for decades (52+ years in my case). For newbies, especially given the nature of the testing format today and lack of hands-on technical experience, it must be a formidable challenge.

73
Don W9CW

On 8/21/2013 12:02 AM, K5MYJ wrote:
> My question is "why are inexperienced people buying these rigs? Is it
> because they are cheaper than modern fully solid state rigs?"

44159. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:50:43 UTC
From: roberteleazer@rocketmail.com
Topic: 44140 Message: 44159

Terry:

Recently over at QRZ a ham asked what I thought was a remarkable question.

He has a call like yours - letter, number, and only two letters after the number - a sign I have long taken to indicate immense practical knowledge and a vast amount of experience.

He was reading a manual on a Hallicrafters or something and it referred to a crystal calibrator.

He wanted to know what a crystal calibrator was.

I was flabbergasted, along the lines of a pilot for a major airline saying he had seen a new kind of airplane that had two wings, one on the top and one on the bottom.

One of my long term projects is building a couple of copies of a National XCU-109 crystal calibator for use on my Nationals that don't have one built in. Got all the parts, even cases, but just need to solder it all together, followed by what probably will be 6 months of troubleshooting (maybe the 2nd one will only take 3 months to make it work). But most people are not doing that kind of thing, and it is apparent that today many perfectly competent amateur radio operators regard what we once thought as "normal" to be a brave new and wonderous world.

You're not just a technical advisor; you're Obe Wan Kenobe!

Robert
WB%WSV

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> No need to drag this out so my final words on it.
>
> 1. New people are swelling the ranks and not their fault they are entering the hobby in this era and new manner. In some respects good as it sells gear and hopefully helps retain spectrum. Hopefully something will be done about IMD/splatter specs for new gear or we will get expansion of the existing bands. It is getting ugly.
>
> 2. These folks are buying technically complex KW hybrids as first rigs with no fundamental radio electronics knowledge, no experience and/or no test gear because these rigs are readily available and far cheaper than newer DSP menu driven rigs. I doubt there is any thought of how overwhelming and daunting a task they have just taken on.
>
> 3. There is no interest in a DX-40 and Knight Kit Ocean Hopper regen receiver or similar Novice stations as no CW ability.
>
> We cannot change these facts. With that in mind Mike and I and others have to accept fact that we will have to play twenty questions and at times it really gets old especially when

it becomes apparent that the new owner really has little aptitude or interest in learning. We have a choice to continue to play here or move on.
>
> So knowing all of that:
>
> Number One Priority is....PERSONAL SAFETY. I am very very concerned about that. Mike, Gordon and I have talked about adding a Disclaimer.
>
> Number Two Priority is....Rig Damage and frankly I dont worry too much about this. We all caution about cracking cores, pulling off molex connectors, lifting solder foils, damaging final tubes etc, but most of these events wont relegate the rig to the trash heap.
>
> Lastly, Gordon and I will have to agree to disagree about no Dumb Questions. I do not agree. This isnt about damaging the self esteem of a child. Questions with no effort expended, questions without opening the instruction manual, questions without any interest in the underlying fundamentals (just give me the answer) etc. are in my opinion all "dumb" questions. We have had this debate here before. We are dealing with adults and not bright eyed 6 year olds.
>
> I just need to get smarter and learn to walk away sooner after about one or two follow up questions as by then I have pretty good idea of where things are going. My own fault.
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Dave & Loraine" <dave.crooks@> wrote:
> >
> > Well said Gordon.
> > 73 Dave f4eyk
> >
> > [Non-text portions of this message have been removed]
> >
>

44160. Re: [TS-520_820_530_830] Re: KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:50:57 UTC
From: Don Allen
Topic: 44099 Message: 44160

Bob,

I totally agree... prior to my retirement from the amateur radio
industry, I knew Ross Hansen very well. Great guy...

Don W9CW

On 8/21/2013 10:42 AM, Bob Lazarow wrote:
>
> I'm actually more sick about what's happened to Ross and so many others
> than I am about the knob. But that too, of course
>
> Bob/WA2JAJ
>
> On 8/21/2013 11:15 AM, Don Allen wrote:
> >
> > Here's something that will make us (well, most of us) ill. Ross
> > Distributing in Idaho has been selling off its inventory of parts and
> > accessories for a number of years. He sold his remaining Kenwood KB-1,
> > new in the box, for $36.95.
> >
> > 73
> > Don W9CW
> >
> > On 8/21/2013 12:01 AM, Joseph Stiles wrote:
> > >
> > > I do know that Ken spent a lot of time getting everything just
> > > right...machining, even anodizing just the exact shade...etc.
> > > His stock of knobs sold out QUICK! even at $100 a pop.
> > >
> > >
> > >
> > > 73 Joe
> > > WB7UQU
> > >
> >
> > [Non-text portions of this message have been removed]
> >
> >
> >
> > No virus found in this message.
> > Checked by AVG - www.avg.com <http://www.avg.com>
> > Version: 2013.0.3392 / Virus Database: 3211/6595 - Release Date:
> 08/21/13
> >
>

> [Non-text portions of this message have been removed]
>
>

[Non-text portions of this message have been removed]

44161. Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:45:10 UTC
From: John
Topic: 44136 Message: 44161

Dan, thanks for your feedback.

When I transmit into the dummy load built into my MFJ-945c the SWR is close to 1:1 which is to be expected as the purely resistive load acts like a perfect antenna.

I guess my question is more about proper procedure when transmitting while performing the tuning process. Do you just find a frequency not in use on the dial (and allotted based on your license level)and start
saying '<Call Sign> Testing' while watching the SWR meter then correcting for an SWR close to 1:1?

Thanks,

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...> wrote:
>
> John,
>
> I am NOT an expert, by any means, but have been a ham for MANY years
> now. To operate a tube rig into a complex antenna like the G5RV, you
> have to take away some of the variables you have in that system. You
> MUST tune the finals of the 520 to a known 50 ohm load first, or you
> will never know where you are. A dummy load is a must for tuning up a
> tube rig properly, regardless of other circumstances. Once the rig is
> tuned to the dummy load, you will need only to "touch up" tuning once
> the tuner is set. I do an initial "set" of the tuner using an MFJ-259B
> to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the
> frequency I want to operate. I MAKE SURE that the antenna load
> impedance is close to 50 ohms resistive and that the reactance is not
> some strange value but is close to zero so the rig sees a proper load.
>
> Others will have other "procedures" using different techniques. I have
> just described my process to protect the tubes, tuner and antenna. Some
> test equipment is a necessity for operating an amateur station
> (wattmeter/SWR bridge, dummy load, etc), just check with others and see
> what has worked for them and try several if you can.
> I hope this helps some, surely others will chime in as well.
> 73,
> Don, WB5HAK
> On 8/20/2013 10:58 PM, John wrote:
> >
> > I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> > is then connected to an outdoor MFJ G5RV antenna strung between trees
> > in my backyard. I want to transmit on 40m SSB. Can someone describe

> > the antenna tuner procedure I should follow before transmitting?
> >
> > Thanks!
> >
> > John
> > KD8SCX
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44162. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:57:28 UTC
From: Bob Lazarow
Topic: 44140 Message: 44162

Alan: Hoping not to get into this BUT.....

The issue here has NEVER been to discourage newbeeis or people without experience. The issue is that SOME people come here and EXPECT people to instantly be able to remotely diagnose their problems with a reply of "oh, just turn that screw halfway in". Well, it doesn't usually work that way, and the experienced folks are trying their best under extremely difficult conditions, which I don't need to relist again. The point is NOT that they are new to the hobby; Rather the point is that a few of them have rather realistic expectations as to what can be done and what it will take on THEIR part...not just a sit back and fix it for me world we have. I think the case of Barry? a few months back, who just got his license and joined the group showed great interaction...and great results.

After all, if we don't encourage "Newbees" in a few years there will only be "NOBEES"

Bob/WA2JAJ

On 8/21/2013 6:13 AM, zen18531@... wrote:
>
> Bob
>
> Possibly quite simple - the older rigs are cheaper than even
> second-hand modern equipment. From my own experience, I was looking
> for an HF rig within my price range. Sure, I'd really have liked an
> FT-9000 (keep dreaming!) or even an FT1000 or FT2000. But splashing
> out £1500 on a new hobby was simply not an option. An older ham (now
> sadly SK) had a TS-530 for sale. A little googling returned highpoints
> such as fantastic audio.
>
> What google DIDN'T show was the complexity of the set when
> troubleshooting. Neither did it really show the "complexity" of using
> it compared to a solid-state "power on and press the tune button".
> Neither did my good friend go into detail about that, hi hi. So no, I
> didn't know I needed probes, oscilloscopes, test meters and the odd
> sacrificial virgin. Glad I didn't know, might not have bought three
> damn fine rigs.
>
> But, so what. Its good to learn, and so what if 'novices' are buying
> the older rigs - if 'experienced'* hams are not buying them, then who
> will?
>
> *Based on my limited experience, even many M0/M1
> (advanced/full/'experienced') licence holders would struggle

> troubleshooting a hybrid, as their experience is with solid state, and
> to be frank many study for the advanced exam and then have nothing to
> do with the more practical side of the hobby, beyond calculating
> antenna lengths - and I've been asked by M1's for help with this, me,
> a mere M6 licencee.
>
> 73's
> Alan
>
> -- Original Message --
> From: K5MYJ <macklinbob@... <mailto:macklinbob%40gmail.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Send: Tue, 20 Aug 2013 22:36:46 -0700
> Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies
>
> I really do not want to bash the newbies. But I would like to know why
> people are starting with complex radios like the Kenwood Hybrids?
>
> My feeling is the problem started with the elimination of the Novice
> license. When a lot of us stated we built kits like the Heathkit
> DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios
> than a complex solid state transceiver.
>
> We combined these simple transmitters with low end communication
> receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is
> an excellent novice receiver.
>
> This stuff is easier to get working than any of the Kenwood hybrids.
> But for the most part they are CW rigs. Actually CW/AM.
>
> But they are far easier to get working than a old solid state rig.
>
> The other thing is test equipment. The first thing you need is a
> decent VTVM and the manual. My preference is most any of the Heathkit
> VTVMs because they have the best manual. And don't hesitate to buy a
> good repro manual for your VTVM. If you are not able to repair and
> calibrate your VTVM you will not be able to repair a radio,
>
> I would still like to know why people with no apparent experience are
> buying complex radios like the Kenwood hybrids.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: n6wk_skcc3
> To:
>

>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2013.0.3392 / Virus Database: 3211/6595 - Release Date: 08/21/13
>

[Non-text portions of this message have been removed]

44163. Re: [TS-520_820_530_830] Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:03:09 UTC
From: Don Cunningham
Topic: 44136 Message: 44163

John,
To answer your question more simply, "yes". I am sorry, I forgot that MFJ puts dummy loads in some of their tuners. I suspect that the dummy load will easily handle quick initial tuning of the rig.

One thing I always add, John, is I first thing ask "is the frequency in use" a couple of times. MANY times, you cannot hear both sides of a conversation and would be interferring if not. That is done by me on all modes, I'm old school, hi.
Enjoy the hobby,
Don, WB5HAK

On 8/21/2013 10:45 AM, John wrote:
>
> Dan, thanks for your feedback.
>
> When I transmit into the dummy load built into my MFJ-945c the SWR is
> close to 1:1 which is to be expected as the purely resistive load acts
> like a perfect antenna.
>
> I guess my question is more about proper procedure when transmitting
> while performing the tuning process. Do you just find a frequency not
> in use on the dial (and allotted based on your license level)and start
> saying '<Call Sign> Testing' while watching the SWR meter then
> correcting for an SWR close to 1:1?
>
> Thanks,
>
> John
> KD8SCX
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Don Cunningham
> <donc@...> wrote:
> >
> > John,
> >
> > I am NOT an expert, by any means, but have been a ham for MANY years
> > now. To operate a tube rig into a complex antenna like the G5RV, you
> > have to take away some of the variables you have in that system. You
> > MUST tune the finals of the 520 to a known 50 ohm load first, or you
> > will never know where you are. A dummy load is a must for tuning up a
> > tube rig properly, regardless of other circumstances. Once the rig is
> > tuned to the dummy load, you will need only to "touch up" tuning once
> > the tuner is set. I do an initial "set" of the tuner using an MFJ-259B

> > to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the
> > frequency I want to operate. I MAKE SURE that the antenna load
> > impedance is close to 50 ohms resistive and that the reactance is not
> > some strange value but is close to zero so the rig sees a proper load.
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> > Others will have other "procedures" using different techniques. I have
> > just described my process to protect the tubes, tuner and antenna. Some
> > test equipment is a necessity for operating an amateur station
> > (wattmeter/SWR bridge, dummy load, etc), just check with others and see
> > what has worked for them and try several if you can.
> > I hope this helps some, surely others will chime in as well.
> > 73,
> > Don, WB5HAK
> > On 8/20/2013 10:58 PM, John wrote:
> > >
> > > I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> > > is then connected to an outdoor MFJ G5RV antenna strung between trees
> > > in my backyard. I want to transmit on 40m SSB. Can someone describe
> > > the antenna tuner procedure I should follow before transmitting?
> > >
> > > Thanks!
> > >
> > > John
> > > KD8SCX
> > >
> > >
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> >
> > [Non-text portions of this message have been removed]
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[Non-text portions of this message have been removed]

44164. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 15:59:29 UTC
From: Barry
Topic: 44140 Message: 44164

Thanks for your input, Gordon.

My Great Uncle had been a ham for 55 years and I never even knew it until about 3 months ago. If I had known that I would have done my best to spend time with him learning more about the hobby and everything else, but I had always wanted to get into ham radio. A Southern Baptist Pastor's family does not have a whole lot of money available to get into fairly expensive hobbies, so growing up I dreamed about having some cool equipment when I received the Heathkit catalogs in the mail. Dreaming was all I could do back then, though, but I couldn't wait to look through every page.

After I worked pretty hard to have a little spending money, fast forward to a few weeks ago when I learned Uncle John was going into a nursing home and I had the chance to meet him at his shack to see what he had.

I knew very little, admittedly, about anything to do with ham radio, but over the years I knew nothing about restoring a 1949 Buick Special, a 1964 Plymouth Valiant convertible, and a 1967 Dodge Dart, either. Becoming President of a small company a few years ago in 3 months' time after not knowing anything about cultured marble, either, proved that I could do whatever I set my mind to.

So when I saw Uncle John's Yaesu FT-757GX and Kenwood TS-820 along with other equipment, that proved to be a challenge that I was up to. I had already begun studying for the Tech exam, and I knew this equipment was worth the money to me, plus I could help carry on some of Uncle John's legacy through his equipment.

I have learned a tremendous amount just reading these emails and have gained so much respect for the people that help me and many others here in the group. Yes, I've made mistakes, and I've ticked off one or two people along the way in one way or another.

That's not going to stop my quest for learning, my hope to improve in the coming weeks, and my desire to be great at ANYTHING that I do, much less ham radio. That's the drive the Lord put in me, and it won't stop.

So that's why I bought my TS-820. I've thoroughly enjoyed working with it and may keep it for a long time. Sorry if anybody thinks us newbies are pains to deal with - I've found a guy locally that helped me get mine transmitting that has been extremely helpful, but it took weeks to do so. This group continues to help solidify my learning, and I am very appreciative.

But do cut us a break when you can. I know, just like us, nobody was born knowing how to neutralize finals or how to align a rig when they were in kindergarten, so that says you learned from some patient people that showed you how when you needed it. Thanks to everybody that has helped me!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, "n6wk_skcc3" <n6wk@...> wrote:
>
> Hi Guys and Girls,
> I would like to Thank everyone that contributes to this group.
> Terry and Mike, Special Thanks to you two guys. You go above and beyond and it is noticed !!
> I would just like to remind everyone that we ALL were new to this stuff at one time or another. I love seeing the help and the knowledge being shared. I do not feel any question is a "Dumb" question. Asking questions is how we learn.
> I encourage everyone to continue to share their experiences and their Knowledge. I remember many years ago when I was afraid to ask a question for fear of being labeled as stupid! I don't want anyone to feel that way! I think it is wonderful that guys want to learn more about their radios and how to keep them going for many years.
> I Also want to Emphasize that Extreme caution should be taken when working on these old Radios. There are Voltages in there that will KILL you.
> Again, Thank you to everyone for contributing and Thanks to Coors Bill for starting this Great group! RIP Bill !
>
> 73,
> Gordon
> N6WK
>

44165. Re: [TS-520_820_530_830] Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:17:13 UTC
From: Don Cunningham
Topic: 44136 Message: 44165

John,
Re-reading your last to me, I didn't fully answer the question. When transmitting to "tune the tuner" I use low level CW to do that. It's near impossible to tune the tuner with SSB anyway, so CW works well and you can turn the level down to 10 to 20W for initial tuning, then "touch it up" with 100w before going SSB. That make sense?? If you have no key to use, a simple spst switch will work fine with a cord and proper plug on the end.
73,
Don, WB5HAK
On 8/21/2013 10:45 AM, John wrote:
>
> Dan, thanks for your feedback.
>
> When I transmit into the dummy load built into my MFJ-945c the SWR is
> close to 1:1 which is to be expected as the purely resistive load acts
> like a perfect antenna.
>
> I guess my question is more about proper procedure when transmitting
> while performing the tuning process. Do you just find a frequency not
> in use on the dial (and allotted based on your license level)and start
> saying '<Call Sign> Testing' while watching the SWR meter then
> correcting for an SWR close to 1:1?
>
> Thanks,
>
> John
> KD8SCX
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Don Cunningham
> <donc@...> wrote:
> >
> > John,
> >
> > I am NOT an expert, by any means, but have been a ham for MANY years
> > now. To operate a tube rig into a complex antenna like the G5RV, you
> > have to take away some of the variables you have in that system. You
> > MUST tune the finals of the 520 to a known 50 ohm load first, or you
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> > tube rig properly, regardless of other circumstances. Once the rig is
> > tuned to the dummy load, you will need only to "touch up" tuning once
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> > to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the
> > frequency I want to operate. I MAKE SURE that the antenna load

> > impedance is close to 50 ohms resistive and that the reactance is not
> > some strange value but is close to zero so the rig sees a proper load.
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> > Others will have other "procedures" using different techniques. I have
> > just described my process to protect the tubes, tuner and antenna. Some
> > test equipment is a necessity for operating an amateur station
> > (wattmeter/SWR bridge, dummy load, etc), just check with others and see
> > what has worked for them and try several if you can.
> > I hope this helps some, surely others will chime in as well.
> > 73,
> > Don, WB5HAK
> > On 8/20/2013 10:58 PM, John wrote:
> > >
> > > I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> > > is then connected to an outdoor MFJ G5RV antenna strung between trees
> > > in my backyard. I want to transmit on 40m SSB. Can someone describe
> > > the antenna tuner procedure I should follow before transmitting?
> > >
> > > Thanks!
> > >
> > > John
> > > KD8SCX
> > >
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> > [Non-text portions of this message have been removed]
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[Non-text portions of this message have been removed]

44166. Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:17:30 UTC
From: John
Topic: 44136 Message: 44166

Don, thanks for this information.

John

--- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...> wrote:
>
> John,
> To answer your question more simply, "yes". I am sorry, I forgot that
> MFJ puts dummy loads in some of their tuners. I suspect that the dummy
> load will easily handle quick initial tuning of the rig.
>
> One thing I always add, John, is I first thing ask "is the frequency in
> use" a couple of times. MANY times, you cannot hear both sides of a
> conversation and would be interferring if not. That is done by me on
> all modes, I'm old school, hi.
> Enjoy the hobby,
> Don, WB5HAK
>
>
> On 8/21/2013 10:45 AM, John wrote:
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> > Dan, thanks for your feedback.
> >
> > When I transmit into the dummy load built into my MFJ-945c the SWR is
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> > in use on the dial (and allotted based on your license level)and start
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> >
> > Thanks,
> >
> > John
> > KD8SCX
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, Don Cunningham
> > <donc@> wrote:
> > >
> > > John,
> > >
> > > I am NOT an expert, by any means, but have been a ham for MANY years

> > > now. To operate a tube rig into a complex antenna like the G5RV, you
> > > have to take away some of the variables you have in that system. You
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> > > Don, WB5HAK
> > > On 8/20/2013 10:58 PM, John wrote:
> > > >
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> > > > Thanks!
> > > >
> > > > John
> > > > KD8SCX
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> > > [Non-text portions of this message have been removed]
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> [Non-text portions of this message have been removed]
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44167. Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:12:40 UTC
From: John
Topic: 44136 Message: 44167

Thanks for the feedback TJ!

Not knowing that status of my TS-520SE when it was given to me, I performed both the receive and transmit calibration procedures in the manual.

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston <timothy.f.johnston@...> wrote:
>
> Start by adding two more items to the mix... a dummy load and a good
> swr/power meter between the rig and the ant/dummy load.
>
> The procedure I use is: Tune the rig following the instructions in the
> manual into the dummy load. When done, go back to the TUN mode and tune the
> ant with the tuner. Switch to CW and do the final tune of the ant and touch
> up the rig. Done
>
> Tj Johnston, K4TFJ ==
> Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
> YouTube Channel: K4TFJ
> Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>
>
>
> [Non-text portions of this message have been removed]
>

44168. Re: [TS-520_820_530_830] Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:19:09 UTC
From: K5MYJ
Topic: 44136 Message: 44168

John,

My point is that using a simple dipole as a started is a better way than trying to learn to operate the radio and a multiband antenna system at the same time.

A 65ft dipole (40M) will also operate on 15M. The Kenwood hybrid can handle that just fine.

Then if you learn about TRAP antennas you can install a pair of 20M traps in your 40M dipole and operate 40M, 20M, and 15M without an antenna tuner.

Get operational at first with the simplest system. You can make a career of playing with antennas.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: John
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 8:25 AM
Subject: [TS-520_820_530_830] Re: TS-520SE Tuneup Procedure

Bob, I started with a G5RV antenna because it seemed the best fit to cover all the bands I wanted to explore.

As I recall with a simple dipole, I could remove the Antenna Tuner from the equation if the antenna was the proper length for a single band, but I would be limited to the single band the antenna was tuned to.

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@...> wrote:
>
> Why do people start with a G5RV?
>
> If you start with a simple single band dipole you will not need a tuner with Kenwood hybrid.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: Don Cunningham
> To: TS-520_820_530_830@yahoogroups.com

> Sent: Tuesday, August 20, 2013 9:31 PM
> Subject: Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure
>
>
>
> John,
>
> I am NOT an expert, by any means, but have been a ham for MANY years
> now. To operate a tube rig into a complex antenna like the G5RV, you
> have to take away some of the variables you have in that system. You
> MUST tune the finals of the 520 to a known 50 ohm load first, or you
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[Non-text portions of this message have been removed]

44169. Re: [TS-520_820_530_830] Re: TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:43:33 UTC
From: K5MYJ
Topic: 44136 Message: 44169

To do antenna testing it needs to be done in CW mode.

Send "TEST callsign" them put the key down and make the measurements.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: John
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 8:45 AM
Subject: [TS-520_820_530_830] Re: TS-520SE Tuneup Procedure

Dan, thanks for your feedback.

When I transmit into the dummy load built into my MFJ-945c the SWR is close to 1:1 which is to be expected as the purely resistive load acts like a perfect antenna.

I guess my question is more about proper procedure when transmitting while performing the tuning process. Do you just find a frequency not in use on the dial (and allotted based on your license level)and start
saying '<Call Sign> Testing' while watching the SWR meter then correcting for an SWR close to 1:1?

Thanks,

John
KD8SCX

--- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...> wrote:
>
> John,
>
> I am NOT an expert, by any means, but have been a ham for MANY years
> now. To operate a tube rig into a complex antenna like the G5RV, you
> have to take away some of the variables you have in that system. You
> MUST tune the finals of the 520 to a known 50 ohm load first, or you
> will never know where you are. A dummy load is a must for tuning up a
> tube rig properly, regardless of other circumstances. Once the rig is
> tuned to the dummy load, you will need only to "touch up" tuning once
> the tuner is set. I do an initial "set" of the tuner using an MFJ-259B
> to tune my 80 meter, 300 ohm ladderline fed antenna to resonance at the
> frequency I want to operate. I MAKE SURE that the antenna load
> impedance is close to 50 ohms resistive and that the reactance is not
> some strange value but is close to zero so the rig sees a proper load.
>

> Others will have other "procedures" using different techniques. I have
> just described my process to protect the tubes, tuner and antenna. Some
> test equipment is a necessity for operating an amateur station
> (wattmeter/SWR bridge, dummy load, etc), just check with others and see
> what has worked for them and try several if you can.
> I hope this helps some, surely others will chime in as well.
> 73,
> Don, WB5HAK
> On 8/20/2013 10:58 PM, John wrote:
> >
> > I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c
> > is then connected to an outdoor MFJ G5RV antenna strung between trees
> > in my backyard. I want to transmit on 40m SSB. Can someone describe
> > the antenna tuner procedure I should follow before transmitting?
> >
> > Thanks!
> >
> > John
> > KD8SCX
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

[Non-text portions of this message have been removed]

44170. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:47:37 UTC
From: K5MYJ
Topic: 44140 Message: 44170

Alan,

If you want to work on this stuff yourself you need the proper test equipment and tools before you do anything else.

If you do not want to acquire the test equipment and tools don't mess with the radio. Find someone to do it for you.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: zen18531@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 3:13 AM
Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Bob

Possibly quite simple - the older rigs are cheaper than even second-hand modern equipment. From my own experience, I was looking for an HF rig within my price range. Sure, I'd really have liked an FT-9000 (keep dreaming!) or even an FT1000 or FT2000. But splashing out £1500 on a new hobby was simply not an option. An older ham (now sadly SK) had a TS-530 for sale. A little googling returned highpoints such as fantastic audio.

What google DIDN'T show was the complexity of the set when troubleshooting. Neither did it really show the "complexity" of using it compared to a solid-state "power on and press the tune button". Neither did my good friend go into detail about that, hi hi. So no, I didn't know I needed probes, oscilloscopes, test meters and the odd sacrificial virgin. Glad I didn't know, might not have bought three damn fine rigs.

But, so what. Its good to learn, and so what if 'novices' are buying the older rigs - if 'experienced'* hams are not buying them, then who will?

*Based on my limited experience, even many M0/M1 (advanced/full/'experienced') licence holders would struggle troubleshooting a hybrid, as their experience is with solid state, and to be frank many study for the advanced exam and then have nothing to do with the more practical side of the hobby, beyond calculating antenna lengths - and I've been asked by M1's for help with this, me, a mere M6 licencee.

73's
Alan

-- Original Message --
From: K5MYJ <macklinbob@...>
To: TS-520_820_530_830@yahoogroups.com

Send: Tue, 20 Aug 2013 22:36:46 -0700
Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?

My feeling is the problem started with the elimination of the Novice license. When a lot of us stated we built kits like the Heathkit DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios than a complex solid state transceiver.

We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.

This stuff is easier to get working than any of the Kenwood hybrids. But for the most part they are CW rigs. Actually CW/AM.

But they are far easier to get working than a old solid state rig.

The other thing is test equipment. The first thing you need is a decent VTVM and the manual. My preference is most any of the Heathkit VTVMs because they have the best manual. And don't hesitate to buy a good repro manual for your VTVM. If you are not able to repair and calibrate your VTVM you will not be able to repair a radio,

I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: n6wk_skcc3
To:

[Non-text portions of this message have been removed]

44171. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:52:37 UTC
From: Guy Morgan
Topic: 44140 Message: 44171

Hi there

I think Alan has largely hit the nail on the head. I suspect many people looking for a reasonably priced rig as a starter are pointed at the hybrids by people who know and love the rigs and are thus per se generally older licensees who grew up with valve PAs and a degree of suck it and see operation. I'm not familiar with the detailed syllabus for the present exam's but I doubt that they require any great depth of understanding of valves generally or valve PA design. In those circumstances, taking on a hybrid rig, unless it's a known good one is probably not the best introduction to HF. Leaving aside all other considerations, as has been emphasised here, poking around inside (particularly the PA compartment) can be lethal if the precautions are not properly understood and implemented.

A working hybrid is not IMHO particularly complex to operate; the only difference from a modern solid state rig is the PA load and Tune routine which is well explained in a number of sources. I'd have thought it would be easier to "pop" a middle-aged solid state PA without the sophisticated protection offered by modern rigs than it is to wreck a valve one.

In my case, my reason for buying a TS530S and the associated line of extra units was that I returned to radio after nearly 20 years QRT and had no experience of menu-driven rigs. I decided to start with something I knew I could drive; a rig with a knob or button for every function and a valve PA which I knew how to manage. Two years later I've still got (and use) the hybrid but have also acquired a TS440SAT, again with everything accessible from the front panel and a Yaesu FT736(only because there's no equivalent Kenwood) for 6m, 2m and 70cms (not on there yet). I've still no desire to spend a lot of money on a menu-driven rig on which I'd probably understand maybe 50% of the options and then use 10% of those I understood! To my mind the one thing that might change my mind is shortage of space when the modern "shack in a small box" might be attractive.

I'm all in favour of showing patience with new licensees and I think that's what is done here. I can understand the occasional tetchiness when help is made difficult because clear diagnostic questions are not answered clearly. I think part of the frustration can often be that those of us who had to have a good grasp of basic electronics just to get a licence don't understand the degree to which that is not now required. Thinking about it I suppose it depends what is defined as basic electronics!!

Lastly, I sit here reading the patient thoughtful contributions of Terry and the other hybrid experts on this group with awe; I got my licence in the '60s as a teenager and later trained as a broadcast electronics engineer before moving onto the operational side of the business but could never aspire to the level of understanding of circuit operation and

trouble-shooting available to everyone from the experts on this group.

73

Guy -G3POM

-----Original Message-----
From: zen18531@...
Sent: Wednesday, August 21, 2013 11:13 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Bob

Possibly quite simple - the older rigs are cheaper than even second-hand modern equipment. From my own experience, I was looking for an HF rig within my price range. Sure, I'd really have liked an FT-9000 (keep dreaming!) or even an FT1000 or FT2000. But splashing out ?1500 on a new hobby was simply not an option. An older ham (now sadly SK) had a TS-530 for sale. A little googling returned highpoints such as fantastic audio.

What google DIDN'T show was the complexity of the set when troubleshooting. Neither did it really show the "complexity" of using it compared to a solid-state "power on and press the tune button". Neither did my good friend go into detail about that, hi hi. So no, I didn't know I needed probes, oscilloscopes, test meters and the odd sacrificial virgin. Glad I didn't know, might not have bought three damn fine rigs.

But, so what. Its good to learn, and so what if 'novices' are buying the older rigs - if 'experienced'* hams are not buying them, then who will?

*Based on my limited experience, even many M0/M1 (advanced/full/'experienced') licence holders would struggle troubleshooting a hybrid, as their experience is with solid state, and to be frank many study for the advanced exam and then have nothing to do with the more practical side of the hobby, beyond calculating antenna lengths - and I've been asked by M1's for help with this, me, a mere M6 licencee.

73's
Alan

-- Original Message --
From: K5MYJ <macklinbob@...>
To: TS-520_820_530_830@yahoogroups.com
Send: Tue, 20 Aug 2013 22:36:46 -0700
Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?

My feeling is the problem started with the elimination of the Novice license. When a lot of us stated we built kits like the Heathkit DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios than a complex

solid state transceiver.

We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.

This stuff is easier to get working than any of the Kenwood hybrids. But for the most part they are CW rigs. Actually CW/AM.

But they are far easier to get working than a old solid state rig.

The other thing is test equipment. The first thing you need is a decent VTVM and the manual. My preference is most any of the Heathkit VTVMs because they have the best manual. And don't hesitate to buy a good repro manual for your VTVM. If you are not able to repair and calibrate your VTVM you will not be able to repair a radio,

I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: n6wk_skcc3
To:

Yahoo! Groups Links

44172. Re: [TS-520_820_530_830] Re: Intermittent learning problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 17:26:51 UTC
From: John Davidson
Topic: 43925 Message: 44172

In the Beginning;
I started as a kid who knew nothing about radio but thought it would be fun.
In the middle:
 I learned a lot over the years and some times it took sweat and wasn't always easy.
Nearing the end:
Now people on these web sites hate me because I know how to tune up a tube transmitter and they can't. And they don't understand why.

From: Michael Rolph <densoldman@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 2:02 AM
Subject: Re: [TS-520_820_530_830] Re: Intermittent transmit problem on TS-520S

Hi
I have recently bought a ts830s because I like old radios. I have only had my licence for 20 months and come from a none technical background, and i find the idea that only people who have an understanding of how it works can enjoy these wonderful rigs abhorrent. It has been a very steep learning curve for me at the age of 64 the brain does not work so fast as when younger but I thought the idea of groups like this was to help people understand and keep these wonderful rigs alive. I will learn how to service and look after it because that is the nature of the hobby but please don't knock those who perhaps have less understanding than yourselves. We all had to start somewhere. Ok rant over does anyone know of someone in the UK who will be able to help with repairs or servicing if I get out of my depth please as most of the expertise seems to be in the States.
73 de Mike 2e0mcy (hopefully soon to be M0??? as just sat the exam)

On 21 August 2013 06:02, K5MYJ <macklinbob@...> wrote:

> I've had similar discussions privately with Terry.
>
> I've made the same observations you have.
>
> My question is "why are inexperienced people buying these rigs? Is it
> because they are cheaper than modern fully solid state rigs?"
>
> I get the feeling a lot of the people I see on this list and other
> boatanchor lists are in over their heads.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----

> From: Bob Lazarow
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Tuesday, August 20, 2013 7:56 PM
> Subject: Re: [TS-520_820_530_830] Re: Intermittent transmit problem on
> TS-520S
>
>
>
> Terry: For goodness sakes, you don't owe him (is he a Ham?) or anyone
> else an apology!!! He wants someone to spend hours helping to remotely
> troubleshoot and fix a 30 year old radio and then complains?
>
> Please read my message copied to the group about some other issues you
> may get yourself with this type of person
>
> Perhaps the group needs some type of warning caveat such as:
>
> "Since this group is aimed primarily at licensed Amateur Radio
> Operators, it is presumed that users requesting help have at least a
> basic knowledge of electronics and repair techniques as well as access
> to appropriate test devices. Additionally, any and all suggestions,
> recommendations, etc, are offered in the spirit of Ham Radio assistance
> to fellow hams and are not a substitute for paid professional work. It
> is understood that our ability to assist is limited by having no
> physical access and our dependency upon the requester to accurately
> describe problems and settings and take correct measurements when
> requested. In this group offer of mutual assistance, NO LIABILITY for
> damage to equipment equipment or harm to an individual is provided or
> available under any circumstance."
>
> Terry please feel free to change or ignore as you see fit
>
> Please share only with Moderator or others OFF LINe..I don't want to
> start or be in the middle of a 15 shouting match LOL
>
> Best '73
>
> Bob/WA2JAJ
>
> On 8/20/2013 10:08 PM, Terry Wagoner wrote:
> >
> > I am trying to help you. You dont need to know much about radio to
> > describe the symptoms.
> >
> > It is understandable that it may take some follow up and probing
> > questions. Unless we clearly understand what the operational issue is
> > we will waste our time and your time. The answers you provide make all
> > the difference in the world in the quality of the advice anyone can
> > give you.
> >

> > You would never say to your mechanic that your car wont start
> > sometimes and expect him to point you in right direction. What would
> > that mean to him? It doesnt crank? It doesnt turn over? It fires and
> > stalls? It makes a rapid clicking noise? It makes one click and dash
> > lamps go out? Starter spins fast but does not engage?
> >
> > I am sorry to hear you gave up on the radio.
> >
> > If you come back someone else other than this crabby old man will help
> > you.
> >
> > Terry K9TW
> >
> > > >
> > > > Man its like pulling teeth here.
> > > Give me a break I have never owned a tube rig before. I do not know
> > anything about fixing or working on electronics.
> > >
> > >
> >
> >
> >
> > No virus found in this message.
> > Checked by AVG - www.avg.com <http://www.avg.com>
> > Version: 2013.0.3392 / Virus Database: 3211/6594 - Release Date:
> 08/20/13
> >
>
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44173. RE: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 16:48:14 UTC
From: John Haddleton
Topic: 44140 Message: 44173

Well said Alan......
I am a new licencee (ntermediate) and only took my Foundation 'Ticket' a couple of months ago... I run a complete Kenwood TS-830S Line up (See the pics on my QRZ page or on my Amateur Radio web site ... Links below!
The Kenwood out performs 90% of transceivers currently on the market (Check out Sherwood Engineerings league tables!) with 32 year old technology... I can A/B switch between the Kenwood Hybrid and my new Yaesu FT-950.... I get better transmitted Audio repoprts, and it receives weak stations in QRM/N just as well - plus it is a much more forgiving transceiver than a modern solid state rig.
Plate and Load is easy peasy, if a Newbie is shown how it works.... but as you say, Alan... The 'Mint' Kenwood in perfect condition cost me ?250 (375 Dollars), and the Yaesu 950 cost me ?1250 - a thousand pounds (1650 Dollars) more. So who are the idiots, and who have the brains ??
May I respectfully suggest, that in this case, this Newbie leaves a lot to be learned by older Amateurs.
Sorry - I forgot to tell you, I am an ex Radar and Radio Tech from the Royal Navy, and was a Radio Tech in the Royal Corps of Signals - now 77 years old, and just found time to start enjoying this great hobby !!
My web site is at http://2e0jjh.net
QRZ Page http://www.qrz.com/db/2E0JJH
Cheers Guys - Leaves with his Hard Hat on !!
John (2e0JJH

To: TS-520_820_530_830@yahoogroups.com
From: zen18531@...
Date: Wed, 21 Aug 2013 11:13:24 +0100
Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Bob

Possibly quite simple - the older rigs are cheaper than even second-hand modern equipment. From my own experience, I was looking for an HF rig within my price range. Sure, I'd really have liked an FT-9000 (keep dreaming!) or even an FT1000 or FT2000. But splashing out ?1500 on a new hobby was simply not an option. An older ham (now sadly SK) had a TS-530 for sale. A little googling returned highpoints such as fantastic audio.

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73's

Alan

-- Original Message --

From: K5MYJ <macklinbob@...>

To: TS-520_820_530_830@yahoogroups.com

Send: Tue, 20 Aug 2013 22:36:46 -0700

Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?

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I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.

Bob Macklin

K5MYJ

Seattle, Wa.

"Real Radios Glow In The Dark"

----- Original Message -----

From: n6wk_skcc3

To:

[Non-text portions of this message have been removed]

44174. Re: [TS-520_820_530_830] TS-520SE Tuneup Procedure

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 17:34:30 UTC
From: John Davidson
Topic: 44136 Message: 44174

I just bought a '60 Lincoln hardtop convertible, can someone tell me how to drive on the freeway with it and get the top down ??
Just too broad a question.
 Do you have the manuals for this equipment? read and then come back with a more specific question if you don't understand some part of the instructions in the books.

From: John <jbdkz@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 11:58 PM
Subject: [TS-520_820_530_830] TS-520SE Tuneup Procedure

I have a TS-520SE connected to a MFJ-945c antenna tuner. The MFJ-945c is then connected to an outdoor MFJ G5RV antenna strung between trees in my backyard. I want to transmit on 40m SSB. Can someone describe the antenna tuner procedure I should follow before transmitting?

Thanks!

John
KD8SCX

[Non-text portions of this message have been removed]

44175. Re: TS-820S Display problem even after working on DG-1

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 17:52:15 UTC
From: coyoteinventor@ymail.com
Topic: 43702 Message: 44175

I went ahead and re-soldered all front and back connections on the DG-1 board (the one that has all the ICs), and now the display seems to be working well (not jumping around and turning off) on most bands (29 and 29.5 keep jumping around, but only the last 2 digits now). So, overall I'm happy with the outcome.

There is one problem, however, where I am looking for some feedback. The display seems to dim from bright to barely visible, back and forth, as it wishes (even when nothing is being touched). Is this a bad ground? I just want to see if someone had a suggestion on which direction to proceed.

But, like I said, I'm pretty happy the way it is now, even if I have to deal with a very dark display sometimes; At least I can see what frequency I'm on now! ;-)

Thanks again to all those of you that contribute to this yahoo group; definitely an invaluable resource for these old radios!

--Cesar K1TNT

--- In TS-520_820_530_830@yahoogroups.com, Jim Showker <jshowker@...> wrote:
>
> Terry,
> Well, I am an experienced DG-1 person, but no expert. I have worked
> on these things until I am blue in the face. We have gotten to the
> point that if they come in working, we do not even open them when doing
> a recap. Disturbing the board at all can lead to problems. If they
> don't work...
>
> IT IS ALWAYS A COLD SOLDER JOINT. Troubleshooting is a waste of
> time, in my opinion. I suppose if you can trace down the problem, it
> might tell you where to do some more soldering. When you look on the
> tops of the boards, some pads appear to have no solder whatsoever. A
> wonder that some of them ever worked at all. I don't know if the holes
> are through plated or what. Resolder everything on top that you can
> get to. This has eventually fixed everyone so far. When you test it,
> be sure to screw the boards down to the case and the case to the
> chassis, as the ground is important.
>
> Jim KE7OAY
>
>
> On 8/7/2013 5:16 AM, Terry Wagoner wrote:
> >
> > First you cannot have 2.6rms rf volts at TP-2. I suspect you are
> > measuring Q3 DC emitter voltage?
> >
> > All TP measurements are RF signal voltages.

> >
> > I have been on side lines hoping an experienced DG-1 person would jump
> > in. Perhaps all on vacation? I am not an expert. I will give you
> > readings from my notes. All measured with Boonton 92E. Can measure
> > with standard RF probe and VTVM/DMM or O-scope and convert to RMS:
> >
> > You need the following inputs to the Counter Mixer board:
> > 1. DC power 14vdc and 5vdc
> > 2. 9vdc diode switching bias voltage for LPF B1-B4 (8.4vdc)
> > 3. Carrier Oscillator CCR
> > 4. VCO Oscillator CVC
> >
> > Suggest you make sure you have correct Carrier Osc input to IF board
> > first. This is commonly mis-adjusted as Service Manual says to set to
> > 50mv. This is wrong. CA-2 should be 300mv. Then adjust for 100mv to
> > 150mv CCR level at Pin 7 Counter Mix board connector.
> >
> > Next make sure you have good VCO level at Pin 1 = 900mv
> >
> > Here are approx RF signal levels (rms) from my notes working backwards
> > from Cin output:
> >
> > 1. Cin Output to the Display board = 1.0v
> > 2. TP-5 Output of low pass filters and input to wide band amplifier =
> > 200mv
> > 3. TP-4 Output of Mixer IC1 adjusted by T3 = 270mv to 300mv
> > 4. TP-3 RF Input to Mixer IC1 = ? I dont see this listed.
> >
> > What I do have is the actual RF input level at Pin 11 of IC-1. Measure
> > Pin 11 to floating ground Pin 4 = 10mv to 30mv of VCO signal. I also
> > have LO input to Pin 5 measured from Pin 5 to Pin 4 = 210mv.
> >
> > 5. TP-2 Carrier Oscillator 7.830 Mhz (LO) = 220mv adjusted by T1/T2.
> > 6. TP-1 1Mhz clock = 200mv (same for CL-1)
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, James Scribner
> > <swpthg@> wrote:
> > >
> > > Thanks Deiter, You are right on as it calls for 0.1v-0.2v and mine
> > measured
> > > 2.60V. The coils T1 & T2 had no effect on the voltage adjustment at
> > all. I
> > > have resoldered so much I started looking for a shorted trace or ?? Am
> > > going to try the first 103 cap in the circuit tomorrow as it acts
> > like it
> > > is high resistance but it's still on board. Would appreciate any
> > thing you

> > > might forward as once I get this voltage down I see no other help in the
> > > manual so far as other voltage specs or adjusting T3 & T4.
> > > Actually what I do know at this stage is the 1 meg crystal is
> > working and
> > > adjusted correctly. I spent most of this evening making sure all
> > volts and
> > > freqs to the mixer connector were present and adjusted to spec from the
> > > radio so I could consintrate on the DG-1 and not keep rechecking radio
> > > specs. Thanks for the response.
> > > 73
> > > Jim
> > >
> > > On Tue, Aug 6, 2013 at 8:48 AM, w3drk <dieter.kedrowitsch@> wrote:
> > >
> > > > **
> > > >
> > > >
> > > > I'm not very familiar with the alignment procedure of the DG-1,
> > but I do
> > > > recall having to peak a signal with two coils although the peek to
> > peek
> > > > voltage of the test point was WAY above what the service manual called
> > > > for...I got something like 1 volt from my DG-1 where the manual
> > called for
> > > > 180mv. I just adjusted for the maximum voltage and called it good.
> > > >
> > > > I still have to replace the temporary choke with the proper value
> > part, I
> > > > can take some notes on the input values (freq and voltage), and
> > take some
> > > > captures with the digital storage scope so you can see what the
> > wave forms
> > > > should look like.
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, James Scribner <swpthg@>
> > > > wrote:
> > > > >
> > > > > Ã¢â‚¬â€EUR¹RE: " I remember reading there was a way to check for
> > proper signals
> > > > into
> > > > >
> > > > > the mixer board."
> > > > > I surely wish someone could publish ALL the correct input
> > frequencies and
> > > > > signal levels for the DG-1 mixer and also the complete adjustment
> > > > > procedures for the circuits within it. I have researched
> > internet and
> > > > this
> > > > > site in particular for 'DG-1' display and came away with the

> > cleanest
> > > > > connectors ever after about 862 posts read.
> > > > > I started with a DG-1 that was totally inop in 2 separate
> > radios. The
> > > > > second DG-1 works fine on either radio. After weeks of strained
> > eyes and
> > > > > resoldered joints the DG-1 reads 88.000.0 on WWV up to 14. 14MHz
> > up to
> > > > 29.5
> > > > > reads 99.000.0. If anyone has or knows of the values I should
> > see at the
> > > > 5
> > > > > test points or the alignment procedure It seems it would be of a
> > great
> > > > > value to be posted here on this site with all of the posts I
> > have seen
> > > > here
> > > > > about the DG-1 in particular.
> > > > > I would like to commend all who take their time on this Group,
> > good job
> > > > > guys! Even in the short time I have been a member I have found
> > the info
> > > > to
> > > > > get one of my 3 radios (820,820S,820D) down to a 5-15 cycle(Hz)
> > drift
> > > > over
> > > > > several hours. Way below factory spec. Thanks in advance for any
> > light
> > > > that
> > > > > may be shed on the DG-1 project.
> > > > >
> > > > >
> > > > > [Non-text portions of this message have been removed]
> > > > >
> > > >
> > > >
> > > >
> > > >
> > >
> > >
> > > [Non-text portions of this message have been removed]
> > >
> >
> >
> >
> [Non-text portions of this message have been removed]
>

44176. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 18:04:41 UTC
From: Mark Gilger
Topic: 44123 Message: 44176

Before you take the cover off, just verify that
the plug is still inserted in the VFO plug on the
rear of the radio. While doing that, go ahead and
pull it out and reseat it several times just in case it's become corroded.

Never know when it could be the simplest of things.

Mark

At 11:26 AM 8/21/2013, roberteleazer@... wrote:
>
>
>Well, could be a number of things.
>
>Get a copy of the manual if you do not have one,
>available free online from various sources.
>
>A dead VFO might do what you say all by itself.
>By VFO is dead do you mean that the digital display is blank?
>
>Open up the rig and see if the connectors on the
>back of the VFO are still attached and that all
>of the connectors going to the various boards
>are attached. NOTE: LETHAL VOLTAGES ARE PRESENT
>IN SOME LCLOCATIONS, like that 925 volts HV! If
>we don't hear back from you we will know that we
>have lost yet another member of this group.
>
>Then turn the rig over, and check to see if the
>low voltage DC is present at the AF-AVR board.
>There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>
>Stay away from the diodes on the bottom near the
>power transformer, since they can be shorted out
>very easily, but do note if any of them are burned or cracked.
>
>What about the "volume level"? What do you mean?
>Is there any noise at all coming out of the
>speaker? If not, plug in a headset and try that.
>
>Good luck!
>
>Robert
>WB5WSV
>--- In
><mailto:TS-520_820_530_830%40yahoogroups.com>TS-520_820_530_830@yahoogroups.com,

>"bigfoot" <bozo231@...> wrote:
> >
> > turned on my rig today and have plate current
> ,925 hv volume level no display seems like vfo
> is dead with no receive or transmit any ideas?
> thanks for letting me join the group, looks
> like I'll need help with this radio!!!
> >
>
>

[Non-text portions of this message have been removed]

44177. Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 18:05:33 UTC
From: John Davidson
Topic: 44052 Message: 44177

Tim, Maybe I misinterpreted how you described your procedure, it was somewhat vague in details.
 all I can say is I used my TS520 for almost 40 years, ran it side by side with other older and newer rigs, Repaired it when faults developed, Put it on the bench at my shop and checked it with professional communication monitors to see how it performed, and know how it works.

From: John Davidson <k8jd@...m>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, August 20, 2013 12:18 PM
Subject: Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

That's OK if you STAY AWAY from band edges since you are almost 1K off freq.

From: Timothy Johnston <timothy.f.johnston@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, August 20, 2013 11:43 AM
Subject: Re: [TS-520_820_530_830] Re: TS-520SE Dial Scale Calibration eludes me

@John: I did state I was in the TUN
position (see 00:15-00:20), but
otherwise your procedure matches the manual. The TUN mode also corresponds
to the CW mark, but instead of the 700Hz offset to the lower side only, you
can use the valley null to zero. I am not saying this is the proper way,
it's just the way I was shown, and it works great for me for a reason.

>
    http://docs.yahoo.com/info/terms/

[Non-text portions of this message have been removed]

44178. My Hybrid

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 18:14:16 UTC
From: K5MYJ
Topic: 44178 Message: 44178

About three years ago I bought my TS-520. Why did I buy a TS-520?

I own several other good boatanchors. I have a set of Heathkit Benton Harbor S-Line twins. They work well.

I also have a set of Drake 4 Line twins. The receiver is actually more sensative the the SB-301.

Both of these are good sets.

But I did not own a HH tranceiver. Someone I respect told be about the TS-520. The TS-520 uses the same conversion scheme as the Heath S-Line does.

He told me how nice the VFO on the TS-520 was. I found out how correct he was. It is a very nice VFO. The Heathkit is a bit rough but mostly because of age.

So far I have only used my TS-520 as a receiver. It compares favorably to the SB-301. A few weeks ago I put a CW filter in it. It works as expected.

In addition to the TS-520 I have SP-520(speaker), a VFO-520, an AT-200, and a SM-220. All of this stuff working.

The problem is I don't hear much here in Seattle except on contest days. I use the contest days to test my toys. The last two contests were disasters. Not because of my radios but because of the way contests operate these days.

When Heathkit converted the SB line to solid state they were developing a tranceiver similar to the TS-520. It was to be the SB-103. But it took too long to develop and was dropped in favor of the fully solid state SB-104.

The only solid stte HF stuff I have is the TS-520 and a Kenwood R-2000. I can hear more on my TS-520 than I can on the R-2000. Need to try working on it one of these days.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

[Non-text portions of this message have been removed]

44179. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 19:06:51 UTC
From: W5RKL
Topic: 44140 Message: 44179

Okay, this thread has run its course so lets move on now.

73
Mike W5RKL

On 8/21/2013 11:52 AM, Guy Morgan wrote:
>
> Hi there
>
> I think Alan has largely hit the nail on the head. I suspect many people
> looking for a reasonably priced rig as a starter are pointed at the
> hybrids
> by people who know and love the rigs and are thus per se generally older
> licensees who grew up with valve PAs and a degree of suck it and see
> operation. I'm not familiar with the detailed syllabus for the present
> exam's but I doubt that they require any great depth of understanding of
> valves generally or valve PA design. In those circumstances, taking on a
> hybrid rig, unless it's a known good one is probably not the best
> introduction to HF. Leaving aside all other considerations, as has been
> emphasised here, poking around inside (particularly the PA
> compartment) can
> be lethal if the precautions are not properly understood and implemented.
>
> A working hybrid is not IMHO particularly complex to operate; the only
> difference from a modern solid state rig is the PA load and Tune routine
> which is well explained in a number of sources. I'd have thought it would
> be easier to "pop" a middle-aged solid state PA without the sophisticated
> protection offered by modern rigs than it is to wreck a valve one.
>
> In my case, my reason for buying a TS530S and the associated line of
> extra
> units was that I returned to radio after nearly 20 years QRT and had no
> experience of menu-driven rigs. I decided to start with something I
> knew I
> could drive; a rig with a knob or button for every function and a
> valve PA
> which I knew how to manage. Two years later I've still got (and use) the
> hybrid but have also acquired a TS440SAT, again with everything
> accessible
> from the front panel and a Yaesu FT736(only because there's no equivalent
> Kenwood) for 6m, 2m and 70cms (not on there yet). I've still no desire to
> spend a lot of money on a menu-driven rig on which I'd probably
> understand
> maybe 50% of the options and then use 10% of those I understood! To my
> mind the one thing that might change my mind is shortage of space when

> the
> modern "shack in a small box" might be attractive.
>
> I'm all in favour of showing patience with new licensees and I think
> that's
> what is done here. I can understand the occasional tetchiness when
> help is
> made difficult because clear diagnostic questions are not answered
> clearly.
> I think part of the frustration can often be that those of us who had to
> have a good grasp of basic electronics just to get a licence don't
> understand the degree to which that is not now required. Thinking
> about it
> I suppose it depends what is defined as basic electronics!!
>
> Lastly, I sit here reading the patient thoughtful contributions of
> Terry and
> the other hybrid experts on this group with awe; I got my licence in the
> '60s as a teenager and later trained as a broadcast electronics engineer
> before moving onto the operational side of the business but could never
> aspire to the level of understanding of circuit operation and
> trouble-shooting available to everyone from the experts on this group.
>
> 73
>
> Guy -G3POM
>
> -----Original Message-----
> From: zen18531@... <mailto:zen18531%40zen.co.uk>
> Sent: Wednesday, August 21, 2013 11:13 AM
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies
>
> Bob
>
> Possibly quite simple - the older rigs are cheaper than even second-hand
> modern equipment. From my own experience, I was looking for an HF rig
> within
> my price range. Sure, I'd really have liked an FT-9000 (keep
> dreaming!) or
> even an FT1000 or FT2000. But splashing out £1500 on a new hobby was
> simply
> not an option. An older ham (now sadly SK) had a TS-530 for sale. A
> little
> googling returned highpoints such as fantastic audio.
>
> What google DIDN'T show was the complexity of the set when
> troubleshooting.
> Neither did it really show the "complexity" of using it compared to a

> solid-state "power on and press the tune button". Neither did my good
> friend
> go into detail about that, hi hi. So no, I didn't know I needed probes,
> oscilloscopes, test meters and the odd sacrificial virgin. Glad I didn't
> know, might not have bought three damn fine rigs.
>
> But, so what. Its good to learn, and so what if 'novices' are buying the
> older rigs - if 'experienced'* hams are not buying them, then who will?
>
> *Based on my limited experience, even many M0/M1
> (advanced/full/'experienced') licence holders would struggle
> troubleshooting
> a hybrid, as their experience is with solid state, and to be frank many
> study for the advanced exam and then have nothing to do with the more
> practical side of the hobby, beyond calculating antenna lengths - and
> I've
> been asked by M1's for help with this, me, a mere M6 licencee.
>
> 73's
> Alan
>
> -- Original Message --
> From: K5MYJ <macklinbob@... <mailto:macklinbob%40gmail.com>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Send: Tue, 20 Aug 2013 22:36:46 -0700
> Subject: Re: [TS-520_820_530_830] Please help, Don't bash the Newbies
>
> I really do not want to bash the newbies. But I would like to know why
> people are starting with complex radios like the Kenwood Hybrids?
>
> My feeling is the problem started with the elimination of the Novice
> license. When a lot of us stated we built kits like the Heathkit DX-20,
> Dx-35, DX-40, or DX-60. These are all better starter radios than a
> complex
> solid state transceiver.
>
> We combined these simple transmitters with low end communication
> receivers.
> Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent
> novice receiver.
>
> This stuff is easier to get working than any of the Kenwood hybrids.
> But for
> the most part they are CW rigs. Actually CW/AM.
>
> But they are far easier to get working than a old solid state rig.
>
> The other thing is test equipment. The first thing you need is a
> decent VTVM

> and the manual. My preference is most any of the Heathkit VTVMs
> because they
> have the best manual. And don't hesitate to buy a good repro manual for
> your VTVM. If you are not able to repair and calibrate your VTVM you will
> not be able to repair a radio,
>
> I would still like to know why people with no apparent experience are
> buying
> complex radios like the Kenwood hybrids.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: n6wk_skcc3
> To:
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>

[Non-text portions of this message have been removed]

44180. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 19:33:29 UTC
From: Terry Wagoner
Topic: 44140 Message: 44180

Robert:

I saw it as well and was really surprised. I dont think you can tell anything by the call sign any more. Maybe at one time but not now. If he was my vintage and doesnt know what a Xtal Calibrator is then he has slipped a cog or two.

Yes I got my ticket under the old method and it was not easy but I think we were better prepared. FCC made it scary process by how they outfitted their field offices (nice hard upright wooden chairs) and staffed them (stern faced bank examiner types). I took all my exams in Chicago.

There is no substitution for 50 years of experience. However everyones experience is different. I chose to focus on the building, repairing, testing side and not so much the operating side all though hearing my call come back in CW on 40 meters that first time with my rock bound transmitter is still a very fond memory. Today I am not a very good operator. I am also still learning and sometimes even with some very fundamental things the light bulb all of the sudden just comes on after all these years.

How many of us can explain the voltage and current phase relationships in a Pi-network? What is the effect on the PA by tuning the tank capacitor to the inductive side of resonance? Why does a heterodyne oscillator coil have a fast and slow dB/octave side to it? All of these things take time to grasp. Almost all of us who have done coil pack alignment have noticed that coils have a fast and slow side. How many questioned why or just knew intuitively why and how many hit the books trying to figure it out? It takes a different way of thinking. Not a better or more legitimate or more value added way just different approach to the hobby.

We are blessed today with these computers and I would never think to go on any forum and ask what a Crystal Calibrator is. Only after a Google search and still not understanding how to use it or how to calibrate it would I ask such a question.

Have fun with your Xtal Calibrator project. Not unusual for most of my projects not to work first time. Part of the fun is pinching a coil here or spreading the turns here and watch it come alive.

Terry K9TW

> He wanted to know what a crystal calibrator was.
>
> I was flabbergasted, along the lines of a pilot for a major airline saying he had seen a new kind of airplane that had two wings, one on the top and one on the bottom.

44181. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 20:06:27 UTC
From: K5MYJ
Topic: 44140 Message: 44181

Terry,

Did you ever use a light bulb for a dummy load? Before the Heathkit Cantenna most of us did.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Terry Wagoner
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 12:33 PM
Subject: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Robert:

I saw it as well and was really surprised. I dont think you can tell anything by the call sign any more. Maybe at one time but not now. If he was my vintage and doesnt know what a Xtal Calibrator is then he has slipped a cog or two.

Yes I got my ticket under the old method and it was not easy but I think we were better prepared. FCC made it scary process by how they outfitted their field offices (nice hard upright wooden chairs) and staffed them (stern faced bank examiner types). I took all my exams in Chicago.

There is no substitution for 50 years of experience. However everyones experience is different. I chose to focus on the building, repairing, testing side and not so much the operating side all though hearing my call come back in CW on 40 meters that first time with my rock bound transmitter is still a very fond memory. Today I am not a very good operator. I am also still learning and sometimes even with some very fundamental things the light bulb all of the sudden just comes on after all these years.

How many of us can explain the voltage and current phase relationships in a Pi-network? What is the effect on the PA by tuning the tank capacitor to the inductive side of resonance? Why does a heterodyne oscillator coil have a fast and slow dB/octave side to it? All of these things take time to grasp. Almost all of us who have done coil pack alignment have noticed that coils have a fast and slow side. How many questioned why or just knew intuitively why and how many hit the books trying to figure it out? It takes a different way of thinking. Not a better or more legitimate or more value added way just different approach to the hobby.

We are blessed today with these computers and I would never think to go on any forum and ask what a Crystal Calibrator is. Only after a Google search and still not understanding how to use it or how to calibrate it would I ask such a question.

Have fun with your Xtal Calibrator project. Not unusual for most of my projects not to work first time. Part of the fun is pinching a coil here or spreading the turns here and watch it come alive.

Terry K9TW

> He wanted to know what a crystal calibrator was.
>
> I was flabbergasted, along the lines of a pilot for a major airline saying he had seen a new kind of airplane that had two wings, one on the top and one on the bottom.

[Non-text portions of this message have been removed]

44182. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 20:31:25 UTC
From: John Davidson
Topic: 44140 Message: 44182

I tuned my DX20 into a 100 W light bulb to make sure it had some output. Orange glow was about right. I also wrapped a few turns of my end fed wire antenna around a burned out fluorescent lamp and lit it up when I keyed. More of a curiosity than anything useful :D

From: K5MYJ <macklinbob@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 4:06 PM
Subject: Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Terry,

Did you ever use a light bulb for a dummy load? Before the Heathkit Cantenna most of us did.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Terry Wagoner
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 12:33 PM
Subject: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

How many of us ca

[Non-text portions of this message have been removed]

44183. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 19:55:25 UTC
From: technudge
Topic: 44140 Message: 44183

I have a smart phone. I don't need a DVM, oscilloscope, signal injector, tube tester, or any other equipment to use it or maintain it. At the very worst, if it can't be repaired I'll replace it.

The idea that a ham radio operator in this day and age needs to be an electrical technician is as archaic as thinking Morse Code is still relevant for more than 2 or 3 percent of communications --or that you could be a shade tree mechanic for any car built in the last 10 years.

It's this outmoded way of thinking that has hobbled ham radio for the last 30 years and nearly brought about its death. Maybe if we can shake this 1950's mindset maybe we can start rejuvenating the hobby.

Maybe it would be better to figure out why amateur radio repair companies seem to be too few and too far between and why every d*mn radio I need fixed seems to cost $300+ no matter what the problem is. ("Well, you know it takes me about an hour to unpack and repack the radio and that's my time too." Oh give me a frackin' break!)

-O'B.
ex-KA2MKI

--- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@...> wrote:
>
> I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?
>
> My feeling is the problem started with the elimination of the Novice license. When a lot of us stated we built kits like the Heathkit DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios than a complex solid state transceiver.
>
> We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.
>
> This stuff is easier to get working than any of the Kenwood hybrids. But for the most part they are CW rigs. Actually CW/AM.
>
> But they are far easier to get working than a old solid state rig.
>
> The other thing is test equipment. The first thing you need is a decent VTVM and the manual. My preference is most any of the Heathkit VTVMs because they have the best manual. And don't hesitate to buy a good repro manual for your VTVM. If you are not able to repair and calibrate your VTVM you will not be able to repair a radio,
>
> I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.
>

> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----

44184. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 21:31:12 UTC
From: Ron
Topic: 44123 Message: 44184

Ok I'll start there an get back with ya thanks Ron Kk4pwf

Sent from my iPhone

On Aug 21, 2013, at 11:26 AM, "roberteleazer@rocketmail.com" <roberteleazer@...> wrote:

> Well, could be a number of things.
>
> Get a copy of the manual if you do not have one, available free online from various sources.
>
> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
>
> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
>
> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>
> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
>
> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
>
> Good luck!
>
> Robert
> WB5WSV
> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@...> wrote:
>>
>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
>
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>

>

44185. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 21:49:08 UTC
From: Terry Wagoner
Topic: 44140 Message: 44185

Only game in town in the late 50s early 60s. Also used on test benches for years. QST ran articles on resistance vs temperature vs time. Almost unity power factor. Dont want to get into it here as will be much disagreement about using one that will drag on forever. Only real problem is that they are pretty good radiators. In a pinch I would not hesitate to use one to test a hybrid if it was all I had. Pi-network will tune just fine into them.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@...> wrote:
>
> Terry,
>
> Did you ever use a light bulb for a dummy load? Before the Heathkit Cantenna most of us did.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: Terry Wagoner
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, August 21, 2013 12:33 PM
> Subject: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies
>
>
>
> Robert:
>
> I saw it as well and was really surprised. I dont think you can tell anything by the call sign any more. Maybe at one time but not now. If he was my vintage and doesnt know what a Xtal Calibrator is then he has slipped a cog or two.
>
> Yes I got my ticket under the old method and it was not easy but I think we were better prepared. FCC made it scary process by how they outfitted their field offices (nice hard upright wooden chairs) and staffed them (stern faced bank examiner types). I took all my exams in Chicago.
>
> There is no substitution for 50 years of experience. However everyones experience is different. I chose to focus on the building, repairing, testing side and not so much the operating side all though hearing my call come back in CW on 40 meters that first time with my rock bound transmitter is still a very fond memory. Today I am not a very good operator. I am also still learning and sometimes even with some very fundamental things the light bulb all of the sudden just comes on after all these years.
>

> How many of us can explain the voltage and current phase relationships in a Pi-network? What is the effect on the PA by tuning the tank capacitor to the inductive side of resonance? Why does a heterodyne oscillator coil have a fast and slow dB/octave side to it? All of these things take time to grasp. Almost all of us who have done coil pack alignment have noticed that coils have a fast and slow side. How many questioned why or just knew intuitively why and how many hit the books trying to figure it out? It takes a different way of thinking. Not a better or more legitimate or more value added way just different approach to the hobby.
>
> We are blessed today with these computers and I would never think to go on any forum and ask what a Crystal Calibrator is. Only after a Google search and still not understanding how to use it or how to calibrate it would I ask such a question.
>
> Have fun with your Xtal Calibrator project. Not unusual for most of my projects not to work first time. Part of the fun is pinching a coil here or spreading the turns here and watch it come alive.
>
> Terry K9TW
>
> > He wanted to know what a crystal calibrator was.
> >
> > I was flabbergasted, along the lines of a pilot for a major airline saying he had seen a new kind of airplane that had two wings, one on the top and one on the bottom.
>
>
>
>
>
> [Non-text portions of this message have been removed]
>

44186. Re: [TS-520_820_530_830] Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 21:48:22 UTC
From: Wes Will
Topic: 44140 Message: 44186

On 08/21/2013 05:13 AM, zen18531@... wrote:
> Bob
>
> Possibly quite simple - the older rigs are cheaper than even second-hand
> modern equipment. From my own experience, I was looking for an HF rig
> within my price range.

BINGO! Give that man five silver pennies!

Price for new gear has been driven through the ceiling, and all of the marketing emphasis on "Just throw it away and buy a whole new one" kind of 'troubleshooting' and 'maintenance' has made this a whole generation of throw-away semi-educated Hams. All to the detriment of the hobby, in my opinion.

We need MORE people like Terry and Mike and the bunch here, who -care- that those of us less-informed about these boxes figure them out, and not just sit there, drooling, and twiddle dials.

>Sure, I'd really have liked an FT-9000 (keep
> dreaming!) or even an FT1000 or FT2000.

There's where we differ immediately. I went actively searching for a hybrid rig, because it CAN be repaired.

The only thing I'd like in a "modern" rig would be one that would fit in a small satchel and be completely portable for when I go on the road (antenna of course, to be arranged as and can).

> What google DIDN'T show was the complexity of the set when
> troubleshooting. Neither did it really show the "complexity"

I think these are immensely LESS complex than the digital stuff. You can look at a lot of it and tell if there is something (catastrophic at the very least) which has failed. You don't have to just scratch your head and stare at a black box, with no way to gain any comprehension fo what is going on inside.

WE are immensely fortunate, for we have manuals and schematics, and good people who can point to those documents and tell us what and where to look for the problems (AND WHY TO LOOK FOR IT THERE!!), and even with shortages of the odd component, we can then FIX THE ONE THING THAT IS REALLY WRONG. In contrast to tossing in the binnacle a lot of things which are not even broken, just to get to the one tiny bit that is.

So I feel that the Kenwood and other hybrid owners are one up on the "This is NEW and therefore must be better than anything at all OLD!" crowd.

We only have to avoid the other half of that paired set of fallacies, the mind-set that insists that "This is OLD and therefore it MUST be the best thing there is; no NEW thing can be even slightly useful in comparison."

I try to take the best of both halves, and put them together when it is possible. I just scored a kit Micro908 (almost entirely surface-mount soldering, oh joy, what fun for these old eyes and hands, huh?) antenna analyzer that will finally make the loss of my grid dipper a thing to be forgotten.

And I plan on using this modern and very much digital gadget, especially some of the signal injection functions it can have, quite HEAVILY in tuning and troubleshooting my poor old 520SE.

Tubes, meet young Billy Digital-IC, he's the new kid on the bench. Digital-IC, this right here is Mr. B-PLUS. Watch out for him, he's an old dog and might BITE YOU. Hard.

--
Wes Will
SysAdmin
N9KDY

44187. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 22:03:27 UTC
From: Terry Wagoner
Topic: 44140 Message: 44187

No one has said that at all. Where and when did you hear that on this forum?

People who buy these hybrids come here asking for help when their newly acquired 30 to 40 year old eBay treasure doesnt work. We dont seek them out. With their backgrounds we could say no user serviceable parts inside and tell them to move along. Those interested in learning will be helped.

If you own one of these rigs and intend to maintain it or repair it by yourself you have no choice but to move to the tech side of this hobby. There is room for all including the appliance operator as there always has been. It is natural that appliance operators are looked at with distain. This started as a technical hobby. Nothing wrong with having elite clubs with high standards for admission. What is wrong is the dumbing down of just about everything for dollars.

You can chose to just drive your car today and take it to the dealer when it doesnt work or if so inclined you can buy tools and diagnostic test equipment and go to a forum and start learning all about the ECM and how a open loop vs a closed loop fuel injection system works. It will be as daunting a task as these new Kenwood Hybrid owners are taking on if they so choose.

I smell sour grapes. Suspect you would have had a real fun time during incentive licensing.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "technudge" <hardedge@...> wrote:
>
>
> I have a smart phone. I don't need a DVM, oscilloscope, signal injector, tube tester, or any other equipment to use it or maintain it. At the very worst, if it can't be repaired I'll replace it.
>
> The idea that a ham radio operator in this day and age needs to be an electrical technician is as archaic as thinking Morse Code is still relevant for more than 2 or 3 percent of communications --or that you could be a shade tree mechanic for any car built in the last 10 years.
>
> It's this outmoded way of thinking that has hobbled ham radio for the last 30 years and nearly brought about its death. Maybe if we can shake this 1950's mindset maybe we can start rejuvenating the hobby.
>
> Maybe it would be better to figure out why amateur radio repair companies seem to be too few and too far between and why every d*mn radio I need fixed seems to cost $300+ no matter what the problem is. ("Well, you know it takes me about an hour to unpack and repack the radio and that's my time too." Oh give me a frackin' break!)
>
> -O'B.

> ex-KA2MKI
>
> --- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@> wrote:
> >
> > I really do not want to bash the newbies. But I would like to know why people are starting with complex radios like the Kenwood Hybrids?
> >
> > My feeling is the problem started with the elimination of the Novice license. When a lot of us stated we built kits like the Heathkit DX-20, Dx-35, DX-40, or DX-60. These are all better starter radios than a complex solid state transceiver.
> >
> > We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.
> >
> > This stuff is easier to get working than any of the Kenwood hybrids. But for the most part they are CW rigs. Actually CW/AM.
> >
> > But they are far easier to get working than a old solid state rig.
> >
> > The other thing is test equipment. The first thing you need is a decent VTVM and the manual. My preference is most any of the Heathkit VTVMs because they have the best manual. And don't hesitate to buy a good repro manual for your VTVM. If you are not able to repair and calibrate your VTVM you will not be able to repair a radio,
> >
> > I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.
> >
> > Bob Macklin
> > K5MYJ
> > Seattle, Wa.
> > "Real Radios Glow In The Dark"
> > ----- Original Message -----
>

44188. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 22:21:08 UTC
From: K5MYJ
Topic: 44140 Message: 44188

Once you have the proper tools, test equipment, and manuals restoring old radios can be more fun than operating new radios.

My feeling is we need regional groups that can get together for repairing this stuff. It's a PITA to ship it to someone for service.

Not all the common problems can be handled by a newbie. Sometimes they cannot explain the problem accurately.

If you want restore one to original factory specs like Terry and some others do it requires good test equipment and the knowledge of how to use it.

If you just want to get one to a useable operational state it requires less.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Terry Wagoner
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 3:03 PM
Subject: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

No one has said that at all. Where and when did you hear that on this forum?

People who buy these hybrids come here asking for help when their newly acquired 30 to 40 year old eBay treasure doesnt work. We dont seek them out. With their backgrounds we could say no user serviceable parts inside and tell them to move along. Those interested in learning will be helped.

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I smell sour grapes. Suspect you would have had a real fun time during incentive licensing.

Terry K9TW

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>
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>
> The idea that a ham radio operator in this day and age needs to be an electrical technician is as archaic as thinking Morse Code is still relevant for more than 2 or 3 percent of communications --or that you could be a shade tree mechanic for any car built in the last 10 years.
>
> It's this outmoded way of thinking that has hobbled ham radio for the last 30 years and nearly brought about its death. Maybe if we can shake this 1950's mindset maybe we can start rejuvenating the hobby.
>
> Maybe it would be better to figure out why amateur radio repair companies seem to be too few and too far between and why every d*mn radio I need fixed seems to cost $300+ no matter what the problem is. ("Well, you know it takes me about an hour to unpack and repack the radio and that's my time too." Oh give me a frackin' break!)
>
> -O'B.
> ex-KA2MKI
>
> --- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@> wrote:
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> > We combined these simple transmitters with low end communication receivers. Mostly Hallicrafters and Hammerlund. The Heathkit HR-10 is an excellent novice receiver.
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> >
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> >
> > I would still like to know why people with no apparent experience are buying complex radios like the Kenwood hybrids.
> >
> > Bob Macklin
> > K5MYJ

> > Seattle, Wa.
> > "Real Radios Glow In The Dark"
> > ----- Original Message -----
>

[Non-text portions of this message have been removed]

44189. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 22:22:13 UTC
From: Wes Will
Topic: 44140 Message: 44189

> Sorry if anybody thinks us newbies
> are pains to deal with - I've found a guy locally that helped me get

"Pains"? Why sure you're all pains, and so are we, to you and to each other. Which is as it should be. No pain, no transmit, maybe?

But any growing is accompanied by a bit of pain, and anybody who cannot stand that kind of pain needs to just stay quiet and let those who can go ahead and grow some.

That's my opinion, and I'm sticking to it.

And here's another opinion of mine: The absolute, utter, MOST fun you can possibly have in this hobby is when some "pain" calls you their

"ELMER."

Particularly one who is about fourteen years old, dresses "weird" and who you can only understand about half of what they're saying. In other words, they're YOU when you were that age.

I mentioned that the only thing I would find useful about a very modern rig would be one that was completely portable and very forgiving on the antenna end of things. This is because the "on the road" function for me would be regularly taking it to my wife's school, and setting it up to teach any of the kids there about radios. ANY of them, of ANY age, from 6 to 18 (plus the staff and educators if they show an interest).

Once I finish with getting my 520 on the air so I have something to use for myself, that's -precisely- what my next piece of (non-test-bench!) equipment is going to be. Something battery-powered, easily-portable, and broad-banded. Yaesu has some like that, also Kenwood (which brand I would prefer), as well as others of course.

And one of my internet contacts down-under in Oz has pointed me at a 'kit' radio which sells for about AUS $250 or so there. It's called a "G-11" and the outfit making them is "Genesis Radio." They have a web site,

http://www.genesisradio.com.au/

which has links to download all the manuals and the bits of software for this completely-computer-controlled monster. DON'T skip the dot A U at the end of the URL there. The dot-com is just another punkish kids' FM radio station web site.

Ten watts out, enough to drive an amp to get a hundred. And a kit amp to match it. Plus other odds and ends, looks like a good bunch of folks

to check out if you want a full-out software-driven radio to play with along with your hybrids. I won't be using one, sadly. Looks to be all WINDOWS junk, and I don't use that piece of garbage. (Not after twenty-plus years cleaning up the mess Redmond makes of a computer. NOBODY needs that much "job security.") I run Linux of one sort or another, and NOTHING from the M$ crew. They don't list any sort of Linux compatible stuff out front where it's easy to spor.

(Plus, I will bet their solid-state all-digital "WinBlows" gadget doesn't SOUND as good as the Kenwood tube boxen.)

--
Wes Will
SysAdmin
N9KDY

44190. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 22:54:41 UTC
From: Terry Wagoner
Topic: 44140 Message: 44190

I forgot to mention that no one who just wants to enjoy the operating side of this hobby (rag chewing, chasing dx, contesting etc) with their "new" KW hybrid has ever been told they are not welcome here. Anyone having trouble tuning and loading the radio or worried about why the S-meter pegs during initial power on is given the guidance they need.

However, regards tuning and loading the radio they will be advised by me and some others that it is in their best interest to begin learning what is on the end of those knobs that they are turning in a sequence that is somewhat of a mystery at this point and what and how they do it. The knowledge of parallel resonance, tank circuits, pi-networks and how and what they do is especially helpful when turning the knobs does not produce the expected and desired results. Then that may lead us to antenna systems. Another technical topic that abounds with misunderstanding, myths and magic.

Terry K9TW

44191. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 23:11:17 UTC
From: Chris Robinson
Topic: 44140 Message: 44191

I was once the new kid on the block, and probably a big pain in the rear with a million questions. My first rig was a FT-101E, and it worked great, but I wanted to know how to fix it if it stopped working properly.
I am like a lot of the Old men around here that started with an interestt in electronics and found ourselves deeply interested in radio for one reason or another. I never studied for the Novice license, ans I should have cause I was nervous ad hell when it came time, but I nailed i and moved on to my Tech license that was where I wanted to be fr the time being, and 13 or so more years.

I thought I knew a lot already about electronics and radio, but over the 16 yrs I have been licensed now, I have learned so much more, and am now a General class license holder.

I am sure I still dont know half as much as I think I do, but I keep trying. I read a chapter or so of the ARRL handbooks. I have a few of them going back to 1981 for me, and that is fine. I started reading them in as a very young kid, and dint understand most of the words let alone what they meant but I kept at it. I learned how to make antennas real fast and used that for every thing I could touch. Not knowing the rules really I didnt pay attention to what was allowed or not, and modified cordless phones with true Base antennas for 49MHz, CB radios(11m). I learned how to modify stereo antenas to get what I wanted out of them. My first 2 meter antenna is the $20 special modified TV antenna, and it worked so well, I was convinced that is all I ever wanted to do. Little did I know I was learning a lot.

I did not have an elmer, and did not know anyone into electronics or radio at any level. I screwed around with the CB into my mid 20's and then said screw this, I am tired of running illegal power in excess of a couple thousand watts with an Omni antenna at 90 feet above ground level. no modified radios though. I was heard everywhere. One day I moved into a new neighborhood and found my neighbor was using the FT-101E as his CB rig with a 3K palomar RF amp, so I bought it from him for a few hundred dollars, and the rest is history, I still use the cb, I lost the Yaesu FT-101E to theft, got it back many years later to have it stolen again a year later out of the RV.

Anyways this Hobby of Amateur radio is technically not a hobby, as defined by the FCC in its purpose of use. It is a Scientific research and developement arena, where experimenting with radios amps, antennas, coax, and many other things are expected for the growth of this hobby. It has never been in real threat of going away other then by rule making and frequency grabs. Our numbers now are higher then ever before in the history of amateur radio.
The problem lately that I see is a lot of newbies that have no desire to

learn anything, they want to plug it in and start talking and have no clue what they are doing or how to ensure frequency stability and tests. most have no clue how to check audio bandwidth being used a VOM, or DVOM wont tell you that, but an O-scope will.
Many new comers have simply said they only became licensed for the world end and TSHTF incidents. Fear mongering seems to be a good marketing ploy never used but some how a bunch of newbies think it is the only way to go. and still think that because they have a Handheld dual band they dont need a mobile rig or they think that the little HT will be just fine in a NYC on the 3 millionth floor of some building or another, never realizing the 2 meter signals dont penetrate walls to well, but use UHF and things change a lot.
Appliance users is exactly what the hobby has turned into now days.
So here is my suggestion to the newbies, quit bitching about us Old timers, and respect the fact that we can keep your radio in working order as well , while you have no clue what the TV seep tube is doing in a radio! Lighten up, you are not going to change this hobby simply because you are younger and think you are smarter. If you wher that smart you wouldnt be asking how to install the battery on the FT-897D or how to use the notch filters.

Oh by the way, 16 yrs in the hobby, and I still claim to be new to what I do, because I find the desire to keep learning and stepping into areas, I honestly have no clue what I am doing other then following directions on building a digital interface for my TM-V7A to the laptop because the screen has gonedark for ever now, unless I use on computer with some CAT controls. which note for you new comers is an excellent way to keep an older rig that otherwise works perfectly in use.

just like I dont understand the lyrics I hear on the radio as I call it jungle music I hear others calling it wrap, apparently speaking in rhyme is the new way to make noise, and yet not many have the ability to play any instrument and now days even the mic does a lot of the effects and clean up of a person who cant sing, Nikki Manaje comes to mind, right next to Justin Beiber!

Give us old guys a break and be happy you have someone to turn to at the end of the day to help fix your rig after you got stupid with the golden screwdriver some of you may have learned from the 11 meter band. We respect your ability to communicate, and the value you are to the hobby, not counting a numbers game of population in the Amateur radio service. Numbers help save things, but use of frequencies helps more, and so does experimenting with something related. I got in whe SDR was just developing, I still dont understand it, or D-star which I think is useless, I can use VIP with my vonage if I need to talk to England so bad.

Oh never mind some of you are hell bent on your way and that is it, but once you have been around for a bit you will learn much more then how to push buttons, you will finaly understand what that button does, in the mean time, keep asking questions until you understand the answer!

On Wed, Aug 21, 2013 at 3:22 PM, Wes Will <wwill@...> wrote:

> **
>
>
>
> > Sorry if anybody thinks us newbies
> > are pains to deal with - I've found a guy locally that helped me get
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> http://www.genesisradio.com.au/
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> which has links to download all the manuals and the bits of software for
> this completely-computer-controlled monster. DON'T skip the dot A U at
> the end of the URL there. The dot-com is just another punkish kids' FM
> radio station web site.

>
> Ten watts out, enough to drive an amp to get a hundred. And a kit amp
> to match it. Plus other odds and ends, looks like a good bunch of folks
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> along with your hybrids. I won't be using one, sadly. Looks to be all
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> NOBODY needs that much "job security.") I run Linux of one sort or
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> (Plus, I will bet their solid-state all-digital "WinBlows" gadget
> doesn't SOUND as good as the Kenwood tube boxen.)
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> --
> Wes Will
> SysAdmin
> N9KDY
>
>
>

--
Making life hell for others since 1973

Mr.C.Robinson
73 DE KF6NFW

[Non-text portions of this message have been removed]

44192. Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 22:15:12 UTC
From: Jeramy Ross
Topic: 44192 Message: 44192

Better question is have you ever had a QSO using a light bulb dummy load...
I certainly have had a few :)

Just a fun memory to lighten the mood...

73,
Jeramy W5XTL

On Aug 21, 2013 3:07 PM, "K5MYJ" <macklinbob@...> wrote:
>
> Terry,
>
> Did you ever use a light bulb for a dummy load? Before the Heathkit
Cantenna most of us did.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"

[Non-text portions of this message have been removed]

44193. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-21 23:49:12 UTC
From: John Davidson
Topic: 44140 Message: 44193

I guess if you have a smart fone you don't need ham radio, if that is what you think ham radio is about.

From: technudge <hardedge@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 3:55 PM
Subject: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

I have a smart phone. I don't need a DVM, oscilloscope, signal injector, tube tester, or any other equipment to use it or maintain it. At the very worst, if it can't be repaired I'll replace it.

The idea that a ham radio operator in this day and age needs to be an electrical technician is as archaic as thinking Morse Code is still relevant for more than 2 or 3 percent of communications --
> Recent Activity: * New Members 6
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.

[Non-text portions of this message have been removed]

44194. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 00:34:20 UTC
From: technudge
Topic: 44140 Message: 44194

It's "phone" or "telephone" --but that is the attitude I've experienced from some Yahoo group members. I have the same authority to define what amateur radio should be in the 21st century as you do for the 19th. My definition keeps the hobby alive.

-O'B.
ex-KA2MKI

--- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
> I guess if you have a smart fone you don't need ham radio, if that is what you think ham radio is about.
>
>
> _____
> From: technudge <hardedge@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, August 21, 2013 3:55 PM
> Subject: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies
>
>
>
> Â
>
> I have a smart phone. I don't need a DVM, oscilloscope, signal injector, tube tester, or any other equipment to use it or maintain it. At the very worst, if it can't be repaired I'll replace it.
>
> The idea that a ham radio operator in this day and age needs to be an electrical technician is as archaic as thinking Morse Code is still relevant for more than 2 or 3 percent of communications --
> >Â Recent Activity: * New Members 6
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> .
>
>
>
> [Non-text portions of this message have been removed]
>

44195. Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 00:52:00 UTC
From: Craig Roberts
Topic: 44192 Message: 44195

Not only did I have a QSOs with a light bulb, I continue to have QSOs
with a few dim bulbs.

73,

Craig
W3CRR

44196. Re: [TS-520_820_530_830] dummy load.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 01:06:54 UTC
From: <pmarkavage@...>
Topic: 44196 Message: 44196

Hang a fluorescent tube at each end of your dipole or inverted vee and scare the heck out of your neighbors at night.

Don't own a Cantenna but have lots of light bulbs that I can use for a visual dummy load. Not a bad modulation indicator either. For precision dummy measurements, I have a homemade dummy load/wattmeter consisting for 4 American Resistor Co. Globar 200 ohm non-inductive resistors (each resistor roughly 20 inches long by 1 inch diameter).

Pete, wa2cwa
http://www.manualman.com

On Wed, 21 Aug 2013 13:31:25 -0700 (PDT) John Davidson <k8jd@...> writes:
> I tuned my DX20 into a 100 W light bulb to make sure it had some
> output. Orange glow was about right. I also wrapped a few turns of
> my end fed wire antenna around a burned out fluorescent lamp and lit
> it up when I keyed. More of a curiosity than anything useful :D
>
>
> _____
> From: K5MYJ <macklinbob@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, August 21, 2013 4:06 PM
> Subject: Re: [TS-520_820_530_830] Re: Please help, Don't bash the
> Newbies
>
> Terry,
>
> Did you ever use a light bulb for a dummy load? Before the Heathkit
> Cantenna most of us did.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.

44197. Re: [TS-520_820_530_830] dummy load.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 01:36:29 UTC
From: K5MYJ
Topic: 44196 Message: 44197

I had a NE-51 hanging from my antenna in 1957!

And I was asked about the blinking light!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, August 21, 2013 6:06 PM
Subject: Re: [TS-520_820_530_830] dummy load.

Hang a fluorescent tube at each end of your dipole or inverted vee and
scare the heck out of your neighbors at night.

Don't own a Cantenna but have lots of light bulbs that I can use for a
visual dummy load. Not a bad modulation indicator either. For precision
dummy measurements, I have a homemade dummy load/wattmeter consisting for
4 American Resistor Co. Globar 200 ohm non-inductive resistors (each
resistor roughly 20 inches long by 1 inch diameter).

Pete, wa2cwa
http://www.manualman.com

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writes:
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> my end fed wire antenna around a burned out fluorescent lamp and lit
> it up when I keyed. More of a curiosity than anything useful :D
>
>
> _____
> From: K5MYJ <macklinbob@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, August 21, 2013 4:06 PM
> Subject: Re: [TS-520_820_530_830] Re: Please help, Don't bash the
> Newbies
>
> Terry,
>
> Did you ever use a light bulb for a dummy load? Before the Heathkit
> Cantenna most of us did.
>

> Bob Macklin
> K5MYJ
> Seattle, Wa.

[Non-text portions of this message have been removed]

44198. RE: [TS-520_820_530_830] dummy load.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 01:49:53 UTC
From: Rob
Topic: 44196 Message: 44198

I had a couple of “ Tandy “ bulb dummy loads for my CB back in the 70’s. Only problem was if you accidently swung over to SSB and forgot to reconnect your antenna.... (they were 5 watt)

That’s why I had a couple of them <grin>

Cheers,

Rob VK3BRS

To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] dummy load.

I had a NE-51 hanging from my antenna in 1957!

And I was asked about the blinking light!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@... <mailto:pmarkavage%40juno.com>
To: TS-520_820_530_830@yahoogroups.com <mailto:TS-520_820_530_830%40yahoogroups.com>
Sent: Wednesday, August 21, 2013 6:06 PM
Subject: Re: [TS-520_820_530_830] dummy load.

Hang a fluorescent tube at each end of your dipole or inverted vee and
scare the heck out of your neighbors at night.

Don't own a Cantenna but have lots of light bulbs that I can use for a
visual dummy load. Not a bad modulation indicator either. For precision
dummy measurements, I have a homemade dummy load/wattmeter consisting for
4 American Resistor Co. Globar 200 ohm non-inductive resistors (each
resistor roughly 20 inches long by 1 inch diameter).

Pete, wa2cwa
http://www.manualman.com

On Wed, 21 Aug 2013 13:31:25 -0700 (PDT) John Davidson <k8jd@... <mailto:k8jd%40yahoo.com>
>
writes:
> I tuned my DX20 into a 100 W light bulb to make sure it had some
> output. Orange glow was about right. I also wrapped a few turns of
> my end fed wire antenna around a burned out fluorescent lamp and lit
> it up when I keyed. More of a curiosity than anything useful :D
>
>

> _____
> From: K5MYJ <macklinbob@... <mailto:macklinbob%40gmail.com> >
> To: TS-520_820_530_830@yahoogroups.com <mailto:TS-520_820_530_830%40yahoogroups.com>
> Sent: Wednesday, August 21, 2013 4:06 PM
> Subject: Re: [TS-520_820_530_830] Re: Please help, Don't bash the
> Newbies
>
> Terry,
>
> Did you ever use a light bulb for a dummy load? Before the Heathkit
> Cantenna most of us did.
>
> Bob Macklin
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> Seattle, Wa.

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44199. Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 02:04:30 UTC
From: Jeff Blaine
Topic: 44192 Message: 44199

Excellent Craig!

73/jeff/ac0c
www.ac0c.com
alpha-charlie-zero-charlie

From: Craig Roberts
Sent: Wednesday, August 21, 2013 7:52 PM
To: TS-520_820_530_830@yahoogroups.com
Cc: Jeramy Ross
Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Not only did I have a QSOs with a light bulb, I continue to have QSOs
with a few dim bulbs.

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

44200. Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 02:16:22 UTC
From: Mike
Topic: 44140 Message: 44200

Okay, I said earlier that this topic has run its course and it's time to
move on.

If members want to continue discussing this topic among yourselves,
please take it off line(private e-mail).

73
Mike W5RKL

On 8/21/2013 5:22 PM, Wes Will wrote:
>
>
> > Sorry if anybody thinks us newbies
> > are pains to deal with - I've found a guy locally that helped me get
>
> "Pains"? Why sure you're all pains, and so are we, to you and to each
> other. Which is as it should be. No pain, no transmit, maybe?
>
> But any growing is accompanied by a bit of pain, and anybody who cannot
> stand that kind of pain needs to just stay quiet and let those who can
> go ahead and grow some.
>
> That's my opinion, and I'm sticking to it.
>
> And here's another opinion of mine: The absolute, utter, MOST fun you
> can possibly have in this hobby is when some "pain" calls you their
>
> "ELMER."
>
> Particularly one who is about fourteen years old, dresses "weird" and
> who you can only understand about half of what they're saying. In other
> words, they're YOU when you were that age.
>
> I mentioned that the only thing I would find useful about a very modern
> rig would be one that was completely portable and very forgiving on the
> antenna end of things. This is because the "on the road" function for
> me would be regularly taking it to my wife's school, and setting it up
> to teach any of the kids there about radios. ANY of them, of ANY age,
> from 6 to 18 (plus the staff and educators if they show an interest).
>
> Once I finish with getting my 520 on the air so I have something to use
> for myself, that's -precisely- what my next piece of (non-test-bench!)
> equipment is going to be. Something battery-powered, easily-portable,
> and broad-banded. Yaesu has some like that, also Kenwood (which brand I
> would prefer), as well as others of course.
>

> And one of my internet contacts down-under in Oz has pointed me at a
> 'kit' radio which sells for about AUS $250 or so there. It's called a
> "G-11" and the outfit making them is "Genesis Radio." They have a web
> site,
>
> http://www.genesisradio.com.au/
>
> which has links to download all the manuals and the bits of software for
> this completely-computer-controlled monster. DON'T skip the dot A U at
> the end of the URL there. The dot-com is just another punkish kids' FM
> radio station web site.
>
> Ten watts out, enough to drive an amp to get a hundred. And a kit amp
> to match it. Plus other odds and ends, looks like a good bunch of folks
> to check out if you want a full-out software-driven radio to play with
> along with your hybrids. I won't be using one, sadly. Looks to be all
> WINDOWS junk, and I don't use that piece of garbage. (Not after
> twenty-plus years cleaning up the mess Redmond makes of a computer.
> NOBODY needs that much "job security.") I run Linux of one sort or
> another, and NOTHING from the M$ crew. They don't list any sort of
> Linux compatible stuff out front where it's easy to spor.
>
> (Plus, I will bet their solid-state all-digital "WinBlows" gadget
> doesn't SOUND as good as the Kenwood tube boxen.)
>
> --
> Wes Will
> SysAdmin
> N9KDY
>
>

[Non-text portions of this message have been removed]

44201. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 01:25:20 UTC
From: technudge
Topic: 44140 Message: 44201

Didn't hear it, read it.

"It is natural that appliance operators are looked at with disdain."

Now there's a nice juicy statement for the list. Does everyone agree with that? Do the people who make buggy whips look down on automobile drivers?

"You can chose to just drive your car today and take it to the dealer when it doesn't work or if so inclined you can buy tools and diagnostic test equipment and go to a forum and start learning all about the ECM and how a open loop vs a closed loop fuel injection system works."

That's inordinately expensive and counter productive. My Corvette had (I think) 12 computers connected serially. If something happened to one, the rest down the line reported errors whether there were any or not. But they all had to be diagnosed --just in case. Great work of intelligence that was. The dealer service teams are already trained to do that job. I could get a forge and cast my own yellow wheels too but I think not.

The only sour grapes here is that the FCC/ARRL/ and radio manufacturers botched the whole thing so badly in the early '80's to the result that I let my newly won Novice license die off and didn't go near amateur radio again until last year --now that my eyes aren't as good, my hands only have limited dexterity, and I'm in pain to some degree or other 24/7 thanks to diabetic nerve disease.

I knew 5wpm when I got my license. Don't know any Morse now and won't learn Morse Code or any other useless aspect of ham radio at this time. It's the dead and dying past. If the Zombie Revolution comes to pass and spark is the only way to get a signal from point A to point B through the ZRM, I'll reconsider. ;-)

-O'B.
ex-KA2MKI

--- In TS-520_820_530_830@...m, "Terry Wagoner" <wagstw46@...> wrote:
>
> No one has said that at all. Where and when did you hear that on this forum?
>
> People who buy these hybrids come here asking for help when their newly acquired 30 to 40 year old eBay treasure doesnt work. We dont seek them out. With their backgrounds we could say no user serviceable parts inside and tell them to move along. Those interested in learning will be helped.
>
> If you own one of these rigs and intend to maintain it or repair it by yourself you have no choice but to move to the tech side of this hobby. There is room for all including the appliance operator as there always has been. It is natural that appliance operators are looked at with distain. This started as a technical hobby. Nothing wrong with having elite clubs with high standards for admission. What is wrong is the dumbing down of just about everything for dollars.

>
> You can chose to just drive your car today and take it to the dealer when it doesnt work or if so inclined you can buy tools and diagnostic test equipment and go to a forum and start learning all about the ECM and how a open loop vs a closed loop fuel injection system works. It will be as daunting a task as these new Kenwood Hybrid owners are taking on if they so choose.
>
> I smell sour grapes. Suspect you would have had a real fun time during incentive licensing.
>
> Terry K9TW

44202. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 00:45:32 UTC
From: technudge
Topic: 44140 Message: 44202

I think if we held the same attitude toward computer use we'd still be wallowing among the Altair, Cromemco, Imsai offerings.

-O'B.
ex-KA2MKI

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I forgot to mention that no one who just wants to enjoy the operating side of this hobby (rag chewing, chasing dx, contesting etc) with their "new" KW hybrid has ever been told they are not welcome here. Anyone having trouble tuning and loading the radio or worried about why the S-meter pegs during initial power on is given the guidance they need.
>
> However, regards tuning and loading the radio they will be advised by me and some others that it is in their best interest to begin learning what is on the end of those knobs that they are turning in a sequence that is somewhat of a mystery at this point and what and how they do it. The knowledge of parallel resonance, tank circuits, pi-networks and how and what they do is especially helpful when turning the knobs does not produce the expected and desired results. Then that may lead us to antenna systems. Another technical topic that abounds with misunderstanding, myths and magic.
>
>
>
> Terry K9TW
>

44203. Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 02:31:29 UTC
From: n6wk_skcc3
Topic: 44140 Message: 44203

Mike,
I agree. Time to get back to the radios !

Thank you

Gordon
N6WK

Group Co-Owner

--- In TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
>
> Okay, I said earlier that this topic has run its course and it's time to
> move on.
>
> If members want to continue discussing this topic among yourselves,
> please take it off line(private e-mail).
>
> 73
> Mike W5RKL
>
> On 8/21/2013 5:22 PM, Wes Will wrote:
> >
> >
> > > Sorry if anybody thinks us newbies
> > > are pains to deal with - I've found a guy locally that helped me get
> >
> > "Pains"? Why sure you're all pains, and so are we, to you and to each
> > other. Which is as it should be. No pain, no transmit, maybe?
> >
> > But any growing is accompanied by a bit of pain, and anybody who cannot
> > stand that kind of pain needs to just stay quiet and let those who can
> > go ahead and grow some.
> >
> > That's my opinion, and I'm sticking to it.
> >
> > And here's another opinion of mine: The absolute, utter, MOST fun you
> > can possibly have in this hobby is when some "pain" calls you their
> >
> > "ELMER."
> >
> > Particularly one who is about fourteen years old, dresses "weird" and
> > who you can only understand about half of what they're saying. In other
> > words, they're YOU when you were that age.
> >
> > I mentioned that the only thing I would find useful about a very modern

> > rig would be one that was completely portable and very forgiving on the
> > antenna end of things. This is because the "on the road" function for
> > me would be regularly taking it to my wife's school, and setting it up
> > to teach any of the kids there about radios. ANY of them, of ANY age,
> > from 6 to 18 (plus the staff and educators if they show an interest).
> >
> > Once I finish with getting my 520 on the air so I have something to use
> > for myself, that's -precisely- what my next piece of (non-test-bench!)
> > equipment is going to be. Something battery-powered, easily-portable,
> > and broad-banded. Yaesu has some like that, also Kenwood (which brand I
> > would prefer), as well as others of course.
> >
> > And one of my internet contacts down-under in Oz has pointed me at a
> > 'kit' radio which sells for about AUS $250 or so there. It's called a
> > "G-11" and the outfit making them is "Genesis Radio." They have a web
> > site,
> >
> > http://www.genesisradio.com.au/
> >
> > which has links to download all the manuals and the bits of software for
> > this completely-computer-controlled monster. DON'T skip the dot A U at
> > the end of the URL there. The dot-com is just another punkish kids' FM
> > radio station web site.
> >
> > Ten watts out, enough to drive an amp to get a hundred. And a kit amp
> > to match it. Plus other odds and ends, looks like a good bunch of folks
> > to check out if you want a full-out software-driven radio to play with
> > along with your hybrids. I won't be using one, sadly. Looks to be all
> > WINDOWS junk, and I don't use that piece of garbage. (Not after
> > twenty-plus years cleaning up the mess Redmond makes of a computer.
> > NOBODY needs that much "job security.") I run Linux of one sort or
> > another, and NOTHING from the M$ crew. They don't list any sort of
> > Linux compatible stuff out front where it's easy to spor.
> >
> > (Plus, I will bet their solid-state all-digital "WinBlows" gadget
> > doesn't SOUND as good as the Kenwood tube boxen.)
> >
> > --
> > Wes Will
> > SysAdmin
> > N9KDY
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44204. RE: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 05:52:10 UTC
From: Steve Berman
Topic: 44140 Message: 44204

I definitely agree. It's been beaten to death. Let's all just get back to our Kenwood hybrids. I think the moderators needcto step in and turn this thread off. Obviously certain folks on this list can't or won't take the hint that this thread has become redundant.

Steve, N6HK
TS-830S user since '90

To: TS-520_820_530_830@yahoogroups.com
From: w5rkl@...
Date: Wed, 21 Aug 2013 21:16:22 -0500
Subject: Re: [TS-520_820_530_830] Re: Please help, Don't bash the Newbies

Okay, I said earlier that this topic has run its course and it's time to

move on.

If members want to continue discussing this topic among yourselves,

please take it off line(private e-mail).

73

Mike W5RKL

On 8/21/2013 5:22 PM, Wes Will wrote:

>

>

> > Sorry if anybody thinks us newbies

> > are pains to deal with - I've found a guy locally that helped me get

>

> "Pains"? Why sure you're all pains, and so are we, to you and to each

> other. Which is as it should be. No pain, no transmit, maybe?

>

> But any growing is accompanied by a bit of pain, and anybody who cannot

> stand that kind of pain needs to just stay quiet and let those who can

> go ahead and grow some.

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> That's my opinion, and I'm sticking to it.
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> And here's another opinion of mine: The absolute, utter, MOST fun you
> can possibly have in this hobby is when some "pain" calls you their
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> "ELMER."
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> Particularly one who is about fourteen years old, dresses "weird" and
> who you can only understand about half of what they're saying. In other
> words, they're YOU when you were that age.
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> I mentioned that the only thing I would find useful about a very modern
> rig would be one that was completely portable and very forgiving on the
> antenna end of things. This is because the "on the road" function for
> me would be regularly taking it to my wife's school, and setting it up
> to teach any of the kids there about radios. ANY of them, of ANY age,
> from 6 to 18 (plus the staff and educators if they show an interest).
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> Once I finish with getting my 520 on the air so I have something to use
> for myself, that's -precisely- what my next piece of (non-test-bench!)
> equipment is going to be. Something battery-powered, easily-portable,
> and broad-banded. Yaesu has some like that, also Kenwood (which brand I
> would prefer), as well as others of course.
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> And one of my internet contacts down-under in Oz has pointed me at a
> 'kit' radio which sells for about AUS $250 or so there. It's called a
> "G-11" and the outfit making them is "Genesis Radio." They have a web
> site,
>

> http://www.genesisradio.com.au/
>
> which has links to download all the manuals and the bits of software for
> this completely-computer-controlled monster. DON'T skip the dot A U at
> the end of the URL there. The dot-com is just another punkish kids' FM
> radio station web site.
>
> Ten watts out, enough to drive an amp to get a hundred. And a kit amp
> to match it. Plus other odds and ends, looks like a good bunch of folks
> to check out if you want a full-out software-driven radio to play with
> along with your hybrids. I won't be using one, sadly. Looks to be all
> WINDOWS junk, and I don't use that piece of garbage. (Not after
> twenty-plus years cleaning up the mess Redmond makes of a computer.
> NOBODY needs that much "job security.") I run Linux of one sort or
> another, and NOTHING from the M$ crew. They don't list any sort of
> Linux compatible stuff out front where it's easy to spor.
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> (Plus, I will bet their solid-state all-digital "WinBlows" gadget
> doesn't SOUND as good as the Kenwood tube boxen.)
>
> --
> Wes Will
> SysAdmin
> N9KDY
>
>
[Non-text portions of this message have been removed]
[Non-text portions of this message have been removed]

44205. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 07:21:11 UTC
From: Ron
Topic: 44123 Message: 44205

Only thing I can see is the vr2 appears to be broken

Sent from my iPhone

On Aug 21, 2013, at 10:26 AM, "roberteleazer@..." <roberteleazer@...> wrote:

> Well, could be a number of things.
>
> Get a copy of the manual if you do not have one, available free online from various sources.
>
> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
>
> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
>
> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>
> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
>
> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
>
> Good luck!
>
> Robert
> WB5WSV
> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@...> wrote:
>>
>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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> Yahoo! Groups Links
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44206. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 13:38:02 UTC
From: Ron
Topic: 44123 Message: 44206

Good day Robert I checked an had 9 vdc on av board

Sent from my iPhone

On Aug 21, 2013, at 4:31 PM, Ron <bozo231@...> wrote:

> Ok I'll start there an get back with ya thanks Ron Kk4pwf
>
> Sent from my iPhone
>
> On Aug 21, 2013, at 11:26 AM, "roberteleazer@rocketmail.com" <roberteleazer@...> wrote:
>
>> Well, could be a number of things.
>>
>> Get a copy of the manual if you do not have one, available free online from various sources.
>>
>> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
>>
>> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
>>
>> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>>
>> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
>>
>> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
>>
>> Good luck!
>>
>> Robert
>> WB5WSV
>> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@...> wrote:
>>>
>>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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44207. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 13:41:21 UTC
From: Ron
Topic: 44123 Message: 44207

As for the sound I have static noise also I can turn on moni and key the mic an speak an it works fine . The vfo digital display barley lights up then fades out Hope this helps. Thanks Ron Kk4 pwf

Sent from my iPhone

On Aug 21, 2013, at 4:31 PM, Ron <bozo231@...> wrote:

> Ok I'll start there an get back with ya thanks Ron Kk4pwf
>
> Sent from my iPhone
>
> On Aug 21, 2013, at 11:26 AM, "roberteleazer@rocketmail.com" <roberteleazer@...> wrote:
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>> Well, could be a number of things.
>>
>> Get a copy of the manual if you do not have one, available free online from various sources.
>>
>> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
>>
>> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
>>
>> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>>
>> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
>>
>> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
>>
>> Good luck!
>>
>> Robert
>> WB5WSV
>> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@...> wrote:
>>>
>>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
>>

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44208. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 14:11:40 UTC
From: Terry Wagoner
Topic: 44123 Message: 44208

Which VR-2 is broken? The one on the AF-AVR board?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>
> As for the sound I have static noise also I can turn on moni and key the mic an speak an it works fine . The vfo digital display barley lights up then fades out Hope this helps. Thanks Ron Kk4 pwf
>
> Sent from my iPhone
>
> On Aug 21, 2013, at 4:31 PM, Ron <bozo231@...> wrote:
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> > Ok I'll start there an get back with ya thanks Ron Kk4pwf
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> >
> > On Aug 21, 2013, at 11:26 AM, "roberteleazer@..." <roberteleazer@...> wrote:
> >
> >> Well, could be a number of things.
> >>
> >> Get a copy of the manual if you do not have one, available free online from various sources.
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> >> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
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> >> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
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> >> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
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> >> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
> >>
> >> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
> >>
> >> Good luck!
> >>
> >> Robert

> >> WB5WSV
> >> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@> wrote:
> >>>
> >>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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44209. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 16:25:14 UTC
From: Ron
Topic: 44123 Message: 44209

No Terry the vr-2 on the x 48- 1150-00 board

Sent from my iPhone

On Aug 22, 2013, at 9:11 AM, "Terry Wagoner" <wagstw46@...> wrote:

> Which VR-2 is broken? The one on the AF-AVR board?
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>>
>> As for the sound I have static noise also I can turn on moni and key the mic an speak an it works fine . The vfo digital display barley lights up then fades out Hope this helps. Thanks Ron Kk4 pwf
>>
>> Sent from my iPhone
>>
>> On Aug 21, 2013, at 4:31 PM, Ron <bozo231@...> wrote:
>>
>>> Ok I'll start there an get back with ya thanks Ron Kk4pwf
>>>
>>> Sent from my iPhone
>>>
>>> On Aug 21, 2013, at 11:26 AM, "roberteleazer@..." <roberteleazer@...> wrote:
>>>
>>>> Well, could be a number of things.
>>>>
>>>> Get a copy of the manual if you do not have one, available free online from various sources.
>>>>
>>>> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
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>>>> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
>>>>
>>>> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>>>>
>>>> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
>>>>
>>>> What about the "volume level"? What do you mean? Is there any noise at all coming out

of the speaker? If not, plug in a headset and try that.
>>>>
>>>> Good luck!
>>>>
>>>> Robert
>>>> WB5WSV
>>>> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@> wrote:
>>>>>
>>>>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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44210. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 17:05:42 UTC
From: Ronald Robinson
Topic: 44123 Message: 44210

Terry its on the rf board,Ron KK4pwf

From: Ron <bozo231@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Thursday, August 22, 2013 11:25 AM
Subject: Re: [TS-520_820_530_830] Re: partial dead ts-820s

No Terry the vr-2 on the x 48- 1150-00 board

Sent from my iPhone

On Aug 22, 2013, at 9:11 AM, "Terry Wagoner" <wagstw46@...> wrote:

> Which VR-2 is broken? The one on the AF-AVR board?
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>>
>> As for the sound I have static noise also I can turn on moni and key the mic an speak an it works fine . The vfo digital display barley lights up then fades out Hope this helps. Thanks Ron Kk4 pwf
>>
>> Sent from my iPhone
>>
>> On Aug 21, 2013, at 4:31 PM, Ron <bozo231@...> wrote:
>>
>>> Ok I'll start there an get back with ya thanks Ron Kk4pwf
>>>
>>> Sent from my iPhone
>>>
>>> On Aug 21, 2013, at 11:26 AM, "roberteleazer@..." <roberteleazer@...> wrote:
>>>
>>>> Well, could be a number of things.
>>>>
>>>> Get a copy of the manual if you do not have one, available free online from various sources.
>>>>
>>>> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
>>>>
>>>> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.

>>>>
>>>> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
>>>>
>>>> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
>>>>
>>>> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
>>>>
>>>> Good luck!
>>>>
>>>> Robert
>>>> WB5WSV
>>>> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@> wrote:
>>>>>
>>>>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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44211. Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 18:16:25 UTC
From: John Davidson
Topic: 44192 Message: 44211

Maybe not a dim bulb, but I did have a QSO with an aquaintence who lived a mile away when I was connected to a HeathKit Cantenna on 10M SSB once.
I was tinkering with an audio compressor I built, hooked to my TS520, and got a call on the air from a guy who heard me at S5 a mile away.!

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Cc: Jeramy Ross <jeramy@...>
Sent: Wednesday, August 21, 2013 8:52 PM
Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Not only did I have a QSOs with a light bulb, I continue to have QSOs
with a few dim bulbs.

73,

Craig
W3CRR

[Non-text portions of this message have been removed]

44212. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 18:22:58 UTC
From: Terry Wagoner
Topic: 44123 Message: 44212

Ron:

I think you mean the IF board and if so VR-2 trim pot is the span adjustment for the S-meter. You use it to cal the S-meter by injecting 50uv or -73dBm 14.2mhz into the SO-239 and set meter to S9. The service manual has the steps to set zero and threshold before adjusting VR-2.

If VR-2 is broken it should not shut down your receiver. If the meter FET Q4 is shorted then you will have no receive because the AGC bus will be pulled down. This normally would cause the S-meter to peg full scale. Since you have a bad VR-2 then you would not be able to see the pegged S-meter.

1. What does the Marker signal (25khz xtal calibrator)do?

2. Do you have a high Z meter (VTVM or FET DMM) that you can use to measure the AGC bus voltage? You can measure it at IF board Conn IF-3 Pin 11. Will be something less than 3.0vdc with RF gain full CW.

3. Have you tried pulling and cleaning the Aux Relay contacts?

4. If you have no or very low AGC bus voltage and cleaning Aux relay contacts does not restore it go back to Conn IF-3 Pin 8 and measure RF-1 voltage it should be approx 3.5vdc.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@...> wrote:
>
> Terry its on the rf board,Ron KK4pwf
>
>
>
> _____
> From: Ron <bozo231@...>
> To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
> Sent: Thursday, August 22, 2013 11:25 AM
> Subject: Re: [TS-520_820_530_830] Re: partial dead ts-820s
>
>
> No Terry the vr-2 on the x 48- 1150-00 board
>
> Sent from my iPhone
>
> On Aug 22, 2013, at 9:11 AM, "Terry Wagoner" <wagstw46@...> wrote:
>
> > Which VR-2 is broken? The one on the AF-AVR board?
> >
> > Terry K9TW

> >
> > --- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@> wrote:
> >>
> >> As for the sound I have static noise also I can turn on moni and key the mic an speak an it works fine . The vfo digital display barley lights up then fades out Hope this helps. Thanks Ron Kk4 pwf
> >>
> >> Sent from my iPhone
> >>
> >> On Aug 21, 2013, at 4:31 PM, Ron <bozo231@> wrote:
> >>
> >>> Ok I'll start there an get back with ya thanks Ron Kk4pwf
> >>>
> >>> Sent from my iPhone
> >>>
> >>> On Aug 21, 2013, at 11:26 AM, "roberteleazer@" <roberteleazer@> wrote:
> >>>
> >>>> Well, could be a number of things.
> >>>>
> >>>> Get a copy of the manual if you do not have one, available free online from various sources.
> >>>>
> >>>> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
> >>>>
> >>>> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
> >>>>
> >>>> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
> >>>>
> >>>> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
> >>>>
> >>>> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
> >>>>
> >>>> Good luck!
> >>>>
> >>>> Robert
> >>>> WB5WSV
> >>>> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@> wrote:
> >>>>>
> >>>>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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> [Non-text portions of this message have been removed]
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44213. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 18:41:13 UTC
From: Ronald Robinson
Topic: 44123 Message: 44213

Terry it is on the board that stands up on the left hand side faceing the radio or when in service position its on top

---
From: Terry Wagoner <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 22, 2013 1:22 PM
Subject: [TS-520_820_530_830] Re: partial dead ts-820s

Ron:

I think you mean the IF board and if so VR-2 trim pot is the span adjustment for the S-meter. You use it to cal the S-meter by injecting 50uv or -73dBm 14.2mhz into the SO-239 and set meter to S9. The service manual has the steps to set zero and threshold before adjusting VR-2.

If VR-2 is broken it should not shut down your receiver. If the meter FET Q4 is shorted then you will have no receive because the AGC bus will be pulled down. This normally would cause the S-meter to peg full scale. Since you have a bad VR-2 then you would not be able to see the pegged S-meter.

1. What does the Marker signal (25khz xtal calibrator)do?

2. Do you have a high Z meter (VTVM or FET DMM) that you can use to measure the AGC bus voltage? You can measure it at IF board Conn IF-3 Pin 11. Will be something less than 3.0vdc with RF gain full CW.

3. Have you tried pulling and cleaning the Aux Relay contacts?

4. If you have no or very low AGC bus voltage and cleaning Aux relay contacts does not restore it go back to Conn IF-3 Pin 8 and measure RF-1 voltage it should be approx 3.5vdc.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@...> wrote:
>
> Terry its on the rf board,Ron KK4pwf
>
>
>
> ---
> From: Ron <bozo231@...>
> To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
> Sent: Thursday, August 22, 2013 11:25 AM
> Subject: Re: [TS-520_820_530_830] Re: partial dead ts-820s
>
>

> No Terry the vr-2 on the x 48- 1150-00 board
>
> Sent from my iPhone
>
> On Aug 22, 2013, at 9:11 AM, "Terry Wagoner" <wagstw46@...> wrote:
>
> > Which VR-2 is broken? The one on the AF-AVR board?
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> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@> wrote:
> >>
> >> As for the sound I have static noise also I can turn on moni and key the mic an speak an it works fine . The vfo digital display barley lights up then fades out   Hope this helps. Thanks Ron   Kk4 pwf
> >>
> >> Sent from my iPhone
> >>
> >> On Aug 21, 2013, at 4:31 PM, Ron <bozo231@> wrote:
> >>
> >>> Ok I'll start there an get back with ya thanks   Ron   Kk4pwf
> >>>
> >>> Sent from my iPhone
> >>>
> >>> On Aug 21, 2013, at 11:26 AM, "roberteleazer@" <roberteleazer@> wrote:
> >>>
> >>>> Well, could be a number of things.
> >>>>
> >>>> Get a copy of the manual if you do not have one, available free online from various sources.
> >>>>
> >>>> A dead VFO might do what you say all by itself. By VFO is dead do you mean that the digital display is blank?
> >>>>
> >>>> Open up the rig and see if the connectors on the back of the VFO are still attached and that all of the connectors going to the various boards are attached. NOTE: LETHAL VOLTAGES ARE PRESENT IN SOME LCLOCATIONS, like that 925 volts HV! If we don't hear back from you we will know that we have lost yet another member of this group.
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> >>>> Then turn the rig over, and check to see if the low voltage DC is present at the AF-AVR board. There should be 9VDC at the connector pin nearest to the potentiometer VR1.
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> >>>> Stay away from the diodes on the bottom near the power transformer, since they can be shorted out very easily, but do note if any of them are burned or cracked.
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> >>>> What about the "volume level"? What do you mean? Is there any noise at all coming out of the speaker? If not, plug in a headset and try that.
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> >>>> Good luck!
> >>>>

> >>>> Robert
> >>>> WB5WSV
> >>>> --- In TS-520_820_530_830@yahoogroups.com, "bigfoot" <bozo231@> wrote:
> >>>>>
> >>>>> turned on my rig today and have plate current ,925 hv volume level no display seems like vfo is dead with no receive or transmit any ideas? thanks for letting me join the group, looks like I'll need help with this radio!!!
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44214. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 20:24:09 UTC
From: Terry Wagoner
Topic: 44123 Message: 44214

That is the IF board.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@...> wrote:
>
> Terry it is on the board that stands up on the left hand side faceing the radio or when in service position its on top
>
>
>
> _____
> From: Terry Wagoner <wagstw46@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Thursday, August 22, 2013 1:22 PM
> Subject: [TS-520_820_530_830] Re: partial dead ts-820s
>
>
> Ron:
>
> I think you mean the IF board and if so VR-2 trim pot is the span adjustment for the S-meter. You use it to cal the S-meter by injecting 50uv or -73dBm 14.2mhz into the SO-239 and set meter to S9. The service manual has the steps to set zero and threshold before adjusting VR-2.
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> If VR-2 is broken it should not shut down your receiver. If the meter FET Q4 is shorted then you will have no receive because the AGC bus will be pulled down. This normally would cause the S-meter to peg full scale. Since you have a bad VR-2 then you would not be able to see the pegged S-meter.
>
> 1. What does the Marker signal (25khz xtal calibrator)do?
>
> 2. Do you have a high Z meter (VTVM or FET DMM) that you can use to measure the AGC bus voltage? You can measure it at IF board Conn IF-3 Pin 11. Will be something less than 3.0vdc with RF gain full CW.
>
> 3. Have you tried pulling and cleaning the Aux Relay contacts?
>
> 4. If you have no or very low AGC bus voltage and cleaning Aux relay contacts does not restore it go back to Conn IF-3 Pin 8 and measure RF-1 voltage it should be approx 3.5vdc.
>
> Terry K9TW

44215. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 21:26:20 UTC
From: Ronald Robinson
Topic: 44123 Message: 44215

Terry pin 11 reads 2.55 vdc, an 8 reads 3.16

_____
From: Terry Wagoner <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 22, 2013 3:24 PM
Subject: [TS-520_820_530_830] Re: partial dead ts-820s

That is the IF board.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@...> wrote:
>
> Terry it is on the board that stands up on the left hand side faceing the radio or when in service position its on top
>
>
>
> _____
> From: Terry Wagoner <wagstw46@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Thursday, August 22, 2013 1:22 PM
> Subject: [TS-520_820_530_830] Re: partial dead ts-820s
>
>
> Ron:
>
> I think you mean the IF board and if so VR-2 trim pot is the span adjustment for the S-meter. You use it to cal the S-meter by injecting 50uv or -73dBm 14.2mhz into the SO-239 and set meter to S9. The service manual has the steps to set zero and threshold before adjusting VR-2.
>
> If VR-2 is broken it should not shut down your receiver. If the meter FET Q4 is shorted then you will have no receive because the AGC bus will be pulled down. This normally would cause the S-meter to peg full scale. Since you have a bad VR-2 then you would not be able to see the pegged S-meter.
>
> 1. What does the Marker signal (25khz xtal calibrator)do?
>
> 2. Do you have a high Z meter (VTVM or FET DMM) that you can use to measure the AGC bus voltage? You can measure it at IF board Conn IF-3 Pin 11. Will be something less than 3.0vdc with RF gain full CW.
>
> 3. Have you tried pulling and cleaning the Aux Relay contacts?
>

> 4. If you have no or very low AGC bus voltage and cleaning Aux relay contacts does not restore it go back to Conn IF-3 Pin 8 and measure RF-1 voltage it should be approx 3.5vdc.
>
> Terry K9TW

Yahoo! Groups Links

[Non-text portions of this message have been removed]

44216. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 21:02:10 UTC
From: bigfoot
Topic: 44123 Message: 44216

marker signal does nothing terry

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> That is the IF board.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
> >
> > Terry it is on the board that stands up on the left hand side faceing the radio or when in service position its on top
> >
> >
> >
> > _____
> > From: Terry Wagoner <wagstw46@>
> > To: TS-520_820_530_830@yahoogroups.com
> > Sent: Thursday, August 22, 2013 1:22 PM
> > Subject: [TS-520_820_530_830] Re: partial dead ts-820s
> >
> >
> > Ron:
> >
> > I think you mean the IF board and if so VR-2 trim pot is the span adjustment for the S-meter. You use it to cal the S-meter by injecting 50uv or -73dBm 14.2mhz into the SO-239 and set meter to S9. The service manual has the steps to set zero and threshold before adjusting VR-2.
> >
> > If VR-2 is broken it should not shut down your receiver. If the meter FET Q4 is shorted then you will have no receive because the AGC bus will be pulled down. This normally would cause the S-meter to peg full scale. Since you have a bad VR-2 then you would not be able to see the pegged S-meter.
> >
> > 1. What does the Marker signal (25khz xtal calibrator)do?
> >
> > 2. Do you have a high Z meter (VTVM or FET DMM) that you can use to measure the AGC bus voltage? You can measure it at IF board Conn IF-3 Pin 11. Will be something less than 3.0vdc with RF gain full CW.
> >
> > 3. Have you tried pulling and cleaning the Aux Relay contacts?
> >
> > 4. If you have no or very low AGC bus voltage and cleaning Aux relay contacts does not restore it go back to Conn IF-3 Pin 8 and measure RF-1 voltage it should be approx 3.5vdc.
> >

> > Terry K9TW
>

44217. Seeking Qualified Kenwood 599 Twins Shop

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 20:50:48 UTC
From: Bordain
Topic: 44217 Message: 44217

Hello all I'm looking to send my Twins off for a good once over. Any recommendations on a West Coast facility?

Thanks!

Tom
KB7SJP

44218. Re: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-22 23:35:57 UTC
From: Mark Gilger
Topic: 44217 Message: 44218

Tom,

I keep a list at the following location of the
known hybrid service people. There are a few out your direction listed.

http://wb4hfn.com/KENWOOD/Articles/Kenwood%20resources_Rev3.pdf

Mark, WB0IQK

PM 8/22/2013, Bordain wrote:
>
>
>Hello all I'm looking to send my Twins off for a
>good once over. Any recommendations on a West Coast facility?
>
>Thanks!
>
>Tom
>KB7SJP
>
>

[Non-text portions of this message have been removed]

44219. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 00:48:08 UTC
From: Terry Wagoner
Topic: 44123 Message: 44219

OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.

Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?

I am assuming the receiver is dead on all bands. Is that correct?

Did you check 8/9 jumper as previously directed and exercise the plug?

Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.

Do you have a RF signal generator?

Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@...> wrote:
>
> Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
>
>
>
> _____
>

44220. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 01:05:07 UTC
From: roberteleazer@rocketmail.com
Topic: 44123 Message: 44220

Terry:

He says that the frequency display lights up but fades out.

I wonder what it reads before it fades out? That could tell us a lot.

Robert

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.
>
> Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?
>
> I am assuming the receiver is dead on all bands. Is that correct?
>
> Did you check 8/9 jumper as previously directed and exercise the plug?
>
> Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.
>
> Do you have a RF signal generator?
>
> Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
> >
> > Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
> >
> >
> >
> > _____
> >
>

44221. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 01:59:45 UTC
From: Terry Wagoner
Topic: 44123 Message: 44221

Hi Robert:

I missed that. When he said VR-2 was broken I didnt see anyone responded to that. I was headed to VCO on RF board but wanted to make sure he had good AGC bus. The PLL may be unlocking and he will need a rf probe/vtvm or O-scope and can quickly see if he has VCO signal at RIF mixer.

If you and/or Joe want to run from here go right ahead. I have plenty to do. I think he is getting close to needing more than a DMM.

I almost always start by checking and setting 9vdc and RF-1.

When I find AGC bus voltage missing or VCO missing sometimes I will stop and provide it from bench supply or sig gen just to see if rig comes alive and then I move on to fix why it is missing. At that point you know the rig is capable of receiving and not multiple problems.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@..." <roberteleazer@...> wrote:
>
> Terry:
>
> He says that the frequency display lights up but fades out.
>
> I wonder what it reads before it fades out? That could tell us a lot.
>
> Robert
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.
> >
> > Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?
> >
> > I am assuming the receiver is dead on all bands. Is that correct?
> >
> > Did you check 8/9 jumper as previously directed and exercise the plug?
> >
> > Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.
> >
> > Do you have a RF signal generator?

> >
> > Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.
> >
> > Terry K9TW
> >
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
> > >
> > > Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
> > >
> > >
> > >
> > > _____
> > >
> >
>

44222. Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 00:27:58 UTC
From: mike2e0mcy
Topic: 44222 Message: 44222

Hi All

Does anyone know of a decent Technician for my ts 830s resident in the uk. I have recently acquired the rig and on tuning into a dummy load I get no meter reading when trying to dip the plate and on switching the meter to rf to peak it get no meter reading also. Everything else seem to be as it should and the receiver is very good but as yet I don't have the confidence in my ability to delve inside in case I do more harm than good. Any help would be appreciated.

73 de Mike 2e0mcy

44223. High IP on 830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 02:34:18 UTC
From: Bob
Topic: 44223 Message: 44223

Bought a 830S recently & started benching it...
During tune-up I could get the 100 watts of CW into my Bird dummy load but at near 300 ma IP...
Everything seemed normal except the high IP...
Pulled the final board & took a peak at the cathode resistors, all 4 were cracked & swelled as I suspected...
My Fluke was measured 8 ohms, not the 5 ohms...
Replaced the final board & all is well, full 100 watts with 225 ma IP..
Bob

44224. Re: [TS-520_820_530_830] High IP on 830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 03:13:47 UTC
From: Joseph Stiles
Topic: 44223 Message: 44224

Bob,

  Nice feeling when the repair costs a few cents(for the resistors) instead of a few hundred!
But hey...you probably got a few spare final boards sitting around doing nothing anway...hihi

73 Joe
WB7UQU

From: Bob <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 22, 2013 7:34 PM
Subject: [TS-520_820_530_830] High IP on 830S

Bought a 830S recently & started benching it...
During tune-up I could get the 100 watts of CW into my Bird dummy load but at near 300 ma IP...
Everything seemed normal except the high IP...
Pulled the final board & took a peak at the cathode resistors, all 4 were cracked & swelled as I suspected...
My Fluke was measured 8 ohms, not the 5 ohms...
Replaced the final board & all is well, full 100 watts with 225 ma IP..
Bob

[Non-text portions of this message have been removed]

44225. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 05:01:29 UTC
From: Ron
Topic: 44123 Message: 44225

Hi Robert an Terry do either of u know of someone to give this 820s good once over close to ky ? Thanks Ron Kk4pwf

Sent from my iPhone

On Aug 22, 2013, at 8:59 PM, "Terry Wagoner" <wagstw46@...> wrote:

> Hi Robert:
>
> I missed that. When he said VR-2 was broken I didnt see anyone responded to that. I was headed to VCO on RF board but wanted to make sure he had good AGC bus. The PLL may be unlocking and he will need a rf probe/vtvm or O-scope and can quickly see if he has VCO signal at RIF mixer.
>
> If you and/or Joe want to run from here go right ahead. I have plenty to do. I think he is getting close to needing more than a DMM.
>
> I almost always start by checking and setting 9vdc and RF-1.
>
> When I find AGC bus voltage missing or VCO missing sometimes I will stop and provide it from bench supply or sig gen just to see if rig comes alive and then I move on to fix why it is missing. At that point you know the rig is capable of receiving and not multiple problems.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@..." <roberteleazer@...> wrote:
>>
>> Terry:
>>
>> He says that the frequency display lights up but fades out.
>>
>> I wonder what it reads before it fades out? That could tell us a lot.
>>
>> Robert
>>
>> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
>>>
>>> OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.
>>>
>>> Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?
>>>

>>> I am assuming the receiver is dead on all bands. Is that correct?
>>>
>>> Did you check 8/9 jumper as previously directed and exercise the plug?
>>>
>>> Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.
>>>
>>> Do you have a RF signal generator?
>>>
>>> Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.
>>>
>>> Terry K9TW
>>>
>>>
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
>>>>
>>>> Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
>>>>
>>>>
>>>>
>>>> _____
>
>
>
>
> ---
>
> Yahoo! Groups Links
>
>
>

44226. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 05:28:03 UTC
From: Wes Will
Topic: 44123 Message: 44226

On 08/23/2013 12:01 AM, Ron wrote:
> Hi Robert an Terry do either of u know of someone to give this 820s good
> once over close to ky ? Thanks Ron Kk4pwf

The closest one I can spot on Terry's list (the list which he just sent around) is:

KC9INK, Walley, Indianapolis, IN,
Does local repair work only, E Mail wallydoc@...
Phone 317 823 9380
(Also TS - 940 repair)

From that it looks like you would have to drive it up to him since it says "local only." Or possibly drive up and get it once it's done after mailing it. Considering what they weigh the cost of the drive and the cost of postage are likely close enough to the same to make the road trip the better option.

--
Wes Will
SysAdmin
N9KDY

44227. Re: [TS-520_820_530_830] Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 08:12:16 UTC
From: Guy Morgan
Topic: 44222 Message: 44227

Hi Mike

I don't know any specialist hybrid fixers in the UK but it might be worth contacting your local clubs as many have an old hand who might look over the rig for you. Distances are so much shorter in the UK! Before you delve in to the case, I'm sure there will be helpful advice offered by the excellent engineers on this list which will narrow down the problem area. I'm not one of them but my first question might be whether you are seeing any meter indication in the ALC position with the rig in "tune" and "send" when trying to peak with the drive control.

Guy - G3POM

-----Original Message-----
From: mike2e0mcy
Sent: Friday, August 23, 2013 1:27 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Uk Tech

Hi All

Does anyone know of a decent Technician for my ts 830s resident in the uk. I have recently acquired the rig and on tuning into a dummy load I get no meter reading when trying to dip the plate and on switching the meter to rf to peak it get no meter reading also. Everything else seem to be as it should and the receiver is very good but as yet I don't have the confidence in my ability to delve inside in case I do more harm than good. Any help would be appreciated.

73 de Mike 2e0mcy

Yahoo! Groups Links

44228. Re: Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 12:28:35 UTC
From: Terry Wagoner
Topic: 44222 Message: 44228

A good 1st question. Assuming answer is yes then make sure the screen grid switch on back of rig hasnt been bumped to the off position. Will get good ALC indication in Tune mode with it off, but no Ip indication in Tune or CW as the screen grid voltage has been switched off and -C (approx -100vdc) applied to the screens cutting off the tubes. This feature is there primarily so you can cold neutralize the radio when installing new final tubes. Not uncommon for the switch to get inadvertently moved when handling the rig.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Guy Morgan" <yahoo@...> wrote:
>
> Hi Mike
>
> I don't know any specialist hybrid fixers in the UK but it might be worth
> contacting your local clubs as many have an old hand who might look over the
> rig for you. Distances are so much shorter in the UK! Before you delve
> in to the case, I'm sure there will be helpful advice offered by the
> excellent engineers on this list which will narrow down the problem area.
> I'm not one of them but my first question might be whether you are seeing
> any meter indication in the ALC position with the rig in "tune" and "send"
> when trying to peak with the drive control.
>
> Guy - G3POM
>
> -----Original Message-----
> From: mike2e0mcy
> Sent: Friday, August 23, 2013 1:27 AM
> To: TS-520_820_530_830@yahoogroups.com
> Subject: [TS-520_820_530_830] Uk Tech
>
> Hi All
>
> Does anyone know of a decent Technician for my ts 830s resident in the uk. I
> have recently acquired the rig and on tuning into a dummy load I get no
> meter reading when trying to dip the plate and on switching the meter to rf
> to peak it get no meter reading also. Everything else seem to be as it
> should and the receiver is very good but as yet I don't have the confidence
> in my ability to delve inside in case I do more harm than good. Any help
> would be appreciated.
>
> 73 de Mike 2e0mcy
>
>
>
> ------------------------------------

>
> Yahoo! Groups Links
>

44229. Re: [TS-520_820_530_830] Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 08:39:53 UTC
From: Mike Rolph
Topic: 44222 Message: 44229

Hi Guy
Thanks for that and yes all readings are as you would expect til you get to the dipping/peaking of the plate it is only then that I get no meter reading. I have followed the procedures exactly as described in the manual.
73 Mike

Sent from my iPhone

On 23 Aug 2013, at 09:12, "Guy Morgan" <yahoo@...> wrote:

> Hi Mike
>
> I don't know any specialist hybrid fixers in the UK but it might be worth
> contacting your local clubs as many have an old hand who might look over the
> rig for you. Distances are so much shorter in the UK! Before you delve
> in to the case, I'm sure there will be helpful advice offered by the
> excellent engineers on this list which will narrow down the problem area.
> I'm not one of them but my first question might be whether you are seeing
> any meter indication in the ALC position with the rig in "tune" and "send"
> when trying to peak with the drive control.
>
> Guy - G3POM
>
> -----Original Message-----
> From: mike2e0mcy
> Sent: Friday, August 23, 2013 1:27 AM
> To: TS-520_820_530_830@yahoogroups.com
> Subject: [TS-520_820_530_830] Uk Tech
>
> Hi All
>
> Does anyone know of a decent Technician for my ts 830s resident in the uk. I
> have recently acquired the rig and on tuning into a dummy load I get no
> meter reading when trying to dip the plate and on switching the meter to rf
> to peak it get no meter reading also. Everything else seem to be as it
> should and the receiver is very good but as yet I don't have the confidence
> in my ability to delve inside in case I do more harm than good. Any help
> would be appreciated.
>
> 73 de Mike 2e0mcy
>
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> Yahoo! Groups Links

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> Yahoo! Groups Links
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44230. Re: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 11:57:23 UTC
From: yash@aol.com
Topic: 44217 Message: 44230

Tom
sent my twins to texas,to cal fisher. buiness is, Communication Services. ,can find at www.hamrepair.com. Did a fine job on my T-599d and is working on my R-599d now.
t3
dale wt4t

-----Original Message-----
From: Bordain <bordain@...>
To: TS-520_820_530_830 <TS-520_820_530_830@yahoogroups.com>
Sent: Thu, Aug 22, 2013 6:00 pm
Subject: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Hello all I'm looking to send my Twins off for a good once over. Any recommendations on a West Coast facility?

Thanks!

Tom
KB7SJP

[Non-text portions of this message have been removed]

44231. Re: [TS-520_820_530_830] Re: Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 12:47:36 UTC
From: Mike Rolph
Topic: 44222 Message: 44231

Thank you Terry I checked that and it is in. The correct position
Mike

Sent from my iPhone

On 23 Aug 2013, at 13:28, "Terry Wagoner" <wagstw46@yahoo.com> wrote:

> A good 1st question. Assuming answer is yes then make sure the screen grid switch on back of rig hasnt been bumped to the off position. Will get good ALC indication in Tune mode with it off, but no Ip indication in Tune or CW as the screen grid voltage has been switched off and -C (approx -100vdc) applied to the screens cutting off the tubes. This feature is there primarily so you can cold neutralize the radio when installing new final tubes. Not uncommon for the switch to get inadvertently moved when handling the rig.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Guy Morgan" <yahoo@...> wrote:
>>
>> Hi Mike
>>
>> I don't know any specialist hybrid fixers in the UK but it might be worth
>> contacting your local clubs as many have an old hand who might look over the
>> rig for you. Distances are so much shorter in the UK! Before you delve
>> in to the case, I'm sure there will be helpful advice offered by the
>> excellent engineers on this list which will narrow down the problem area.
>> I'm not one of them but my first question might be whether you are seeing
>> any meter indication in the ALC position with the rig in "tune" and "send"
>> when trying to peak with the drive control.
>>
>> Guy - G3POM
>>
>> -----Original Message-----
>> From: mike2e0mcy
>> Sent: Friday, August 23, 2013 1:27 AM
>> To: TS-520_820_530_830@yahoogroups.com
>> Subject: [TS-520_820_530_830] Uk Tech
>>
>> Hi All
>>
>> Does anyone know of a decent Technician for my ts 830s resident in the uk. I
>> have recently acquired the rig and on tuning into a dummy load I get no
>> meter reading when trying to dip the plate and on switching the meter to rf
>> to peak it get no meter reading also. Everything else seem to be as it
>> should and the receiver is very good but as yet I don't have the confidence
>> in my ability to delve inside in case I do more harm than good. Any help
>> would be appreciated.

>>
>> 73 de Mike 2e0mcy
>>
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>> Yahoo! Groups Links
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> Yahoo! Groups Links
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44232. RE: [TS-520_820_530_830] Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 13:03:00 UTC
From: fpath fpath
Topic: 44222 Message: 44232

Mike,

Have you adjusted the RF pot at the rear of the radio or tried moving the carrier pot on front panel, just incase that have a little corrosion on contacts?

Dave

VK5PDL

To: TS-520_820_530_830@...m
From: densoldman@...
Date: Fri, 23 Aug 2013 09:39:53 +0100
Subject: Re: [TS-520_820_530_830] Uk Tech

Hi Guy
Thanks for that and yes all readings are as you would expect til you get to the dipping/peaking of the plate it is only then that I get no meter reading. I have followed the procedures exactly as described in the manual.
73 Mike

Sent from my iPhone

On 23 Aug 2013, at 09:12, "Guy Morgan" <yahoo@...> wrote:

> Hi Mike
>
> I don't know any specialist hybrid fixers in the UK but it might be worth
> contacting your local clubs as many have an old hand who might look over the
> rig for you. Distances are so much shorter in the UK! Before you delve
> in to the case, I'm sure there will be helpful advice offered by the
> excellent engineers on this list which will narrow down the problem area.
> I'm not one of them but my first question might be whether you are seeing
> any meter indication in the ALC position with the rig in "tune" and "send"
> when trying to peak with the drive control.
>
> Guy - G3POM
>
> -----Original Message-----
> From: mike2e0mcy
> Sent: Friday, August 23, 2013 1:27 AM
> To: TS-520_820_530_830@yahoogroups.com
> Subject: [TS-520_820_530_830] Uk Tech
>
> Hi All
>
> Does anyone know of a decent Technician for my ts 830s resident in the uk. I
> have recently acquired the rig and on tuning into a dummy load I get no

> meter reading when trying to dip the plate and on switching the meter to rf
> to peak it get no meter reading also. Everything else seem to be as it
> should and the receiver is very good but as yet I don't have the confidence
> in my ability to delve inside in case I do more harm than good. Any help
> would be appreciated.
>
> 73 de Mike 2e0mcy
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> Yahoo! Groups Links
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[Non-text portions of this message have been removed]

44233. Re: Uk Tech

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 15:02:14 UTC
From: Terry Wagoner
Topic: 44222 Message: 44233

Did you set the resting plate current to 60ma before attempting to load the rig?

After adjusting the Drive control for peak in ALC indication in Tune mode are you then flipping back to REC and switching the meter switch to the IP position. Then flip to Send and adjust the Plate Tune control for a dip in plate current (Ip). Must leave the Car Level pot where you had it when you were peaking the drive. OK to run Car Level pot full CW if in doubt. Is this the point where you see no Ip indication?

If so can try to load in CW mode instead of in Tune. You will be making initial plate dip with full Screen grid voltage so must be done quickly. If plate current pegs dont leave it there.

To help prevent pegged plate current pre-position the Plate Tune control close to the white mark on the arc for band you are loading on. This gets it close to proper place (tank to resonance) so current should not peg or be too high when you first flip to Send.

Now flip to Send and adjust the Plate tune control for the minimum plate current ie dip. Flip back to Rec. If this works and you are comfortable can now just go ahead and load to full output by using the RF detector position as described in the 830 instructions or if you have external wattmeter use it to load to approx 100 watts out and check Ip to make sure not exceeding 265ma. If Ip is above this level just turn Car Level control down. Most of us find we can load to approx 100 watts out into 50 ohm dummy load at approx 225ma or slightly more.

If you can get plate current dip and load the rig in CW mode you have bad divider resistors R15/R16 56K ohm in Tune mode that produces lower Screen grid voltage. Common for one or both of these resistors to fail. Come back for direction on how to replace if so inclined.

Terry K9TW

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Mike Rolph <densoldman@...> wrote:
>
> Thank you Terry I checked that and it is in. The correct position
> Mike
>
> Sent from my iPhone
>
> On 23 Aug 2013, at 13:28, "Terry Wagoner" <wagstw46@...> wrote:
>
> > A good 1st question. Assuming answer is yes then make sure the screen grid switch on back of rig hasnt been bumped to the off position. Will get good ALC indication in Tune mode with it off, but no Ip indication in Tune or CW as the screen grid voltage has been switched off and -C (approx -100vdc) applied to the screens cutting off the tubes. This feature is there primarily so you can cold neutralize the radio when installing new final tubes. Not uncommon for the switch to get inadvertently moved when handling the rig.

> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "Guy Morgan" <yahoo@> wrote:
> >>
> >> Hi Mike
> >>
> >> I don't know any specialist hybrid fixers in the UK but it might be worth
> >> contacting your local clubs as many have an old hand who might look over the
> >> rig for you. Distances are so much shorter in the UK! Before you delve
> >> in to the case, I'm sure there will be helpful advice offered by the
> >> excellent engineers on this list which will narrow down the problem area.
> >> I'm not one of them but my first question might be whether you are seeing
> >> any meter indication in the ALC position with the rig in "tune" and "send"
> >> when trying to peak with the drive control.
> >>
> >> Guy - G3POM
> >>
> >> -----Original Message-----
> >> From: mike2e0mcy
> >> Sent: Friday, August 23, 2013 1:27 AM
> >> To: TS-520_820_530_830@yahoogroups.com
> >> Subject: [TS-520_820_530_830] Uk Tech
> >>
> >> Hi All
> >>
> >> Does anyone know of a decent Technician for my ts 830s resident in the uk. I
> >> have recently acquired the rig and on tuning into a dummy load I get no
> >> meter reading when trying to dip the plate and on switching the meter to rf
> >> to peak it get no meter reading also. Everything else seem to be as it
> >> should and the receiver is very good but as yet I don't have the confidence
> >> in my ability to delve inside in case I do more harm than good. Any help
> >> would be appreciated.
> >>
> >> 73 de Mike 2e0mcy
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44234. Re: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 15:14:52 UTC
From: Joseph Stiles
Topic: 44217 Message: 44234

Tom,

  There is a list of repair guys in the "files" section...but, I have used Mike Alexander/n0bxe of "Affordable Radio Repair" several times.
He is in Colorado...does fantastic work...and is inexpensive...about $35/hr and usually fast turn-around time. Search for him and read the info he presents.

73 Joe
WB7UQU

From: Bordain <bordain@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 22, 2013 1:50 PM
Subject: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Hello all I'm looking to send my Twins off for a good once over. Any recommendations on a West Coast facility?

Thanks!

Tom
KB7SJP

[Non-text portions of this message have been removed]

44235. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 15:56:45 UTC
From: mvgilger
Topic: 44123 Message: 44235

Ron,

The following document contains all of the repair and parts locations for the Hybrids. The closest might be Jeff, WA8SAJ in Cleveland, or KC9INK in Indianapolis, IN.

http://wb4hfn.com/KENWOOD/Kenwood-Articles.htm

Good luck.
Mark

--- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>
> Hi Robert an Terry do either of u know of someone to give this 820s good once over close to ky ? Thanks Ron Kk4pwf
>
> Sent from my iPhone
>
> On Aug 22, 2013, at 8:59 PM, "Terry Wagoner" <wagstw46@...> wrote:
>
> > Hi Robert:
> >
> > I missed that. When he said VR-2 was broken I didnt see anyone responded to that. I was headed to VCO on RF board but wanted to make sure he had good AGC bus. The PLL may be unlocking and he will need a rf probe/vtvm or O-scope and can quickly see if he has VCO signal at RIF mixer.
> >
> > If you and/or Joe want to run from here go right ahead. I have plenty to do. I think he is getting close to needing more than a DMM.
> >
> > I almost always start by checking and setting 9vdc and RF-1.
> >
> > When I find AGC bus voltage missing or VCO missing sometimes I will stop and provide it from bench supply or sig gen just to see if rig comes alive and then I move on to fix why it is missing. At that point you know the rig is capable of receiving and not multiple problems.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@" <roberteleazer@> wrote:
> >>
> >> Terry:
> >>
> >> He says that the frequency display lights up but fades out.
> >>
> >> I wonder what it reads before it fades out? That could tell us a lot.
> >>

> >> Robert
> >>
> >> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >>>
> >>> OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.
> >>>
> >>> Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?
> >>>
> >>> I am assuming the receiver is dead on all bands. Is that correct?
> >>>
> >>> Did you check 8/9 jumper as previously directed and exercise the plug?
> >>>
> >>> Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.
> >>>
> >>> Do you have a RF signal generator?
> >>>
> >>> Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.
> >>>
> >>> Terry K9TW
> >>>
> >>>
> >>>
> >>> --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
> >>>>
> >>>> Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
> >>>>
> >>>>
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> > Yahoo! Groups Links
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44236. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 15:58:37 UTC
From: mvgilger
Topic: 44123 Message: 44236

Ron,
Sorry, I gave the wrong link on that last message. It would get you there, but the following one takes you directly to the document.

http://wb4hfn.com/KENWOOD/Articles/Kenwood%20resources_Rev3.pdf

Good luck,
Mark

--- In TS-520_820_530_830@yahoogroups.com, "mvgilger" <mgilger@...> wrote:
>
> Ron,
>
> The following document contains all of the repair and parts locations for the Hybrids. The closest might be Jeff, WA8SAJ in Cleveland, or KC9INK in Indianapolis, IN.
>
> http://wb4hfn.com/KENWOOD/Kenwood-Articles.htm
>
> Good luck.
> Mark
>
>
> --- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@> wrote:
> >
> > Hi Robert an Terry do either of u know of someone to give this 820s good once over close to ky ? Thanks Ron Kk4pwf
> >
> > Sent from my iPhone
> >
> > On Aug 22, 2013, at 8:59 PM, "Terry Wagoner" <wagstw46@> wrote:
> >
> > > Hi Robert:
> > >
> > > I missed that. When he said VR-2 was broken I didnt see anyone responded to that. I was headed to VCO on RF board but wanted to make sure he had good AGC bus. The PLL may be unlocking and he will need a rf probe/vtvm or O-scope and can quickly see if he has VCO signal at RIF mixer.
> > >
> > > If you and/or Joe want to run from here go right ahead. I have plenty to do. I think he is getting close to needing more than a DMM.
> > >
> > > I almost always start by checking and setting 9vdc and RF-1.
> > >
> > > When I find AGC bus voltage missing or VCO missing sometimes I will stop and provide it from bench supply or sig gen just to see if rig comes alive and then I move on to fix why it is missing. At that point you know the rig is capable of receiving and not multiple

problems.
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@" <roberteleazer@> wrote:
> > >>
> > >> Terry:
> > >>
> > >> He says that the frequency display lights up but fades out.
> > >>
> > >> I wonder what it reads before it fades out? That could tell us a lot.
> > >>
> > >> Robert
> > >>
> > >> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > >>>
> > >>> OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.
> > >>>
> > >>> Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?
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> > >>>
> > >>> Did you check 8/9 jumper as previously directed and exercise the plug?
> > >>>
> > >>> Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.
> > >>>
> > >>> Do you have a RF signal generator?
> > >>>
> > >>> Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.
> > >>>
> > >>> Terry K9TW
> > >>>
> > >>>
> > >>>
> > >>> --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
> > >>>>
> > >>>> Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
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44237. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 17:35:16 UTC
From: Ron
Topic: 44123 Message: 44237

Thanks , Terry can u give me a call 270-991-9777

Sent from my iPhone

On Aug 23, 2013, at 11:56 AM, "mvgilger" <mgilger@...> wrote:

> Ron,
>
> The following document contains all of the repair and parts locations for the Hybrids. The closest might be Jeff, WA8SAJ in Cleveland, or KC9INK in Indianapolis, IN.
>
> http://wb4hfn.com/KENWOOD/Kenwood-Articles.htm
>
> Good luck.
> Mark
>
>
> --- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>>
>> Hi Robert an Terry do either of u know of someone to give this 820s good once over close to ky ? Thanks Ron Kk4pwf
>>
>> Sent from my iPhone
>>
>> On Aug 22, 2013, at 8:59 PM, "Terry Wagoner" <wagstw46@...> wrote:
>>
>>> Hi Robert:
>>>
>>> I missed that. When he said VR-2 was broken I didnt see anyone responded to that. I was headed to VCO on RF board but wanted to make sure he had good AGC bus. The PLL may be unlocking and he will need a rf probe/vtvm or O-scope and can quickly see if he has VCO signal at RIF mixer.
>>>
>>> If you and/or Joe want to run from here go right ahead. I have plenty to do. I think he is getting close to needing more than a DMM.
>>>
>>> I almost always start by checking and setting 9vdc and RF-1.
>>>
>>> When I find AGC bus voltage missing or VCO missing sometimes I will stop and provide it from bench supply or sig gen just to see if rig comes alive and then I move on to fix why it is missing. At that point you know the rig is capable of receiving and not multiple problems.
>>>
>>> Terry K9TW
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com, "roberteleazer@" <roberteleazer@> wrote:

>>>>
>>>> Terry:
>>>>
>>>> He says that the frequency display lights up but fades out.
>>>>
>>>> I wonder what it reads before it fades out? That could tell us a lot.
>>>>
>>>> Robert
>>>>
>>>> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
>>>>>
>>>>> OK your RF-1 is a little low and we can adjust that. Your meter is pulling down the agc bus slightly but with 2.55vdc on it the RF and IF amps mosfets are turned on so this is not the problem.
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>>>>> Go to AF-AVR board and connect voltmeter to Conn AF-2 Pin 6 and adjust trimmer pot VR-1 for 3.5vdc. I think you already reported that you had good 9vdc. Is that correct?
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>>>>> I am assuming the receiver is dead on all bands. Is that correct?
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>>>>> Did you check 8/9 jumper as previously directed and exercise the plug?
>>>>>
>>>>> Assuming that the Marker is working you know you can rule out bad TR relay contact, bad xvtr switch, and bad RF attenuator switch.
>>>>>
>>>>> Do you have a RF signal generator?
>>>>>
>>>>> Do you have a RF probe for your VTVM/DMM? Need to be able to measure VCO and VFO signals.
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>>>>> Terry K9TW
>>>>>
>>>>>
>>>>>
>>>>> --- In TS-520_820_530_830@yahoogroups.com, Ronald Robinson <bozo231@> wrote:
>>>>>>
>>>>>> Terry pin 11 reads 2.55 vdc, an 8 reads 3.16
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44238. Jan 6293 tubes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 21:26:51 UTC
From: Joseph Stiles
Topic: 44238 Message: 44238

Greetings,

I have here a "rescue radio." It was destined for the dreaded "CB hack," but it is now safe and sound.
Upon inspecting it, I found that the final amp tubes were marked "Jan 6293." Research shows that they are
in the "6146" family..most closely the "A's." Usage was stated as being used in "burst" RF output, up 1 KW.
Has anyone seen or, used these before in the KW hybrids or, any other ham gear?

73 Joe
WB7UQU

[Non-text portions of this message have been removed]

44239. Re: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 21:36:39 UTC
From: GEAgent21@...
Topic: 44217 Message: 44239

I agree. Mike is a stand up guy and a man of his word.

73
Greg
KC9VVU

In a message dated 8/23/2013 11:19:55 A.M. Eastern Daylight Time,
stilesjoseph@... writes:

Tom,

There is a list of repair guys in the "files" section...but, I have used
Mike Alexander/n0bxe of "Affordable Radio Repair" several times.
He is in Colorado...does fantastic work...and is inexpensive...about
$35/hr and usually fast turn-around time. Search for him and read the info he
presents.

73 Joe
WB7UQU

From: Bordain <_bordain@..._ (mailto:bordain@yahoo.com) >
To: _TS-520_820_530_830@yahoogroups.com_
(mailto:TS-520_820_530_830@yahoogroups.com)
Sent: Thursday, August 22, 2013 1:50 PM
Subject: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Hello all I'm looking to send my Twins off for a good once over. Any
recommendations on a West Coast facility?

Thanks!

Tom
KB7SJP

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44240. RE: [TS-520_820_530_830] Jan 6293 tubes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 22:31:53 UTC
From: Steve Berman
Topic: 44238 Message: 44240

Hello Joe and others on the Reflector:

I'm currently running a pair of 6293's in my TS-830S. They're performing FB with rated power output. I strongly suggest these tubes as they're extremely heavy duty. They were originally designed for radar pulse service.

Regards,
Steve, N6HK

-----Original Message-----

From: Joseph Stiles
Sent: 23 Aug 2013 21:27:06 GMT
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Jan 6293 tubes

Greetings,

I have here a "rescue radio." It was destined for the dreaded "CB hack," but it is now safe and sound.
Upon inspecting it, I found that the final amp tubes were marked "Jan 6293." Research shows that they are
in the "6146" family..most closely the "A's." Usage was stated as being used in "burst" RF output, up 1 KW.
Has anyone seen or, used these before in the KW hybrids or, any other ham gear?

73 Joe
WB7UQU

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44241. Re: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-23 23:15:36 UTC
From: Bordain Group
Topic: 44217 Message: 44241

Good afternoon and thank you Sir! Have a great weekend!

Tom

From: Mark Gilger <mgilger@...>
To: TS-520_820_530_830@yahoogroups.com; TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 22, 2013 4:35 PM
Subject: Re: [TS-520_820_530_830] Seeking Qualified Kenwood 599 Twins Shop

Tom,

I keep a list at the following location of the
known hybrid service people. There are a few out your direction listed.

http://wb4hfn.com/KENWOOD/Articles/Kenwood%20resources_Rev3.pdf

Mark, WB0IQK

PM 8/22/2013, Bordain wrote:
>
>
>Hello all I'm looking to send my Twins off for a
>good once over. Any recommendations on a West Coast facility?
>
>Thanks!
>
>Tom
>KB7SJP
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44242. Re: [TS-520_820_530_830] Jan 6293 tubes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 00:30:38 UTC
From: Joseph Stiles
Topic: 44238 Message: 44242

Steve,

tnx! just have not seen these tubes before. Do you have your bias set @ 60mA or lower?

73 Joe
WB7UQU

From: Steve Berman <n6hk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, August 23, 2013 3:31 PM
Subject: RE: [TS-520_820_530_830] Jan 6293 tubes

Hello Joe and others on the Reflector:

I'm currently running a pair of 6293's in my TS-830S. They're performing FB with rated power output. I strongly suggest these tubes as they're extremely heavy duty. They were originally designed for radar pulse service.

Regards,
Steve, N6HK

-----Original Message-----

From: Joseph Stiles
Sent: 23 Aug 2013 21:27:06 GMT
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Jan 6293 tubes

Greetings,

I have here a "rescue radio." It was destined for the dreaded "CB hack," but it is now safe and sound.
Upon inspecting it, I found that the final amp tubes were marked "Jan 6293." Research shows that they are
in the "6146" family..most closely the "A's." Usage was stated as being used in "burst" RF output, up 1 KW.
Has anyone seen or, used these before in the KW hybrids or, any other ham gear?

73 Joe
WB7UQU

[Non-text portions of this message have been removed]

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[Non-text portions of this message have been removed]

44243. Re: Jan 6293 tubes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 00:33:12 UTC
From: roberteleazer@rocketmail.com
Topic: 44238 Message: 44243

Here is a quote right out of an article I found online a while back on the 6146 family of tubes:

"There is another 6146 family tube that is "superior" for operation at least through 10 meters. That is the 6293. This tube was designed for "pulse" service and is rated at 1-Kilowatt pulse power input. The primary difference between these and the "normal" 6146 is that the plate is much "heavier" in its construction. Back in the late 1950s and early 1960s we would almost "kill" to get our hands on a pair of these for our DX-100s, etc. The 6293 outlasts the 6146 in "normal" service by at least 5 times and often more than 10 times the life of the tube. These tubes "show up" at hamfests, swap meets, etc., from time-to-time. If you see some of these, definitely "glomp" onto them!

The 12-volt equivalent of the 6146 is the 6883, the equivalent of the 6146A is the 6883A, and the 6146B is the 6883B. Now, there are the tubes that were manufactured for FM commercial service. These series go as follows: 6883, 6883A / 8032, 6883B / 8032A / 8552. Again most of these are "cross branded" with all of the tube numbers that are equivalent."

So it sounds like you have a real find in those 6293's, Joe.

As for me, I have some 6883's and plan to try them out in a TS-520 I am repairing. I'll have to rewire the filament string to accomodate them, but that is minor compared to the rewiring required to repair that radio.

I also have a couple of the 24 volt filament version of the 6146, the 6159. I think I paid $10 for the pair, including shipping. Don't yet know what I'll use them for.

Robert

--- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...> wrote:
>
> Greetings,
>
>   I have here a "rescue radio." It was destined for the dreaded "CB hack," but it is now safe and sound.
> Upon inspecting it, I found that the final amp tubes were marked "Jan 6293." Research shows that they are
> in the "6146" family..most closely the "A's." Usage was stated as being used in "burst" RF output, up 1 KW.
> Has anyone seen or, used these before in the KW hybrids or, any other ham gear?
>
>
> 73 Joe
> WB7UQU
>
>
> [Non-text portions of this message have been removed]
>

44244. TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 00:37:11 UTC
From: Dave LaCroix
Topic: 44244 Message: 44244

My 830's been on the shelf for 15 years and I fired it up today to check it out. Here's as far as I got:
* Verified bias is 60ma
* Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
* Tuned to dip plate current, meter reads zero all the time.
* SG switch in back is ON.

Any thoughts on how to bring her back to life?

[Non-text portions of this message have been removed]

44245. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 01:43:30 UTC
From: Bob
Topic: 44244 Message: 44245

Do you have the high voltage on the HV meter setting... ?
Bob
****

--- In TS-520_820_530_830@yahoogroups.com, Dave LaCroix <dlacroix@...> wrote:
>
> My 830's been on the shelf for 15 years and I fired it up today to check it out. Here's as far as I got:
> * Verified bias is 60ma
> * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
> * Tuned to dip plate current, meter reads zero all the time.
> * SG switch in back is ON.
>
> Any thoughts on how to bring her back to life?
>
> [Non-text portions of this message have been removed]
>

44246. Re: [TS-520_820_530_830] TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 01:47:06 UTC
From: Wes Will
Topic: 44244 Message: 44246

On 08/23/2013 07:37 PM, Dave LaCroix wrote:
> My 830's been on the shelf for 15 years and I fired it up today to check
> ...
> Any thoughts on how to bring her back to life?

A thought, but DON'T do it, from the early days of the personal computer. Amiga computers, to be specific. Manufacturer's bulletin came in, problems in a whole batch of their newest claim to fame. The solution (PLEASE DON'T DO IT!!):

Lift the box a measured six inches off of a firm desk or table surface.

Let go.

(Seems that it seated some chips that weren't quite in their sockets. Valid fix, it worked a treat.)

Instead, first I'd check the jumper plug on the back and make sure it's in there good and snug, maybe pull it and replace it a couple of times. Then if it still doesn't play nice, I think I'd open the case and inspect the molex plugs, maybe pull them gently (straight up, isn't it Terry?) and see if there is not some corrosion on there that exercising them didn't break off and polish. Gently. No need to make a small problem into a big one.

Seating the tubes in their sockets is next, watch for the high voltage inside the PA cage and all that.

That's where I would start. If the folks here who have done this longer than me have a better idea, go with what they say instead. But I'd check for corroded or oxidized connectors first.

Then I'd check to see if the tubes had gotten gassy.

Good luck with it.

--
Wes Will
N9KDY

44247. Re: High IP on 830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 01:50:54 UTC
From: Bob
Topic: 44223 Message: 44247

Yup, had half dozen final boards so plugged a good one in... :)
Good idea to measure & inspect the cathode resistors once in a while...
Bob
****

--- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...> wrote:
>
> Bob,
>
> Â Nice feeling when the repair costs a few cents(for the resistors) instead of a few hundred!
> But hey...you probably got a few spare final boards sitting around doing nothing anway...hihi
>
>
>
> Â
> 73Â Joe
> WB7UQU
>
>
>
> ________________________________
> From: Bob <ke5ftf@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Thursday, August 22, 2013 7:34 PM
> Subject: [TS-520_820_530_830] High IP on 830S
>
>
>
> Â
> Bought a 830S recently & started benching it...
> During tune-up I could get the 100 watts of CW into my Bird dummy load but at near 300 ma IP...
> Everything seemed normal except the high IP...
> Pulled the final board & took a peak at the cathode resistors, all 4 were cracked & swelled as I suspected...
> My Fluke was measured 8 ohms, not the 5 ohms...
> Replaced the final board & all is well, full 100 watts with 225 ma IP..
> Bob
>
>
>
>
> [Non-text portions of this message have been removed]

>

44248. RE: [TS-520_820_530_830] Jan 6293 tubes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 02:09:34 UTC
From: Steve Berman
Topic: 44238 Message: 44248

Hi Joe,

Idling current is set to spec, 60ma.

Steve, N6HK

To: TS-520_820_530_830@yahoogroups.com
From: stilesjoseph@...
Date: Fri, 23 Aug 2013 17:30:38 -0700
Subject: Re: [TS-520_820_530_830] Jan 6293 tubes

Steve,

tnx! just have not seen these tubes before. Do you have your bias set @ 60mA or lower?

73 Joe

WB7UQU

From: Steve Berman <n6hk@hotmail.com>

To: TS-520_820_530_830@yahoogroups.com

Sent: Friday, August 23, 2013 3:31 PM

Subject: RE: [TS-520_820_530_830] Jan 6293 tubes

Hello Joe and others on the Reflector:

I'm currently running a pair of 6293's in my TS-830S. They're performing FB with rated power output. I strongly suggest these tubes as they're extremely heavy duty. They were originally designed for radar pulse service.

Regards,

Steve, N6HK

-----Original Message-----

From: Joseph Stiles

Sent: 23 Aug 2013 21:27:06 GMT

To: TS-520_820_530_830@yahoogroups.com

Subject: [TS-520_820_530_830] Jan 6293 tubes

Greetings,

I have here a "rescue radio." It was destined for the dreaded "CB hack," but it is now safe and sound.

Upon inspecting it, I found that the final amp tubes were marked "Jan 6293." Research shows that they are

in the "6146" family..most closely the "A's." Usage was stated as being used in "burst" RF output, up 1 KW.

Has anyone seen or, used these before in the KW hybrids or, any other ham gear?

73 Joe

WB7UQU

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44249. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 02:58:19 UTC
From: David L
Topic: 44244 Message: 44249

I've pulled the tubes and put them back in. What jumper plug are you talking about? I don't see anything like that on the back panel.

--- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
>
> On 08/23/2013 07:37 PM, Dave LaCroix wrote:
> > My 830's been on the shelf for 15 years and I fired it up today to check
> > ...
> > Any thoughts on how to bring her back to life?
>
> A thought, but DON'T do it, from the early days of the personal
> computer. Amiga computers, to be specific. Manufacturer's bulletin
> came in, problems in a whole batch of their newest claim to fame. The
> solution (PLEASE DON'T DO IT!!):
>
> Lift the box a measured six inches off of a firm desk or table surface.
>
> Let go.
>
>
> (Seems that it seated some chips that weren't quite in their sockets.
> Valid fix, it worked a treat.)
>
> Instead, first I'd check the jumper plug on the back and make sure it's
> in there good and snug, maybe pull it and replace it a couple of times.
> Then if it still doesn't play nice, I think I'd open the case and
> inspect the molex plugs, maybe pull them gently (straight up, isn't it
> Terry?) and see if there is not some corrosion on there that exercising
> them didn't break off and polish. Gently. No need to make a small
> problem into a big one.
>
> Seating the tubes in their sockets is next, watch for the high voltage
> inside the PA cage and all that.
>
> That's where I would start. If the folks here who have done this longer
> than me have a better idea, go with what they say instead. But I'd
> check for corroded or oxidized connectors first.
>
> Then I'd check to see if the tubes had gotten gassy.
>
> Good luck with it.
>
> --
> Wes Will
> N9KDY

>

44250. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 02:53:11 UTC
From: David L
Topic: 44244 Message: 44250

It shows 900 V when I hit the send switch.

--- In TS-520_820_530_830@yahoogroups.com, "Bob" <ke5ftf@...> wrote:
>
> Do you have the high voltage on the HV meter setting... ?
> Bob
> **********
>
> --- In TS-520_820_530_830@yahoogroups.com, Dave LaCroix <dlacroix@> wrote:
> >
> > My 830's been on the shelf for 15 years and I fired it up today to check it out.
 Here's as far as I got:
> > * Verified bias is 60ma
> > * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
> > * Tuned to dip plate current, meter reads zero all the time.
> > * SG switch in back is ON.
> >
> > Any thoughts on how to bring her back to life?
> >
> > [Non-text portions of this message have been removed]
> >
>

44251. Re: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 03:19:19 UTC
From: Wes Will
Topic: 44244 Message: 44251

On 08/23/2013 09:58 PM, David L wrote:
> I've pulled the tubes and put them back in. What jumper plug are you
> talking about? I don't see anything like that on the back panel.

Whoops. Sorry. 830. I thought it said 530. Never mind the jumper.
Wrong model.

If you're up to checking the board connectors without zapping yourself
on the HV section, I'd at least inspect them for any signs of corrosion.
900vdc HV reading is spot on, so the resistors and caps in the PA cage
are probably OK, likewise the choke in there. Best stay out of the PA
section until and if it becomes necessary.

Do you have the service manual downloaded for your rig? Check for the
proper bias voltages on the test points it shows. I don't have that
radio, never even seen inside of one, so I can't be specific here.
(There are various values, the 9vdc for most of the boards with IC's and
transistors (VCO, VFO, Balanced Mixer section, all of that.)

If you've got the high voltages, and the bias voltage levels from the
power supply/rectifier board, and none of the connectors is corroeded,
cracked, or lifted off the board, then we're at the point I drop out of
here and learn from the experts while they talk you through finding what
went south during the last 15 years.

I could download the schematics and the service manual for your type
box, and try to fake it, but I'm not that big a fool. And I do NOT want
you to make a very-likely small problem worse with me bumbling around
all thumb-fingered and foolish. Check visually for anything that looks
as if it might be corroded.

Dull solder, whitish powdery stuff on a molex connector, traces that
look like they're not stuck to the PC board any more, cracked components
- particularly diodes do this crack-straight-across thing, it's maddening.

Visual inspection for burned, loose, corroded, or broken bits can get
you a long way. Look closely, a magnifying loupe might actually be a
good idea if you think a molex connector solder joint might be cracked
across, for instance.

This kind of thing at the moment is my best advice. It gets the easy
stuff, the obvious "Oh, that's hanging loose." things out of the way.

And if you don't find any, I'm going to drop out and listen, OK?

--
Wes Will

N9KDY

44252. Re: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 05:12:21 UTC
From: n6wk@...
Topic: 44244 Message: 44252

530 does NOT have a plug either.
Only the 520 and 820 radios require the 9 pin plug with pins 8 & 9 jumped.

73,
Gordon
N6WK

On 8/23/2013 8:19 PM, Wes Will wrote:
>
> On 08/23/2013 09:58 PM, David L wrote:
> > I've pulled the tubes and put them back in. What jumper plug are you
> > talking about? I don't see anything like that on the back panel.
>
> Whoops. Sorry. 830. I thought it said 530. Never mind the jumper.
> Wrong model.
>
> If you're up to checking the board connectors without zapping yourself
> on the HV section, I'd at least inspect them for any signs of corrosion.
> 900vdc HV reading is spot on, so the resistors and caps in the PA cage
> are probably OK, likewise the choke in there. Best stay out of the PA
> section until and if it becomes necessary.
>
> Do you have the service manual downloaded for your rig? Check for the
> proper bias voltages on the test points it shows. I don't have that
> radio, never even seen inside of one, so I can't be specific here.
> (There are various values, the 9vdc for most of the boards with IC's and
> transistors (VCO, VFO, Balanced Mixer section, all of that.)
>
> If you've got the high voltages, and the bias voltage levels from the
> power supply/rectifier board, and none of the connectors is corroeded,
> cracked, or lifted off the board, then we're at the point I drop out of
> here and learn from the experts while they talk you through finding what
> went south during the last 15 years.
>
> I could download the schematics and the service manual for your type
> box, and try to fake it, but I'm not that big a fool. And I do NOT want
> you to make a very-likely small problem worse with me bumbling around
> all thumb-fingered and foolish. Check visually for anything that looks
> as if it might be corroded.
>
> Dull solder, whitish powdery stuff on a molex connector, traces that
> look like they're not stuck to the PC board any more, cracked components
> - particularly diodes do this crack-straight-across thing, it's maddening.
>
> Visual inspection for burned, loose, corroded, or broken bits can get

> you a long way. Look closely, a magnifying loupe might actually be a
> good idea if you think a molex connector solder joint might be cracked
> across, for instance.
>
> This kind of thing at the moment is my best advice. It gets the easy
> stuff, the obvious "Oh, that's hanging loose." things out of the way.
>
> And if you don't find any, I'm going to drop out and listen, OK?
>
> --
> Wes Will
> N9KDY
>
>

--

[Non-text portions of this message have been removed]

44253. Re: [TS-520_820_530_830] TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 07:52:44 UTC
From: Michel van der Walle
Topic: 44244 Message: 44253

Check if the screen grid switch is in the ON position on the back of the transceiver.
If in the OFF position Final tubes cannot draw current as they are biased OFF.
Michel vk3kvw

----- Original Message -----
From: Wes Will
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, August 24, 2013 11:47 AM
Subject: Re: [TS-520_820_530_830] TS830S, no plate current

On 08/23/2013 07:37 PM, Dave LaCroix wrote:
> My 830's been on the shelf for 15 years and I fired it up today to check
> ...
> Any thoughts on how to bring her back to life?

A thought, but DON'T do it, from the early days of the personal
computer. Amiga computers, to be specific. Manufacturer's bulletin
came in, problems in a whole batch of their newest claim to fame. The
solution (PLEASE DON'T DO IT!!):

Lift the box a measured six inches off of a firm desk or table surface.

Let go.

(Seems that it seated some chips that weren't quite in their sockets.
Valid fix, it worked a treat.)

Instead, first I'd check the jumper plug on the back and make sure it's
in there good and snug, maybe pull it and replace it a couple of times.
Then if it still doesn't play nice, I think I'd open the case and
inspect the molex plugs, maybe pull them gently (straight up, isn't it
Terry?) and see if there is not some corrosion on there that exercising
them didn't break off and polish. Gently. No need to make a small
problem into a big one.

Seating the tubes in their sockets is next, watch for the high voltage
inside the PA cage and all that.

That's where I would start. If the folks here who have done this longer
than me have a better idea, go with what they say instead. But I'd
check for corroded or oxidized connectors first.

Then I'd check to see if the tubes had gotten gassy.

Good luck with it.

--
Wes Will

N9KDY

=======
Email scanned by PC Tools - No viruses or spyware found.
(Email Guard: 9.1.0.2900, Virus/Spyware Database: 6.21460)
http://www.pctools.com
=======

=======
Email scanned by PC Tools - No viruses or spyware found.
(Email Guard: 9.1.0.2900, Virus/Spyware Database: 6.21460)
http://www.pctools.com/
=======

[Non-text portions of this message have been removed]

44254. RE: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 08:11:58 UTC
From: fpath fpath
Topic: 44244 Message: 44254

Wes,

What jumper plug on the 530? I've only got din plugs on the back of mine and this is the first time I've heard about jumper leads

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wwill@...
Date: Fri, 23 Aug 2013 22:19:19 -0500
Subject: Re: [TS-520_820_530_830] Re: TS830S, no plate current

On 08/23/2013 09:58 PM, David L wrote:
> I've pulled the tubes and put them back in. What jumper plug are you
> talking about? I don't see anything like that on the back panel.

Whoops. Sorry. 830. I thought it said 530. Never mind the jumper.
Wrong model.

If you're up to checking the board connectors without zapping yourself on the HV section, I'd at least inspect them for any signs of corrosion. 900vdc HV reading is spot on, so the resistors and caps in the PA cage are probably OK, likewise the choke in there. Best stay out of the PA section until and if it becomes necessary.

Do you have the service manual downloaded for your rig? Check for the proper bias voltages on the test points it shows. I don't have that radio, never even seen inside of one, so I can't be specific here. (There are various values, the 9vdc for most of the boards with IC's and transistors (VCO, VFO, Balanced Mixer section, all of that.)

If you've got the high voltages, and the bias voltage levels from the power supply/rectifier board, and none of the connectors is corroeded, cracked, or lifted off the board, then we're at the point I drop out of here and learn from the experts while they talk you through finding what went south during the last 15 years.

I could download the schematics and the service manual for your type box, and try to fake it, but I'm not that big a fool. And I do NOT want you to make a very-likely small problem worse with me bumbling around all thumb-fingered and foolish. Check visually for anything that looks as if it might be corroded.

Dull solder, whitish powdery stuff on a molex connector, traces that look like they're not stuck to the PC board any more, cracked components - particularly diodes do this crack-straight-across thing, it's maddening.

Visual inspection for burned, loose, corroded, or broken bits can get you a long way. Look closely, a magnifying loupe might actually be a good idea if you think a molex connector solder joint might be cracked across, for instance.

This kind of thing at the moment is my best advice. It gets the easy stuff, the obvious "Oh, that's hanging loose." things out of the way.

And if you don't find any, I'm going to drop out and listen, OK?

--
Wes Will
N9KDY

[Non-text portions of this message have been removed]

44255. RE: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 08:14:20 UTC
From: fpath fpath
Topic: 44244 Message: 44255

Wes,

Disregard, Gordon updated

73's

Dave

VK5PDL

> To: ts-520_820_530_830@yahoogroups.com
> From: fpath@...
> Date: Sat, 24 Aug 2013 17:41:58 +0930
> Subject: RE: [TS-520_820_530_830] Re: TS830S, no plate current
>
> Wes,
>
>
>
> What jumper plug on the 530? I've only got din plugs on the back of mine and this is the first time I've heard about jumper leads
>
>
>
> 73s
>
> Dave
>
> VK5PDL
>
>
>
>
> To: TS-520_820_530_830@yahoogroups.com
> From: wwill@...
> Date: Fri, 23 Aug 2013 22:19:19 -0500
> Subject: Re: [TS-520_820_530_830] Re: TS830S, no plate current
>
>
>
>
>
>
> On 08/23/2013 09:58 PM, David L wrote:
> > I've pulled the tubes and put them back in. What jumper plug are you
> > talking about? I don't see anything like that on the back panel.
>

> Whoops. Sorry. 830. I thought it said 530. Never mind the jumper.
> Wrong model.
>
> If you're up to checking the board connectors without zapping yourself
> on the HV section, I'd at least inspect them for any signs of corrosion.
> 900vdc HV reading is spot on, so the resistors and caps in the PA cage
> are probably OK, likewise the choke in there. Best stay out of the PA
> section until and if it becomes necessary.
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> Do you have the service manual downloaded for your rig? Check for the
> proper bias voltages on the test points it shows. I don't have that
> radio, never even seen inside of one, so I can't be specific here.
> (There are various values, the 9vdc for most of the boards with IC's and
> transistors (VCO, VFO, Balanced Mixer section, all of that.)
>
> If you've got the high voltages, and the bias voltage levels from the
> power supply/rectifier board, and none of the connectors is corroeded,
> cracked, or lifted off the board, then we're at the point I drop out of
> here and learn from the experts while they talk you through finding what
> went south during the last 15 years.
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> all thumb-fingered and foolish. Check visually for anything that looks
> as if it might be corroded.
>
> Dull solder, whitish powdery stuff on a molex connector, traces that
> look like they're not stuck to the PC board any more, cracked components
> - particularly diodes do this crack-straight-across thing, it's maddening.
>
> Visual inspection for burned, loose, corroded, or broken bits can get
> you a long way. Look closely, a magnifying loupe might actually be a
> good idea if you think a molex connector solder joint might be cracked
> across, for instance.
>
> This kind of thing at the moment is my best advice. It gets the easy
> stuff, the obvious "Oh, that's hanging loose." things out of the way.
>
> And if you don't find any, I'm going to drop out and listen, OK?
>
> --
> Wes Will
> N9KDY
>
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>

> [Non-text portions of this message have been removed]
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> ------------------------------------
>
> Yahoo! Groups Links
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>
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[Non-text portions of this message have been removed]

44256. RE: [TS-520_820_530_830] TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 08:21:25 UTC
From: fpath fpath
Topic: 44244 Message: 44256

Dave,

Are you getting any sort of output on your external watt meter in CW or Tune mode? As it has been sitting on the shelf for so many years, when you last used it 15 years ago were then any problems or was it working as per OEM? Lets go back to basics and I'll ask a stupid question, do you have HV on the meter, if so what is the voltage? Are you able to see if the tubes are actually glowing? If IP is OK do you have any ALC meter movement? Do you have any reading when in RF meter position? Report back with your findings and we can move forward one step at a time.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: dlacroix@...
Date: Fri, 23 Aug 2013 17:37:11 -0700
Subject: [TS-520_820_530_830] TS830S, no plate current

My 830's been on the shelf for 15 years and I fired it up today to check it out. Here's as far as I got:
* Verified bias is 60ma
* Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
* Tuned to dip plate current, meter reads zero all the time.
* SG switch in back is ON.

Any thoughts on how to bring her back to life?

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44257. Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 11:46:24 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44257

I got hold of a good calibrated AF sig gen recently, so was keen to carry out the Section 17 in the TS520S service manual Balanced Modulator and Carrier Adjustment.

You first peak the output on 20m, then inject 1500Hz (5mV) at microphone and adjust Mic control for 50W out. This went fine.

Then I switched input to 400Hz. You are then meant to peak TC3 on Carrier board for output 45-55W. In fact I found TC3 could only peak the output power at 40W (Welz power meter) which is closest I could get to 50W.

Then you dial up input to 2600Hz, and the manual says you adjust TC3 again to get close to 50W. But having adjusted for 400Hz the power out indicated at 2600Hz is only about 10W. If I adjust TC3 to get close to 50W then the power out when I check back at 400Hz is down to 10W! This is all on LSB as per manual (but on the bands you would use USB obviously).

I'm worried that if I can't get roughly equal power from 400Hz through to 2600Hz, then this might affect audio quality (haven't been able to monitor it, but haven't had any compliments!) as well output power if it's dropping off at one end of range. I'm also confused about why there is a single control to match power out throughout frequency range, as if it needs big adjustment at one end of range then that throws other end out! At the moment I can only choose to have either the low or high frequency output roughly match the output at 1500Hz input, not both.

Where would I start looking to solve this problem? Seems like SSB output should be pretty constant through voice frequency range, but I'm not achieving that.

thanks in advance.

Adrian G4IQW

44258. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 12:26:16 UTC
From: Terry Wagoner
Topic: 44244 Message: 44258

Lots of good intentions here. Daves advice to go back to basics is good. Lets look at what we believe we know.

The fact that you can adjust resting plate current to 60ma tells you:
1. Filaments are lit.

2. Cathode resistors are not open and you have emission from finals.

3. Screen grid switch is in On position and working. Working means it has transitioned from -100vdc to + 260vdc or so. Fellows please if SG switch wasnt on and working he would have no resting plate current as the tubes are cut off by high negative voltage applied to the screen grids. This is done so you can "cold" neutralize the finals. Sometimes when switch is turned to on it does not make the needed transition so you need to exercise the switch. In this case switch has to have good contact as he has 60ma resting plate current.

4. Ip meter switch contacts are good.

5. If you get full scale deflection in the ALC box in Tune at 0900 Car Level this means you have good Driver tube,rf drive level at 6146 control grid is exceeding the dc bias offset voltage, ALC amp circuit is working, ALC bus voltage is being lowered, meter circuit sees it and drive meter up scale.

By the way no reason to keep the indication in the ALC box. ALC black box has no meaning while loading the rig. Bring CAR level pot up to give yourself a decent indication where you can see the peak. 2/3 scale is a good spot. You are tuning the TX Mixer and Driver Tube tank circuits to resonance (max rf voltage) and not setting a grid current level. This is a Class AB1 linear not a Class C amplifier. The moment there is a hint of grid current the ALC reduces the TIF amp signal to the TX Mixer. Max grid current is around 40ua. You cannot hurt the 6146 final grids contrary to what some people believe and teach.

6. Having 900vdc on panel meter tells you the HV rectifier and caps are good and HV meter string is good. Does not tell you that you have 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate choke should not have failed while sitting in storage.

7. What happens if you try to make your initial plate current dip in CW mode and not Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so.

Report back this result.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Dave LaCroix <dlacroix@...> wrote:
>
> My 830's been on the shelf for 15 years and I fired it up today to check it out. Here's as far as I got:
> * Verified bias is 60ma

> * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
> * Tuned to dip plate current, meter reads zero all the time.
> * SG switch in back is ON.
>
> Any thoughts on how to bring her back to life?
>
> [Non-text portions of this message have been removed]
>

44259. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 12:32:09 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44259

I've just measured output power over range of input frequency 400-2600, having set it at 50W for 1500Hz, and got it as close as I could at the 400Hz end:

the power at 400Hz is about 40W, but it dips to 20W at 600Hz as you raise frequency to 1000Hz where it's back to 50W.

Stays flat at 50W up till 1800Hz when it's dropped to 35W. At 2400Hz it's 20W, down to 10W at 2600Hz.

So the big drop in power at top end is after 2200Hz so perhaps I should live with that. But I'm puzzled by the dip in power between 400 and 1000Hz.

Has anyone checked their output power across input range to compare with these readings?

73 de Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> I got hold of a good calibrated AF sig gen recently, so was keen to carry out the Section 17 in the TS520S service manual Balanced Modulator and Carrier Adjustment.
>
> You first peak the output on 20m, then inject 1500Hz (5mV) at microphone and adjust Mic control for 50W out. This went fine.
>
> Then I switched input to 400Hz. You are then meant to peak TC3 on Carrier board for output 45-55W. In fact I found TC3 could only peak the output power at 40W (Welz power meter) which is closest I could get to 50W.
>
> Then you dial up input to 2600Hz, and the manual says you adjust TC3 again to get close to 50W. But having adjusted for 400Hz the power out indicated at 2600Hz is only about 10W. If I adjust TC3 to get close to 50W then the power out when I check back at 400Hz is down to 10W! This is all on LSB as per manual (but on the bands you would use USB obviously).
>
> I'm worried that if I can't get roughly equal power from 400Hz through to 2600Hz, then this might affect audio quality (haven't been able to monitor it, but haven't had any compliments!) as well output power if it's dropping off at one end of range. I'm also confused about why there is a single control to match power out throughout frequency range, as if it needs big adjustment at one end of range then that throws other end out! At the moment I can only choose to have either the low or high frequency output roughly match the output at 1500Hz input, not both.
>
> Where would I start looking to solve this problem? Seems like SSB output should be pretty constant through voice frequency range, but I'm not achieving that.
>
> thanks in advance.
>

> Adrian G4IQW
>

44260. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 13:07:25 UTC
From: Terry Wagoner
Topic: 44257 Message: 44260

Adrian:

The manual like all is not clear. You have to think about what you are doing. What is the objective of each adjustment?

1.Null balanced modulator carrier equally in LSB and USB mode.
2.Adjust the 3dB roll off points of the filter response. Some call it setting the Carrier point.

So it is a two part adjustment. First you are nulling the carrier to balance the null equally between LSB and USB. I use a PL-259 connector with 2 100 ohm resistors in parallel from center connector to shell. This gives me a place to connect my RF millivolt meter or O-scope across to measure the rf voltage. It requires several back and forth adjustments to get the carrier nulled as low as you can and equally low on LSB and USB. It will be a compromise. Once that is done remove the PL-259 dummy load and connect rig back to main dummy load. Now ready to do "Carrier Point" adjustment.

The reason you inject mic level for approx 50 watts output is the procedure takes relatively long key down times so they picked 50 watts so you arent stressing the finals. 50 watts isnt a magic level. 40 watts is ok. A even graduation on your wattmeter is what you need.

Now what is not clear is that you are adjusting the 3dB roll off points. That means half power points. So if you have 50 watts at 1500 hz then you want to see approx 25 watts at 300hz and 2600hz. You adjust TC3 carrier osc frequency trimmer in LSB and TC-2 in USB for 25 watts output.

Some people use 400hz and 2700hz. It depends on what kind of audio you like to listen to and like to be heard. Some like more bass sound (300hz) and some like more treble sound (400hz).

So dont try to adjust for within 5 watts of 50 watts at each 3dB roll off point. 3dB is the half power point. It should say 1/2 or 50% of the 50 watts (or 40 watts) you had at 1500hz. Some folks use 1200hz as it is approx 1/2 of the 400 to 2700 hz response but 1500hz works fine.

Try this and report back. Since I do not run an amp I usually set for more communications audio which means a little more treble than base. Just remember how it sounds in receive is how it will sound in TX.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> I got hold of a good calibrated AF sig gen recently, so was keen to carry out the Section 17 in the TS520S service manual Balanced Modulator and Carrier Adjustment.
>

> You first peak the output on 20m, then inject 1500Hz (5mV) at microphone and adjust Mic control for 50W out. This went fine.
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> Then I switched input to 400Hz. You are then meant to peak TC3 on Carrier board for output 45-55W. In fact I found TC3 could only peak the output power at 40W (Welz power meter) which is closest I could get to 50W.
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> Then you dial up input to 2600Hz, and the manual says you adjust TC3 again to get close to 50W. But having adjusted for 400Hz the power out indicated at 2600Hz is only about 10W. If I adjust TC3 to get close to 50W then the power out when I check back at 400Hz is down to 10W! This is all on LSB as per manual (but on the bands you would use USB obviously).
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> I'm worried that if I can't get roughly equal power from 400Hz through to 2600Hz, then this might affect audio quality (haven't been able to monitor it, but haven't had any compliments!) as well output power if it's dropping off at one end of range. I'm also confused about why there is a single control to match power out throughout frequency range, as if it needs big adjustment at one end of range then that throws other end out! At the moment I can only choose to have either the low or high frequency output roughly match the output at 1500Hz input, not both.
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> Where would I start looking to solve this problem? Seems like SSB output should be pretty constant through voice frequency range, but I'm not achieving that.
>
> thanks in advance.
>
> Adrian G4IQW
>

44261. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 13:09:58 UTC
From: Terry Wagoner
Topic: 44257 Message: 44261

Sorry forgot to mention once you set the filter response good idea to go back and repeat the carrier suppression for LSB/USB again.

Terry

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Adrian:
>
> The manual like all is not clear. You have to think about what you are doing. What is the objective of each adjustment?
>
> 1.Null balanced modulator carrier equally in LSB and USB mode.
> 2.Adjust the 3dB roll off points of the filter response. Some call it setting the Carrier point.
>

44262. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 14:06:46 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44262

Terry that's brilliant thanks so much.

So the manual is misleading on not going for 1/2 power at the -3dB points. Also if I understand correctly you do the low roll off with TC3 set to LSB, then switch to USB to adjust TC2 for the high frequency roll-off? Again manual doesn't mention switching Mode having mentioned LSB.

I'll be sure to rebalance the LSB and USB after trying this. My dummy load has a case which comes off easily and I can measure across it once that's off. When I did the carrier balance originally I just put the scope across the ANT terminal, as the manual implied you removed dummy load to do this.

Will go through all the adjustments again later this afternoon and report back.

Thanks again and 73. I will make a note in my copy of service manual too.

Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Adrian:
>
> The manual like all is not clear. You have to think about what you are doing. What is the objective of each adjustment?
>
> 1.Null balanced modulator carrier equally in LSB and USB mode.
> 2.Adjust the 3dB roll off points of the filter response. Some call it setting the Carrier point.
>
> So it is a two part adjustment. First you are nulling the carrier to balance the null equally between LSB and USB. I use a PL-259 connector with 2 100 ohm resistors in parallel from center connector to shell. This gives me a place to connect my RF millivolt meter or O-scope across to measure the rf voltage. It requires several back and forth adjustments to get the carrier nulled as low as you can and equally low on LSB and USB. It will be a compromise. Once that is done remove the PL-259 dummy load and connect rig back to main dummy load. Now ready to do "Carrier Point" adjustment.
>
> The reason you inject mic level for approx 50 watts output is the procedure takes relatively long key down times so they picked 50 watts so you arent stressing the finals. 50 watts isnt a magic level. 40 watts is ok. A even graduation on your wattmeter is what you need.
>
> Now what is not clear is that you are adjusting the 3dB roll off points. That means half power points. So if you have 50 watts at 1500 hz then you want to see approx 25 watts at 300hz and 2600hz. You adjust TC3 carrier osc frequency trimmer in LSB and TC-2 in USB for 25 watts output.

>
> Some people use 400hz and 2700hz. It depends on what kind of audio you like to listen to and like to be heard. Some like more bass sound (300hz) and some like more treble sound (400hz).
>
> So dont try to adjust for within 5 watts of 50 watts at each 3dB roll off point. 3dB is the half power point. It should say 1/2 or 50% of the 50 watts (or 40 watts) you had at 1500hz. Some folks use 1200hz as it is approx 1/2 of the 400 to 2700 hz response but 1500hz works fine.
>
> Try this and report back. Since I do not run an amp I usually set for more communications audio which means a little more treble than base. Just remember how it sounds in receive is how it will sound in TX.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > I got hold of a good calibrated AF sig gen recently, so was keen to carry out the Section 17 in the TS520S service manual Balanced Modulator and Carrier Adjustment.
> >
> > You first peak the output on 20m, then inject 1500Hz (5mV) at microphone and adjust Mic control for 50W out. This went fine.
> >
> > Then I switched input to 400Hz. You are then meant to peak TC3 on Carrier board for output 45-55W. In fact I found TC3 could only peak the output power at 40W (Welz power meter) which is closest I could get to 50W.
> >
> > Then you dial up input to 2600Hz, and the manual says you adjust TC3 again to get close to 50W. But having adjusted for 400Hz the power out indicated at 2600Hz is only about 10W. If I adjust TC3 to get close to 50W then the power out when I check back at 400Hz is down to 10W! This is all on LSB as per manual (but on the bands you would use USB obviously).
> >
> > I'm worried that if I can't get roughly equal power from 400Hz through to 2600Hz, then this might affect audio quality (haven't been able to monitor it, but haven't had any compliments!) as well output power if it's dropping off at one end of range. I'm also confused about why there is a single control to match power out throughout frequency range, as if it needs big adjustment at one end of range then that throws other end out! At the moment I can only choose to have either the low or high frequency output roughly match the output at 1500Hz input, not both.
> >
> > Where would I start looking to solve this problem? Seems like SSB output should be pretty constant through voice frequency range, but I'm not achieving that.
> >
> > thanks in advance.
> >
> > Adrian G4IQW
> >
>

44263. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 14:17:09 UTC
From: Terry Wagoner
Topic: 44257 Message: 44263

Yes you are trying to get equal rolloff at 300hz and 2700hz and if you can get that within approx 5 watts of 25 watts (assuming you used 50 watts at 1500hz) that is your objective. This is where they came up with the 5 watts tolerance noted in the service manual.

You do not know what the center frequency of the filter is and you cannot change that. You cannot just set the carrier osc frequencies to 3393.5 for LSB or 3396.5 for USB.

There are other methods that can be used but audio in the mic line is probably the best:
1. Use Marker signal and S-meter. Richard Measures describes the method in the TS-830S survivors guide in the maintenance section. It works pretty well if you do not have an audio generator.
2. Can set if by ear if you have a good ear!
3. Use Laptop PC and audio spectrum analyzer software like Spectrogram and a diode noise bridge. This works very well and nice to see visually the filter response. Lately I have been using this method.

I have never seen the IF filter response curves published by Kenwood. Not sure they exist. To see them you need:
1. Spectrum analyzer and tracking generator
2. Two port VNA
3. Sweep generator and marker generator.
4. Can plot on graph paper the old fashioned way with RF sig gen and RF millivolt meter or O-scope but is tedious method.

Terry K9TW

44264. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 14:29:01 UTC
From: Terry Wagoner
Topic: 44257 Message: 44264

I usually start in USB but it doesnt really matter.

No... you stay in LSB and you go back and forth from low freq to high freq and adjust the same trimmer TC-3 until you get the roll off close to the same at both low and high ends. You then switch to USB and do same thing with the other trimmer TC-2. That is why the approx 5 watts tolerance is noted. So it will likely be greater than 25 watts at each end. Just make them equal.

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Terry that's brilliant thanks so much.
>
> So the manual is misleading on not going for 1/2 power at the -3dB points. Also if I understand correctly you do the low roll off with TC3 set to LSB, then switch to USB to adjust TC2 for the high frequency roll-off? Again manual doesn't mention switching Mode having mentioned LSB.
>
> I'll be sure to rebalance the LSB and USB after trying this. My dummy load has a case which comes off easily and I can measure across it once that's off. When I did the carrier balance originally I just put the scope across the ANT terminal, as the manual implied you removed dummy load to do this.
>
> Will go through all the adjustments again later this afternoon and report back.
>
> Thanks again and 73. I will make a note in my copy of service manual too.
>
> Adrian G4IQW
>
>

44265. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 15:53:15 UTC
From: Terry Wagoner
Topic: 44123 Message: 44265

Ron:

Enjoyed talking to you. Sure wish you had thrown rig in truck on your run north from Nashville. Congrats to you and your son on your new tickets. You can surmise from discussion on the forum you have taken on a challenge by purchasing a Hybrid right out of the chute. I understand that you have some electronics background which should help you. If you cannot get the 820 working locally then on your next run north swing by and will put on the bench and will see if we can get it going. No charge for that. If you have to leave it then we can discuss my fee. I no longer use a hourly shop rate. At $40/hr you can very quickly rack up more than rig is worth. I charge a flat fee that includes complete factory alignment and a 90 day warranty.

Here is summary of what I recall us discussing:
1. You placed a wire jumper from pins 8 and 9 in lieu of the mini jumper plug. I suggest you check that again as the wire gauge may be too small and not making good contact. Also, make sure you are on the small 9 pin socket and not the big octal socket. If you have top off rig might want to use a alligator or mini-grabber jumper and jump across pins on the back of the mini socket. Just need to be 100% sure on correct pins.

2. I think you said you have the remote VFO-820? If so, I would plug it in and see if rig comes alive. Remove 8/9 jumper placed on rear of the socket if you do this.

3. You seemed confused about what having no Marker signal is telling us. When I said because we have no Marker signal we now know the SO-239 connector, TR relay contacts, xvtr switch, and rf attenuator switch are not the cause of no receive I meant just that. The Marker signal comes in down stream of this normal off air signal path. The normal path goes thru these components and then goes to the Coil pack board to the step-up transformer. The Marker signal goes directly to the Coil pack board. You are using the Marker signal as a RF signal generator to test the receiver.

4. If you are certain that you have good 8/9 jumper and no receive and no transmit then next thing I would check is the VCO signal at RF board. You indicated you have an O-scope. Go to RF board Conn RF-1 pin 4 and measure the VCO signal. Signal level should be approx 1 volt rms or approx 2.8 volts Peak-Peak. On 40 meters will be approx approx 16mhz and on 20 meters approx 23mhz. So set your sweep time base fast approx .05us to see nice sine wave. If no VCO signal might want to exercise the Tune Normal switch on VCO board but typically not a problem.

5. If no VCO signal then next thing I would check with O-scope is VFO signal at Pin 1 of the external VFO jack on rear panel. Should be approx 1volt rms or 2.8 volts P-P on your scope. Set time base to approx 0.2us for clean sine wave. With VFO at 200 should be approx 5.3mhz. Also should check to make sure it is available at the PD board (PLL). Most likely if at ext jack will be at PLL. If no VFO signal at PLL then no VCO and no VCO means no RX or TX as both mixers on the RF board will not have the required local oscillator (LO) signal.

I believe that is what we discussed. Again you told me that you are aware and comfortable working around 900vdc and 300vdc present in this radio but I feel compelled to caution you again.

You can call me any time between 7:00 am and 10:00 pm if you want to discuss as a little easier than typing!

73s Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>
> Thanks , Terry can u give me a call 270-991-9777
>
> >
> >
>

44266. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 17:14:23 UTC
From: Terry Wagoner
Topic: 44123 Message: 44266

Ron:

I forgot to summarize our discussion on attempting to load and adjust SWR on the Hustler vertical. Lets reserve detailed discussion once you get the receiver working and hopefully the transmitter at same time if it is a VFO problem.

Very briefly:

I dont know of anyway that you could have caused loss of receive while loading in to this vertical. Also, you dont need an analyzer to adjust it. Nice tool, but not a requirement. Hams have been adjusting verticals for years with SWR bridge, but in my experience the old fashioned Diode Field Strength meter is better tool. Dummy load has nice low SWR but not good radiator. Same with verticals can get the SWR down but that doesnt mean it is radiating effectively.

Anyway you mentioned you began seeing power fall off as you tried to tune the Hustler. It is possible that with many repeated key down cycles that you could have seen emission falling off on the Driver tube and the Finals. They will get hot if using full power to tune an antenna. The tubes could be getting soft. Also, you may want to do a visual inspection inside the PA cage with HV caps discharged to make sure RF choke does not appear overheated and bypass cap at its base not overheated. Again do this after get the receiver going.

Please dont jump back and forth between receiver troubleshooting and transmitter troubleshooting.

I can give you a Driver stage test later that you perform with SG switch off that will tell you the condition of the 12BY7A.

Lastly, SWR will not burn up your 6146 final tubes as some persist in thinking and teaching nor can it effect the receiver circuits. About worse thing that can happen is if you have a very high impedance at the SO-239 or an actual open coax connection. If that occurs can have very high rf voltage across the Plate Load cap and it could arc over. Manual will tell you need to have under 2:1 SWR but that is a very conservative statement. As long as you have the range in your Pi-network caps and can adjust them to address the reactive component there is no worry about hurting the rig and certainly not the receiver. They may not align exactly to marks on the white arc but that isnt important.

Focus on making sure you have good VFO signal and then good VCO signal if restoring the VFO doesnt fix your problem.

Please report progress on recheck of 8/9 jumper, trying the remote vfo, measuring VCO and VFO signal levels.

OK I think that covers everything we discussed. You might want to print these notes.

Terry K9TW

44267. Re: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 17:15:29 UTC
From: Wes Will
Topic: 44244 Message: 44267

On 08/24/2013 03:11 AM, fpath fpath wrote:
> Wes,
>
>
>
> What jumper plug on the 530? I've only got din plugs on the back of mine and this is the first time I've heard about jumper leads

just think '520' which is what I have on my mind a lot lately as well as
all over a workbench in rather small pieces right now, and allow that,
as I said, I made a mistake, OK?

44268. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 14:00:57 UTC
From: David L
Topic: 44244 Message: 44268

Thanks for the info Terry, I think we're onto something.
I set the CAR control about 2/3 up and keyed in CW mode. Now I can dip the plate and get about 300ma Ip and 100 watts output. That makes me feel a LOT better. So why can't I get Ip in TUNE mode?

BTW, the fan is a bit sluggish, I think I'll pop it out and lube it, and I want to put a 3-wire power cord on it. Any problems with doing that in your mind?

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Lots of good intentions here. Daves advice to go back to basics is good. Lets look at what we believe we know.
>
> The fact that you can adjust resting plate current to 60ma tells you:
> 1. Filaments are lit.
>
> 2. Cathode resistors are not open and you have emission from finals.
>
> 3. Screen grid switch is in On position and working. Working means it has transitioned from -100vdc to + 260vdc or so. Fellows please if SG switch wasnt on and working he would have no resting plate current as the tubes are cut off by high negative voltage applied to the screen grids. This is done so you can "cold" neutralize the finals. Sometimes when switch is turned to on it does not make the needed transition so you need to exercise the switch. In this case switch has to have good contact as he has 60ma resting plate current.
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> 5. If you get full scale deflection in the ALC box in Tune at 0900 Car Level this means you have good Driver tube,rf drive level at 6146 control grid is exceeding the dc bias offset voltage, ALC amp circuit is working, ALC bus voltage is being lowered, meter circuit sees it and drive meter up scale.
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> By the way no reason to keep the indication in the ALC box. ALC black box has no meaning while loading the rig. Bring CAR level pot up to give yourself a decent indication where you can see the peak. 2/3 scale is a good spot. You are tuning the TX Mixer and Driver Tube tank circuits to resonance (max rf voltage) and not setting a grid current level. This is a Class AB1 linear not a Class C amplifier. The moment there is a hint of grid current the ALC reduces the TIF amp signal to the TX Mixer. Max grid current is around 40ua. You cannot hurt the 6146 final grids contrary to what some people believe and teach.
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> 6. Having 900vdc on panel meter tells you the HV rectifier and caps are good and HV meter string is good. Does not tell you that you have 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate choke should not have failed while sitting in storage.
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> 7. What happens if you try to make your initial plate current dip in CW mode and not

Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so.
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> Report back this result.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Dave LaCroix <dlacroix@> wrote:
> >
> > My 830's been on the shelf for 15 years and I fired it up today to check it out.
 Here's as far as I got:
> > * Verified bias is 60ma
> > * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
> > * Tuned to dip plate current, meter reads zero all the time.
> > * SG switch in back is ON.
> >
> > Any thoughts on how to bring her back to life?
> >
> > [Non-text portions of this message have been removed]
> >
>

44269. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 15:07:58 UTC
From: technudge
Topic: 44244 Message: 44269

Well, at least now I have a reference point. My 520 has no idle current and an oddity of other tune readings. (I can see a very small filament light as far as I can see through the HV cage. Removing it this afternoon for a better look.)

Look forward to following along. Thanks!

-O'B.

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Lots of good intentions here. Daves advice to go back to basics is good. Lets look at what we believe we know.
>
> The fact that you can adjust resting plate current to 60ma tells you:
> 1. Filaments are lit.
>
> 2. Cathode resistors are not open and you have emission from finals.
>
> 3. Screen grid switch is in On position and working. Working means it has transitioned from -100vdc to + 260vdc or so. Fellows please if SG switch wasnt on and working he would have no resting plate current as the tubes are cut off by high negative voltage applied to the screen grids. This is done so you can "cold" neutralize the finals. Sometimes when switch is turned to on it does not make the needed transition so you need to exercise the switch. In this case switch has to have good contact as he has 60ma resting plate current.
>
> 4. Ip meter switch contacts are good.
>
> 5. If you get full scale deflection in the ALC box in Tune at 0900 Car Level this means you have good Driver tube,rf drive level at 6146 control grid is exceeding the dc bias offset voltage, ALC amp circuit is working, ALC bus voltage is being lowered, meter circuit sees it and drive meter up scale.
>
> By the way no reason to keep the indication in the ALC box. ALC black box has no meaning while loading the rig. Bring CAR level pot up to give yourself a decent indication where you can see the peak. 2/3 scale is a good spot. You are tuning the TX Mixer and Driver Tube tank circuits to resonance (max rf voltage) and not setting a grid current level. This is a Class AB1 linear not a Class C amplifier. The moment there is a hint of grid current the ALC reduces the TIF amp signal to the TX Mixer. Max grid current is around 40ua. You cannot hurt the 6146 final grids contrary to what some people believe and teach.
>
> 6. Having 900vdc on panel meter tells you the HV rectifier and caps are good and HV meter string is good. Does not tell you that you have 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate choke should not have failed while sitting in storage.
>
> 7. What happens if you try to make your initial plate current dip in CW mode and not Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter

in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so.
>
> Report back this result.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Dave LaCroix <dlacroix@> wrote:
> >
> > My 830's been on the shelf for 15 years and I fired it up today to check it out.
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> > * Verified bias is 60ma
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> > * SG switch in back is ON.
> >
> > Any thoughts on how to bring her back to life?
> >
> > [Non-text portions of this message have been removed]
> >
>

44270. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 16:12:54 UTC
From: David L
Topic: 44244 Message: 44270

Forgive me if I replied twice, I sent a reply earlier but it isn't in the list yet.

Ok, when I hit Send in CW mode I can easily dip the plate and get up to 300 ma Ip. Output power on wattmeter is 100W. So why no luck in TUNE mode?

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Lots of good intentions here. Daves advice to go back to basics is good. Lets look at what we believe we know.
>
> The fact that you can adjust resting plate current to 60ma tells you:
> 1. Filaments are lit.
>
> 2. Cathode resistors are not open and you have emission from finals.
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> 3. Screen grid switch is in On position and working. Working means it has transitioned from -100vdc to + 260vdc or so. Fellows please if SG switch wasnt on and working he would have no resting plate current as the tubes are cut off by high negative voltage applied to the screen grids. This is done so you can "cold" neutralize the finals. Sometimes when switch is turned to on it does not make the needed transition so you need to exercise the switch. In this case switch has to have good contact as he has 60ma resting plate current.
>
> 4. Ip meter switch contacts are good.
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> 5. If you get full scale deflection in the ALC box in Tune at 0900 Car Level this means you have good Driver tube,rf drive level at 6146 control grid is exceeding the dc bias offset voltage, ALC amp circuit is working, ALC bus voltage is being lowered, meter circuit sees it and drive meter up scale.
>
> By the way no reason to keep the indication in the ALC box. ALC black box has no meaning while loading the rig. Bring CAR level pot up to give yourself a decent indication where you can see the peak. 2/3 scale is a good spot. You are tuning the TX Mixer and Driver Tube tank circuits to resonance (max rf voltage) and not setting a grid current level. This is a Class AB1 linear not a Class C amplifier. The moment there is a hint of grid current the ALC reduces the TIF amp signal to the TX Mixer. Max grid current is around 40ua. You cannot hurt the 6146 final grids contrary to what some people believe and teach.
>
> 6. Having 900vdc on panel meter tells you the HV rectifier and caps are good and HV meter string is good. Does not tell you that you have 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate choke should not have failed while sitting in storage.
>
> 7. What happens if you try to make your initial plate current dip in CW mode and not Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so.

>
> Report back this result.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Dave LaCroix <dlacroix@> wrote:
> >
> > My 830's been on the shelf for 15 years and I fired it up today to check it out.
 Here's as far as I got:
> > * Verified bias is 60ma
> > * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to stay in the ALC range
> > * Tuned to dip plate current, meter reads zero all the time.
> > * SG switch in back is ON.
> >
> > Any thoughts on how to bring her back to life?
> >
> > [Non-text portions of this message have been removed]
> >
>

44271. Re: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 17:22:06 UTC
From: n6wk@...
Topic: 44244 Message: 44271

Most likely R15 (56K) on the rectifier Board is open which will stop you
from getting IP in Tune Position.

73,
Gordon

On 8/24/2013 7:00 AM, David L wrote:
>
>
> Thanks for the info Terry, I think we're onto something.
> I set the CAR control about 2/3 up and keyed in CW mode. Now I can dip
> the plate and get about 300ma Ip and 100 watts output. That makes me
> feel a LOT better. So why can't I get Ip in TUNE mode?
>
> BTW, the fan is a bit sluggish, I think I'll pop it out and lube it,
> and I want to put a 3-wire power cord on it. Any problems with doing
> that in your mind?
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@...> wrote:
> >
> > Lots of good intentions here. Daves advice to go back to basics is
> good. Lets look at what we believe we know.
> >
> > The fact that you can adjust resting plate current to 60ma tells you:
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> > 2. Cathode resistors are not open and you have emission from finals.
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> > 3. Screen grid switch is in On position and working. Working means
> it has transitioned from -100vdc to + 260vdc or so. Fellows please if
> SG switch wasnt on and working he would have no resting plate current
> as the tubes are cut off by high negative voltage applied to the
> screen grids. This is done so you can "cold" neutralize the finals.
> Sometimes when switch is turned to on it does not make the needed
> transition so you need to exercise the switch. In this case switch has
> to have good contact as he has 60ma resting plate current.
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> > 4. Ip meter switch contacts are good.
> >
> > 5. If you get full scale deflection in the ALC box in Tune at 0900
> Car Level this means you have good Driver tube,rf drive level at 6146
> control grid is exceeding the dc bias offset voltage, ALC amp circuit
> is working, ALC bus voltage is being lowered, meter circuit sees it

> and drive meter up scale.
> >
> > By the way no reason to keep the indication in the ALC box. ALC
> black box has no meaning while loading the rig. Bring CAR level pot up
> to give yourself a decent indication where you can see the peak. 2/3
> scale is a good spot. You are tuning the TX Mixer and Driver Tube tank
> circuits to resonance (max rf voltage) and not setting a grid current
> level. This is a Class AB1 linear not a Class C amplifier. The moment
> there is a hint of grid current the ALC reduces the TIF amp signal to
> the TX Mixer. Max grid current is around 40ua. You cannot hurt the
> 6146 final grids contrary to what some people believe and teach.
> >
> > 6. Having 900vdc on panel meter tells you the HV rectifier and caps
> are good and HV meter string is good. Does not tell you that you have
> 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate
> choke should not have failed while sitting in storage.
> >
> > 7. What happens if you try to make your initial plate current dip in
> CW mode and not Tune? Pre-position the Plate Tuning cap on the white
> arc for band you are loading in, meter in Ip position, place hand on
> Plate Tune control, Flip to send and be prepared to quickly adjust for
> plate current dip. Do not allow current to peg FSD for more than
> second or so.
> >
> > Report back this result.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Dave LaCroix
> <dlacroix@> wrote:
> > >
> > > My 830's been on the shelf for 15 years and I fired it up today to
> check it out. Here's as far as I got:
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> > > Any thoughts on how to bring her back to life?
> > >
> > > [Non-text portions of this message have been removed]
> > >
> >
>
>

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[Non-text portions of this message have been removed]

44272. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 17:27:42 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44272

Thanks Terry I've just gone through the adjustments.

It is tricky equalising the low and high, but I found that on LSB and USB, using the procedure you explained here (only adjusting the relevant trimmer for that mode), I could get the low and high (I chose 400 and 2600 to both kick out 15W with the 1500Hz producing 40W.

Thank you for guiding me through this and pointing out error/omission in service manual. I have annotated that section accordingly.

One final thing that puzzled me is that I did the final adjustment asked for where on CW (no SG) you check with counter that the CARRIER OUT is set to 3.395MHz. I couldn't adjust the trimmer TC1 to any lower than 3.19518 or crystal would stop oscillating. I though the trimmer would let me pull the xtal either side of 3.395?

Thanks again and 73s Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I usually start in USB but it doesnt really matter.
>
> No... you stay in LSB and you go back and forth from low freq to high freq and adjust the same trimmer TC-3 until you get the roll off close to the same at both low and high ends. You then switch to USB and do same thing with the other trimmer TC-2. That is why the approx 5 watts tolerance is noted. So it will likely be greater than 25 watts at each end. Just make them equal.
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > Terry that's brilliant thanks so much.
> >
> > So the manual is misleading on not going for 1/2 power at the -3dB points. Also if I understand correctly you do the low roll off with TC3 set to LSB, then switch to USB to adjust TC2 for the high frequency roll-off? Again manual doesn't mention switching Mode having mentioned LSB.
> >
> > I'll be sure to rebalance the LSB and USB after trying this. My dummy load has a case which comes off easily and I can measure across it once that's off. When I did the carrier balance originally I just put the scope across the ANT terminal, as the manual implied you removed dummy load to do this.
> >
> > Will go through all the adjustments again later this afternoon and report back.
> >
> > Thanks again and 73. I will make a note in my copy of service manual too.
> >
> > Adrian G4IQW

> >
> >
>

44273. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 17:29:55 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44273

PS I also followed up with nulling the 2 sidebands, and got them very close to each other. Both the TC1 and VR1 adjusters on the Generator board are really sensitive when near the minimum (I used my scope across the dummy load).

73s Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Thanks Terry I've just gone through the adjustments.
>
> It is tricky equalising the low and high, but I found that on LSB and USB, using the procedure you explained here (only adjusting the relevant trimmer for that mode), I could get the low and high (I chose 400 and 2600 to both kick out 15W with the 1500Hz producing 40W.
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> > --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
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> > > Adrian G4IQW
> > >
> > >
> >
>

44274. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 21:56:53 UTC
From: Terry Wagoner
Topic: 44257 Message: 44274

I am not sure what you are trying to do. A trimmer cap placed across a crystal (in parallel or shunt) is typically used to move the frequency down. A cap in series is typically used to move the frequency up.

When you increase the capacitance of TC-1 its capacitive reactance goes down so you reach a point where the impedance is so low you have essentially shorted out the crystal and the oscillator will stop.

Are you trying to adjust it below 3.195? OR Just wanting to see how much you can pull it? Are you really wanting to move it up to get a 800hz beat note instead of 700hz?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Thanks Terry I've just gone through the adjustments.
>
> It is tricky equalising the low and high, but I found that on LSB and USB, using the procedure you explained here (only adjusting the relevant trimmer for that mode), I could get the low and high (I chose 400 and 2600 to both kick out 15W with the 1500Hz producing 40W.
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> Thank you for guiding me through this and pointing out error/omission in service manual. I have annotated that section accordingly.
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> One final thing that puzzled me is that I did the final adjustment asked for where on CW (no SG) you check with counter that the CARRIER OUT is set to 3.395MHz. I couldn't adjust the trimmer TC1 to any lower than 3.19518 or crystal would stop oscillating. I though the trimmer would let me pull the xtal either side of 3.395?
>
> Thanks again and 73s Adrian G4IQW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
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> >
> > No... you stay in LSB and you go back and forth from low freq to high freq and adjust the same trimmer TC-3 until you get the roll off close to the same at both low and high ends. You then switch to USB and do same thing with the other trimmer TC-2. That is why the approx 5 watts tolerance is noted. So it will likely be greater than 25 watts at each end. Just make them equal.
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> > --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> > >
> > > Terry that's brilliant thanks so much.
> > >

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> > >
> > > I'll be sure to rebalance the LSB and USB after trying this. My dummy load has a case which comes off easily and I can measure across it once that's off. When I did the carrier balance originally I just put the scope across the ANT terminal, as the manual implied you removed dummy load to do this.
> > >
> > > Will go through all the adjustments again later this afternoon and report back.
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> > > Thanks again and 73. I will make a note in my copy of service manual too.
> > >
> > > Adrian G4IQW
> > >
> > >
> > >
> >

44275. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 22:46:19 UTC
From: Terry Wagoner
Topic: 44257 Message: 44275

Adrian

Are you certain that your Audio Generator level is not varying as you adjust the frequency from 400hz to 2700hz. How are you measuring the 5
mv level. Some audio generators do not hold the level constant as you move up and down frequency. 5mv is a very low level and wont take much change in audio input level to produce change in output power.

I place a bnc tee at my audio generator output and couple one side to a true RMS ac voltmeter (HP3400) and the other side to the rig mic input that way I can set it right on 5 mv or 7mv and then keep and eye on it especially at low and high end where you need to make the adjustments.

Before suspecting problem with your filter response should make sure MV output from audio generator is constant.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> I've just measured output power over range of input frequency 400-2600, having set it at 50W for 1500Hz, and got it as close as I could at the 400Hz end:
>
> the power at 400Hz is about 40W, but it dips to 20W at 600Hz as you raise frequency to 1000Hz where it's back to 50W.
>
> Stays flat at 50W up till 1800Hz when it's dropped to 35W. At 2400Hz it's 20W, down to 10W at 2600Hz.
>
> So the big drop in power at top end is after 2200Hz so perhaps I should live with that. But I'm puzzled by the dip in power between 400 and 1000Hz.
>
> Has anyone checked their output power across input range to compare with these readings?
>
> 73 de Adrian G4IQW
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > I got hold of a good calibrated AF sig gen recently, so was keen to carry out the Section 17 in the TS520S service manual Balanced Modulator and Carrier Adjustment.
> >
> > You first peak the output on 20m, then inject 1500Hz (5mV) at microphone and adjust Mic control for 50W out. This went fine.
> >
> > Then I switched input to 400Hz. You are then meant to peak TC3 on Carrier board for output 45-55W. In fact I found TC3 could only peak the output power at 40W (Welz power

meter) which is closest I could get to 50W.
> >
> > Then you dial up input to 2600Hz, and the manual says you adjust TC3 again to get close to 50W. But having adjusted for 400Hz the power out indicated at 2600Hz is only about 10W. If I adjust TC3 to get close to 50W then the power out when I check back at 400Hz is down to 10W! This is all on LSB as per manual (but on the bands you would use USB obviously).
> >
> > I'm worried that if I can't get roughly equal power from 400Hz through to 2600Hz, then this might affect audio quality (haven't been able to monitor it, but haven't had any compliments!) as well output power if it's dropping off at one end of range. I'm also confused about why there is a single control to match power out throughout frequency range, as if it needs big adjustment at one end of range then that throws other end out! At the moment I can only choose to have either the low or high frequency output roughly match the output at 1500Hz input, not both.
> >
> > Where would I start looking to solve this problem? Seems like SSB output should be pretty constant through voice frequency range, but I'm not achieving that.
> >
> > thanks in advance.
> >
> > Adrian G4IQW
> >
>

44276. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 23:07:29 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44276

Sorry my typo putting 3.195

I meant 3.595 which the manual says to set the CW trimmer TC1 on Carrier board to.

But the xtal stops oscillating at about 3.19518 according to my frequency counter, so I can't set to the precise frequency specified

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I am not sure what you are trying to do. A trimmer cap placed across a crystal (in parallel or shunt) is typically used to move the frequency down. A cap in series is typically used to move the frequency up.
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> When you increase the capacitance of TC-1 its capacitive reactance goes down so you reach a point where the impedance is so low you have essentially shorted out the crystal and the oscillator will stop.
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> Terry K9TW
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> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
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> > Thanks Terry I've just gone through the adjustments.
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> > It is tricky equalising the low and high, but I found that on LSB and USB, using the procedure you explained here (only adjusting the relevant trimmer for that mode), I could get the low and high (I chose 400 and 2600 to both kick out 15W with the 1500Hz producing 40W.
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> > Thank you for guiding me through this and pointing out error/omission in service manual. I have annotated that section accordingly.
> >
> > One final thing that puzzled me is that I did the final adjustment asked for where on CW (no SG) you check with counter that the CARRIER OUT is set to 3.395MHz. I couldn't adjust the trimmer TC1 to any lower than 3.19518 or crystal would stop oscillating. I though the trimmer would let me pull the xtal either side of 3.395?
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> > Thanks again and 73s Adrian G4IQW
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> > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
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> > > No... you stay in LSB and you go back and forth from low freq to high freq and adjust

the same trimmer TC-3 until you get the roll off close to the same at both low and high ends. You then switch to USB and do same thing with the other trimmer TC-2. That is why the approx 5 watts tolerance is noted. So it will likely be greater than 25 watts at each end. Just make them equal.
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> > > --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
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> > > > Terry that's brilliant thanks so much.
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> > > > So the manual is misleading on not going for 1/2 power at the -3dB points. Also if I understand correctly you do the low roll off with TC3 set to LSB, then switch to USB to adjust TC2 for the high frequency roll-off? Again manual doesn't mention switching Mode having mentioned LSB.
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> > > > I'll be sure to rebalance the LSB and USB after trying this. My dummy load has a case which comes off easily and I can measure across it once that's off. When I did the carrier balance originally I just put the scope across the ANT terminal, as the manual implied you removed dummy load to do this.
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> > > > Will go through all the adjustments again later this afternoon and report back.
> > > >
> > > > Thanks again and 73. I will make a note in my copy of service manual too.
> > > >
> > > > Adrian G4IQW
> > > >
> > > >
> > > >
> > >
> >
>

44277. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 23:17:55 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44277

Hi Terry

I posted about the odd power dip before you helped me with correct procedure. I had been trying (and failing) to set output power same for 400, 1500, 2600 audio in.

Now I have followed your instructions the power varies smoothly from 15W out at 400 in, through peak of 40W at 1500 (set using Mic), then back down to 15W at 2600Hz. This is in LSB and USB.

So the filter seems to behave ok. But to answer original question I got to 5mV by adjusting for 14mV p-p (5 x 2.8) on my scope. I checked at the 400 and 2600 points and the output was same going on the scope waveform.

73s Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Adrian
>
> Are you certain that your Audio Generator level is not varying as you adjust the frequency from 400hz to 2700hz. How are you measuring the 5
> mv level. Some audio generators do not hold the level constant as you move up and down frequency. 5mv is a very low level and wont take much change in audio input level to produce change in output power.
>
> I place a bnc tee at my audio generator output and couple one side to a true RMS ac voltmeter (HP3400) and the other side to the rig mic input that way I can set it right on 5 mv or 7mv and then keep and eye on it especially at low and high end where you need to make the adjustments.
>
> Before suspecting problem with your filter response should make sure MV output from audio generator is constant.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > I've just measured output power over range of input frequency 400-2600, having set it at 50W for 1500Hz, and got it as close as I could at the 400Hz end:
> >
> > the power at 400Hz is about 40W, but it dips to 20W at 600Hz as you raise frequency to 1000Hz where it's back to 50W.
> >
> > Stays flat at 50W up till 1800Hz when it's dropped to 35W. At 2400Hz it's 20W, down to 10W at 2600Hz.
> >

> > So the big drop in power at top end is after 2200Hz so perhaps I should live with that. But I'm puzzled by the dip in power between 400 and 1000Hz.
> >
> > Has anyone checked their output power across input range to compare with these readings?
> >
> > 73 de Adrian G4IQW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> > >
> > > I got hold of a good calibrated AF sig gen recently, so was keen to carry out the Section 17 in the TS520S service manual Balanced Modulator and Carrier Adjustment.
> > >
> > > You first peak the output on 20m, then inject 1500Hz (5mV) at microphone and adjust Mic control for 50W out. This went fine.
> > >
> > > Then I switched input to 400Hz. You are then meant to peak TC3 on Carrier board for output 45-55W. In fact I found TC3 could only peak the output power at 40W (Welz power meter) which is closest I could get to 50W.
> > >
> > > Then you dial up input to 2600Hz, and the manual says you adjust TC3 again to get close to 50W. But having adjusted for 400Hz the power out indicated at 2600Hz is only about 10W. If I adjust TC3 to get close to 50W then the power out when I check back at 400Hz is down to 10W! This is all on LSB as per manual (but on the bands you would use USB obviously).
> > >
> > > I'm worried that if I can't get roughly equal power from 400Hz through to 2600Hz, then this might affect audio quality (haven't been able to monitor it, but haven't had any compliments!) as well output power if it's dropping off at one end of range. I'm also confused about why there is a single control to match power out throughout frequency range, as if it needs big adjustment at one end of range then that throws other end out! At the moment I can only choose to have either the low or high frequency output roughly match the output at 1500Hz input, not both.
> > >
> > > Where would I start looking to solve this problem? Seems like SSB output should be pretty constant through voice frequency range, but I'm not achieving that.
> > >
> > > thanks in advance.
> > >
> > > Adrian G4IQW
> > >
> >
>

44278. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 23:22:29 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44278

AArgh more typos on iPhone keyboard!

The manual says set the CW trimmer TC1 for 3.395

I can get down to 3.3952 but then stops oscillating, so I can't get to 3.395MHz precisely.

Sorry to cause confusion!

Adrian

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Sorry my typo putting 3.195
>
> I meant 3.595 which the manual says to set the CW trimmer TC1 on Carrier board to.
>
> But the xtal stops oscillating at about 3.19518 according to my frequency counter, so I can't set to the precise frequency specified
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > I am not sure what you are trying to do. A trimmer cap placed across a crystal (in parallel or shunt) is typically used to move the frequency down. A cap in series is typically used to move the frequency up.
> >
> > When you increase the capacitance of TC-1 its capacitive reactance goes down so you reach a point where the impedance is so low you have essentially shorted out the crystal and the oscillator will stop.
> >
> > Are you trying to adjust it below 3.195? OR Just wanting to see how much you can pull it? Are you really wanting to move it up to get a 800hz beat note instead of 700hz?
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> > >
> > > Thanks Terry I've just gone through the adjustments.
> > >
> > > It is tricky equalising the low and high, but I found that on LSB and USB, using the procedure you explained here (only adjusting the relevant trimmer for that mode), I could get the low and high (I chose 400 and 2600 to both kick out 15W with the 1500Hz producing 40W.
> > >
> > > Thank you for guiding me through this and pointing out error/omission in service manual. I have annotated that section accordingly.
> > >

> > > One final thing that puzzled me is that I did the final adjustment asked for where on CW (no SG) you check with counter that the CARRIER OUT is set to 3.395MHz. I couldn't adjust the trimmer TC1 to any lower than 3.19518 or crystal would stop oscillating. I though the trimmer would let me pull the xtal either side of 3.395?
> > >
> > > Thanks again and 73s Adrian G4IQW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> > > >
> > > > I usually start in USB but it doesnt really matter.
> > > >
> > > > No... you stay in LSB and you go back and forth from low freq to high freq and adjust the same trimmer TC-3 until you get the roll off close to the same at both low and high ends. You then switch to USB and do same thing with the other trimmer TC-2. That is why the approx 5 watts tolerance is noted. So it will likely be greater than 25 watts at each end. Just make them equal.
> > > >
> > > > --- In TS-520_820_530_830@...m, "adrian.langford@" <adrian@> wrote:
> > > > >
> > > > > Terry that's brilliant thanks so much.
> > > > >
> > > > > So the manual is misleading on not going for 1/2 power at the -3dB points. Also if I understand correctly you do the low roll off with TC3 set to LSB, then switch to USB to adjust TC2 for the high frequency roll-off? Again manual doesn't mention switching Mode having mentioned LSB.
> > > > >
> > > > > I'll be sure to rebalance the LSB and USB after trying this. My dummy load has a case which comes off easily and I can measure across it once that's off. When I did the carrier balance originally I just put the scope across the ANT terminal, as the manual implied you removed dummy load to do this.
> > > > >
> > > > > Will go through all the adjustments again later this afternoon and report back.
> > > > >
> > > > > Thanks again and 73. I will make a note in my copy of service manual too.
> > > > >
> > > > > Adrian G4IQW
> > > > >
> > > > >
> > > > >
> > > >
> > >
> >
>

44279. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 23:28:31 UTC
From: Terry Wagoner
Topic: 44257 Message: 44279

Ok you are saying you cannot set CW transmit carrier oscillator any lower than 3595.18 where it stops oscillating.

How do you know your counter is accurate? Do you have any kind of 10mhz reference standard to check cal? Iso-temp 134-10 OCXO or Rubidium standard?

Do you have another transmitter that you think is reasonably accurate that you can sniff its output?

Can you copy WWV well enough to zero beat counter clock against?

As you can see I am suspicious of your counter.

Terry

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Sorry my typo putting 3.195
>
> I meant 3.595 which the manual says to set the CW trimmer TC1 on Carrier board to.
>
> But the xtal stops oscillating at about 3.19518 according to my frequency counter, so I can't set to the precise frequency specified
>

44280. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-24 23:47:51 UTC
From: Terry Wagoner
Topic: 44257 Message: 44280

Ok Adrian I am getting my posts mixed up! Maybe a knot in the cord across the pond!

Sounds like you have it now. One more thing to check is to flip back and forth from USB and LSB and listen to the back ground noise tone. It should sound very nearly the same. One should not be more bass or more treble than the other. This isnt real precise unless you have a discriminating ear or good musical pitch.

You can also turn on the Marker and zero beat it until you get a nice slow rhythmic flutter of the S-meter needle with the AGC in Fast. You need a delicate touch on VFO knob. Maybe just tap on it as you get close. So in LSB you may have the near zero beat slow flutter at around S3. When you flip to USB should have very nearly same S3 flutter. If the flutter stops or is not at S3 then you do not have LSB and USB response adjusted the same.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Hi Terry
>
> I posted about the odd power dip before you helped me with correct procedure. I had been trying (and failing) to set output power same for 400, 1500, 2600 audio in.
>
> Now I have followed your instructions the power varies smoothly from 15W out at 400 in, through peak of 40W at 1500 (set using Mic), then back down to 15W at 2600Hz. This is in LSB and USB.
>
> So the filter seems to behave ok. But to answer original question I got to 5mV by adjusting for 14mV p-p (5 x 2.8) on my scope. I checked at the 400 and 2600 points and the output was same going on the scope waveform.
>
> 73s Adrian G4IQW
>
>
>

44281. Re: [TS-520_820_530_830] Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 00:31:30 UTC
From: Wes Will
Topic: 44257 Message: 44281

> close. So in LSB you may have the near zero beat slow flutter at around
> S3. When you flip to USB should have very nearly same S3 flutter. If the
> flutter stops or is not at S3 then you do not have LSB and USB response
> adjusted the same.

Bozhe moj. SO simple. And that would have been SO much easier in the field back when I was humping a receiver (and transmitter) through the mud in Germany, jammer box, crypto "green" commo section, and loop antenna....

I had to do all KINDS of 'field expedient' repairs to keep that "AN/TRQ-30" "Turkey Thirty" receiver in some sort-of-working order, and getting USB and LSB reception somewhere NEAR evenly calibrated was not on the list of things I could bother with. I wasn't even supposed to open the derned thing, "NOT YOUR MOS, ZOOMIE! Hands OFF!!" But my rig was the only one working all too often. (I was the pet zoomie in an MI Battalion, life was NOT exactly a bed of roses anywhere I was. Excepting the thorns, I guess.)

The transmitter was a separate box, and the whole MESS rode on top of Alice, who rode on top of me, and it was NOT a sensual joy, that relationship. (I'm not into pain. You wouldn't have known it from some of the things we did to keep the top brass all happy-happy and OFF our butts.)

Watch the flutter near null, flip to the other half. Heilige Schaffenscheisse, Fliedermausmensch. How could I have missed THAT one.

--
Wes Will
N9KDY
Feeling pretty stupid.

44282. Re: TS830S, no plate current in TUNE mode - promising solution

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 01:10:44 UTC
From: David L
Topic: 44244 Message: 44282

Many thx for the info Gordon. I checked R15 as you suggested. It looked totally normal. Then I tested it with ohmmeter in circuit and it seemed a little squirrelly. So I powered up and checked voltages. SG2 on one side of R15 had plenty of voltage. The other side of R15 was zero volts. So I pulled R15 out of the board and sure enough it's open. I'm short on resistors and went to the local radio shack..No luck. Will have to wait until Monday to get that 56K resistor and will update then.

--- In TS-520_820_530_830@yahoogroups.com, n6wk@... wrote:
>
> Most likely R15 (56K) on the rectifier Board is open which will stop you
> from getting IP in Tune Position.
>
> 73,
> Gordon
>
> On 8/24/2013 7:00 AM, David L wrote:
> >
> >
> > Thanks for the info Terry, I think we're onto something.
> > I set the CAR control about 2/3 up and keyed in CW mode. Now I can dip
> > the plate and get about 300ma Ip and 100 watts output. That makes me
> > feel a LOT better. So why can't I get Ip in TUNE mode?
> >
> > BTW, the fan is a bit sluggish, I think I'll pop it out and lube it,
> > and I want to put a 3-wire power cord on it. Any problems with doing
> > that in your mind?
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> > <wagstw46@> wrote:
> > >
> > > Lots of good intentions here. Daves advice to go back to basics is
> > good. Lets look at what we believe we know.
> > >
> > > The fact that you can adjust resting plate current to 60ma tells you:
> > > 1. Filaments are lit.
> > >
> > > 2. Cathode resistors are not open and you have emission from finals.
> > >
> > > 3. Screen grid switch is in On position and working. Working means
> > it has transitioned from -100vdc to + 260vdc or so. Fellows please if
> > SG switch wasnt on and working he would have no resting plate current
> > as the tubes are cut off by high negative voltage applied to the
> > screen grids. This is done so you can "cold" neutralize the finals.
> > Sometimes when switch is turned to on it does not make the needed

> > transition so you need to exercise the switch. In this case switch has
> > to have good contact as he has 60ma resting plate current.
> > >
> > > 4. Ip meter switch contacts are good.
> > >
> > > 5. If you get full scale deflection in the ALC box in Tune at 0900
> > Car Level this means you have good Driver tube,rf drive level at 6146
> > control grid is exceeding the dc bias offset voltage, ALC amp circuit
> > is working, ALC bus voltage is being lowered, meter circuit sees it
> > and drive meter up scale.
> > >
> > > By the way no reason to keep the indication in the ALC box. ALC
> > black box has no meaning while loading the rig. Bring CAR level pot up
> > to give yourself a decent indication where you can see the peak. 2/3
> > scale is a good spot. You are tuning the TX Mixer and Driver Tube tank
> > circuits to resonance (max rf voltage) and not setting a grid current
> > level. This is a Class AB1 linear not a Class C amplifier. The moment
> > there is a hint of grid current the ALC reduces the TIF amp signal to
> > the TX Mixer. Max grid current is around 40ua. You cannot hurt the
> > 6146 final grids contrary to what some people believe and teach.
> > >
> > > 6. Having 900vdc on panel meter tells you the HV rectifier and caps
> > are good and HV meter string is good. Does not tell you that you have
> > 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate
> > choke should not have failed while sitting in storage.
> > >
> > > 7. What happens if you try to make your initial plate current dip in
> > CW mode and not Tune? Pre-position the Plate Tuning cap on the white
> > arc for band you are loading in, meter in Ip position, place hand on
> > Plate Tune control, Flip to send and be prepared to quickly adjust for
> > plate current dip. Do not allow current to peg FSD for more than
> > second or so.
> > >
> > > Report back this result.
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, Dave LaCroix
> > <dlacroix@> wrote:
> > > >
> > > > My 830's been on the shelf for 15 years and I fired it up today to
> > check it out. Here's as far as I got:
> > > > * Verified bias is 60ma
> > > > * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to
> > stay in the ALC range
> > > > * Tuned to dip plate current, meter reads zero all the time.
> > > > * SG switch in back is ON.
> > > >
> > > > Any thoughts on how to bring her back to life?

> > > >
> > > > [Non-text portions of this message have been removed]
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> --
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>
>
>
> [Non-text portions of this message have been removed]
>

44283. Re: [TS-520_820_530_830] Re: Documentation Rewrite and Collaboration

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 11:34:37 UTC
From: Charles Coffee
Topic: 43925 Message: 44283

Terry -Anytime you need a pdf converted, let me know - I have software that will convert PDF to either Word or to Open Office doc format. Send me the file off list and will convert and send it back to you. Does not work very well for drawings however.

Regards & 73s

Chuck KJ4GU

On Sat, Aug 17, 2013 at 2:00 PM, Terry Wagoner <wagstw46@...> wrote:

> Wes:
>
> I will leave that up to Robert. I hope to just be a worker bee on this
> project! I cant even spell DOS!
>
> One of the things that kept me from just correcting the steps in the 820
> Service Manual is I couldnt figure out how to scan it in and convert from
> PDF to a format that I could make the corrections.
>
> That and I had envisioned a complete rewrite in a different format perhaps
> similar to the TS830 matrix with a little more meat on the bones which
> would take some time commitment.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
> >
> > > Do we want to ask who else wants to help and in what capacity? Should
> we
> > > then take off the forum?
> >
> > Do you need a separate email mailing list for this? NOT one of these
> > annoying wahoo thing-ummies, just plain email in from one, email out to
> all?
> >
> > I run a mail server, with the Mailman mailing list server. It's the
> > work of a couple minutes, without raising a sweat, to set up a private
> > mailing list. Anything up to about 250 users won't even be noticed.
> > (More users than that, I'd need more bandwidth if the amount of message
> > traffic was significant.)
> >
> > There is also an FTP server on here, I can give you all access to it,
> > one username, one password for everyone to use to dump files for
> > collaboration. Same deal, two minutes, no perspiration for me, and the

> > machine and connection costs me the same if it's sitting idle or running
> > full-out. (Apache web server as well, but that's not presently set up
> > for easy access from outside of my internal network, it would take me
> > probably half an hour to tweak it.)
> >
> > Just an offer, thought it might be handy.
> >
> > --
> > Wes Will
> > N9KDY
> >
>
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>
>

[Non-text portions of this message have been removed]

44284. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 11:44:41 UTC
From: Terry Wagoner
Topic: 44257 Message: 44284

Wes:

You can read the method in the TS830 Survival Guide under the Maintenance Section Step 8.4 for LSB/USB carrier oscillator adjustment. Not everything in these kinds of guides is valid and should be done but this one does work.

Method isnt as accurate as injecting audio and using wattmeter to set the roll off or using audio spectrum analyzer software, but if done carefully it works well.

On the TS-530/830 rigs Kenwood provided access holes on bottom of the chassis so no requirement to remove the covers. I call these kinds of adjustments "user preference" adjustments as how the rig sounds is "subjective".

Some like the more bass sound, but if running barefoot a more communications style audio might serve better in bad band conditions or when chasing DX.

By the way just moving your hybrids around in the shack can cause the carrier oscillator trimmer caps to change position.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Wes Will <wwill@...> wrote:
>
> > close. So in LSB you may have the near zero beat slow flutter at around
> > S3. When you flip to USB should have very nearly same S3 flutter. If the
> > flutter stops or is not at S3 then you do not have LSB and USB response
> > adjusted the same.
>
> Bozhe moj. SO simple. And that would have been SO much easier in the
> field back when I was humping a receiver (and transmitter) through the
> mud in Germany, jammer box, crypto "green" commo section, and loop
> antenna....
>
> I had to do all KINDS of 'field expedient' repairs to keep that
> "AN/TRQ-30" "Turkey Thirty" receiver in some sort-of-working order, and
> getting USB and LSB reception somewhere NEAR evenly calibrated was not
> on the list of things I could bother with. I wasn't even supposed to
> open the derned thing, "NOT YOUR MOS, ZOOMIE! Hands OFF!!" But my rig
> was the only one working all too often. (I was the pet zoomie in an MI
> Battalion, life was NOT exactly a bed of roses anywhere I was.
> Excepting the thorns, I guess.)
>
> The transmitter was a separate box, and the whole MESS rode on top of
> Alice, who rode on top of me, and it was NOT a sensual joy, that
> relationship. (I'm not into pain. You wouldn't have known it from some
> of the things we did to keep the top brass all happy-happy and OFF our
> butts.)

>
> Watch the flutter near null, flip to the other half. Heilige
> Schaffenscheisse, Fliedermausmensch. How could I have missed THAT one.
>
> --
> Wes Will
> N9KDY
> Feeling pretty stupid.
>

44285. Re: Documentation Rewrite and Collaboration

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 12:02:30 UTC
From: Terry Wagoner
Topic: 43925 Message: 44285

Hi Chuck:

Well I dont know how well it would work as both the Operating and Service Manuals are full of drawings on just about every page.

All I really need is Section 6 of the Operating Manual and the Adjustment Section beginning on page 43 and ending on page 53 of the Service Manual.

If you would like to try conversion and see how it comes out could you go to W0NTA website and download the manuals? Dick has very nice enhanced copies on his site.

If you can do that and the text comes out good so I can start revising them to fix and add missing info I will do that as time permits. As I recall there may be a missing figure or wrong figure called out but if that is only thing we cant correct not a big deal.

If this doesnt work I would have to take Daves suggestion of typing up one line entries detailing the fixes sort of like errata sheets.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Charles Coffee <chascoffee@...> wrote:
>
> Terry -Anytime you need a pdf converted, let me know - I have software that
> will convert PDF to either Word or to Open Office doc
> format. Send me the file off list and will convert and send it back to
> you. Does not work very well for drawings however.
>
> Regards & 73s
>
> Chuck KJ4GU
>

44286. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 12:30:56 UTC
From: Terry Wagoner
Topic: 44244 Message: 44286

OH THANK YOU GORDON YOU ARE MY HERO!

Terry does the all the heavy lifting. Sitting here with bloody finger tips. Gordon sneaks up from behind, kicks sand in my eyes, crosses the finish line first, and then takes the trophy.

Dave why do you think I held your hand and provided you the test method. Just some fishing expedition? Just a lucky guess?

OK Gordon 1.....Terry 0

I dont know which hurts worse the finger tips or my bruised ego. Well when both heal up I will be back to play. Now that I know the rules I will be wearing my goggles and watching for dust coming up from behind!

Oh by the way Gordon how is that Sweep Generator problem coming along? Oh never mind I am sure the fellows on the HP forum will be glad to give you a hand!

Terry K9TW

"What happens if you try to make your initial plate current dip in CW mode and not Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so."

Report back this result.
> >
> > Terry K9TW

44287. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 14:56:44 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44287

This is reassuring as the white noise tone is almost identical USB/LSB.

I also tried that s-meter twitch and again switching between modes the twitch stayed same and the needle didn't move from just under S3 where the twitch started.

73 Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Ok Adrian I am getting my posts mixed up! Maybe a knot in the cord across the pond!
>
> Sounds like you have it now. One more thing to check is to flip back and forth from USB and LSB and listen to the back ground noise tone. It should sound very nearly the same. One should not be more bass or more treble than the other. This isnt real precise unless you have a discriminating ear or good musical pitch.
>
> You can also turn on the Marker and zero beat it until you get a nice slow rhythmic flutter of the S-meter needle with the AGC in Fast. You need a delicate touch on VFO knob. Maybe just tap on it as you get close. So in LSB you may have the near zero beat slow flutter at around S3. When you flip to USB should have very nearly same S3 flutter. If the flutter stops or is not at S3 then you do not have LSB and USB response adjusted the same.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > Hi Terry
> >
> > I posted about the odd power dip before you helped me with correct procedure. I had been trying (and failing) to set output power same for 400, 1500, 2600 audio in.
> >
> > Now I have followed your instructions the power varies smoothly from 15W out at 400 in, through peak of 40W at 1500 (set using Mic), then back down to 15W at 2600Hz. This is in LSB and USB.
> >
> > So the filter seems to behave ok. But to answer original question I got to 5mV by adjusting for 14mV p-p (5 x 2.8) on my scope. I checked at the 400 and 2600 points and the output was same going on the scope waveform.
> >
> > 73s Adrian G4IQW
> >
> >
> >
>

44288. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 15:03:00 UTC
From: adrian.langford@ymail.com
Topic: 44257 Message: 44288

Guilty your honour! I can't be certain the counter is accurate on that range. But it is accurate when I sniff RF from xtal controlled 221 rig (eg 145.5 reads as 145.49999 or similar).

If my CW mode crystal is at 3.3952 instead of 3.395 are there any practical consequences?

The 520SE is very accurate whenever I calibrate to marker. Freqs I read for stations heard are as reported to DX Spot pages, and nets are spot on.

I can rarely copy WWV at least not in daytime. I will check again tonight to see if I can hear it but it's never there when I look for it, despite peaking 15MHz receive as per manual.

73s Adrian G4IQW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Ok you are saying you cannot set CW transmit carrier oscillator any lower than 3595.18 where it stops oscillating.
>
> How do you know your counter is accurate? Do you have any kind of 10mhz reference standard to check cal? Iso-temp 134-10 OCXO or Rubidium standard?
>
>
> Do you have another transmitter that you think is reasonably accurate that you can sniff its output?
>
> Can you copy WWV well enough to zero beat counter clock against?
>
> As you can see I am suspicious of your counter.
>
> Terry
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> >
> > Sorry my typo putting 3.195
> >
> > I meant 3.595 which the manual says to set the CW trimmer TC1 on Carrier board to.
> >
> > But the xtal stops oscillating at about 3.19518 according to my frequency counter, so I can't set to the precise frequency specified
> >
>

44289. Re: [TS-520_820_530_830] Re: Documentation Rewrite and Collaboration

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 15:44:18 UTC
From: Mark Gilger
Topic: 43925 Message: 44289

Chuck,
Also for consideration would be to get all of the
service bulletins converted over to .DOC format
for later editing and updating.

Mark, WB0IQK

At 08:02 AM 8/25/2013, Terry Wagoner wrote:
>
>
>Hi Chuck:
>
>Well I dont know how well it would work as both
>the Operating and Service Manuals are full of
>drawings on just about every page.
>
>All I really need is Section 6 of the Operating
>Manual and the Adjustment Section beginning on
>page 43 and ending on page 53 of the Service Manual.
>
>If you would like to try conversion and see how
>it comes out could you go to W0NTA website and
>download the manuals? Dick has very nice enhanced copies on his site.
>
>If you can do that and the text comes out good
>so I can start revising them to fix and add
>missing info I will do that as time permits. As
>I recall there may be a missing figure or wrong
>figure called out but if that is only thing we cant correct not a big deal.
>
>If this doesnt work I would have to take Daves
>suggestion of typing up one line entries
>detailing the fixes sort of like errata sheets.
>
>Terry K9TW
>
>--- In
><mailto:TS-520_820_530_830%40yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
>Charles Coffee <chascoffee@...> wrote:
> >
> > Terry -Anytime you need a pdf converted, let me know - I have software that
> > will convert PDF to either Word or to Open Office doc
> > format. Send me the file off list and will convert and send it back to
> > you. Does not work very well for drawings however.

> >
> > Regards & 73s
> >
> > Chuck KJ4GU
> >
>
>

[Non-text portions of this message have been removed]

44290. Re: Problem adjusting balanced modulator TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 16:11:24 UTC
From: Terry Wagoner
Topic: 44257 Message: 44290

Adrian:

I am not saying it is not possible that you have a bad crystal. I just havent seen it with Hybrid carrier oscillator crystals. I have seen poor soldering at the pins on carrier and het osc crystals.

I am not a crystal expert. I know they drift with age and some manufacturers pre-age them. Pretty sure they can drift either positive or negative with age, but not sure which is more predominant. Not sure how they would get contaminated inside the can, but could see where holder mounting stress and/or being excited all these years could cause drift.

In the old days I would remove the quartz crystal from the FT-243 holder and take one of moms picture frames apart to get the glass plate and would mix up a lapping compound paste of Ajax or Comet bath cleaner and gently "figure 8" the crystal to move it. If moved too much then take magic marker and "pen" it. Worked great. Pretty hard to get to the crystal element in these metal sealed can units. Never cut one open.

If certain that your counter is accurate then might contact Bob Mansker and see what he gets for a Carrier Osc Board. I dont know if ICM makes them or not? Maybe Mike W5RKL knows?

I cant think of a problem with not being able to pull xtal to exactly 3395 other than if you are close to oscillator quitting. I would be concerned if the carrier output level is too low for good LO action at the mixers. Should be between 800mv to 1.0v. I would compare its output against LSB and USB. Measure it with RF probe/VTVM/DMM or O-scope. With O-scope will be approx 2.3 to 2.8 rf volts P-P.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@..." <adrian@...> wrote:
>
> Guilty your honour! I can't be certain the counter is accurate on that range. But it is accurate when I sniff RF from xtal controlled 221 rig (eg 145.5 reads as 145.49999 or similar).
>
> If my CW mode crystal is at 3.3952 instead of 3.395 are there any practical consequences?
>
> The 520SE is very accurate whenever I calibrate to marker. Freqs I read for stations heard are as reported to DX Spot pages, and nets are spot on.
>
> I can rarely copy WWV at least not in daytime. I will check again tonight to see if I can hear it but it's never there when I look for it, despite peaking 15MHz receive as per manual.
>
> 73s Adrian G4IQW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >

> > Ok you are saying you cannot set CW transmit carrier oscillator any lower than 3595.18 where it stops oscillating.
> >
> > How do you know your counter is accurate? Do you have any kind of 10mhz reference standard to check cal? Iso-temp 134-10 OCXO or Rubidium standard?
> >
> >
> > Do you have another transmitter that you think is reasonably accurate that you can sniff its output?
> >
> > Can you copy WWV well enough to zero beat counter clock against?
> >
> > As you can see I am suspicious of your counter.
> >
> > Terry
> >
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "adrian.langford@" <adrian@> wrote:
> > >
> > > Sorry my typo putting 3.195
> > >
> > > I meant 3.595 which the manual says to set the CW trimmer TC1 on Carrier board to.
> > >
> > > But the xtal stops oscillating at about 3.19518 according to my frequency counter, so I can't set to the precise frequency specified
> > >
> >
>

44291. Re: [TS-520_820_530_830] Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 15:44:54 UTC
From: Ron
Topic: 44123 Message: 44291

Hey Terry it was a pleasure talking to u and thanks for all ur help!!!! I jumped the 8/9 pin and it came to life !!! After checking the remote Vfo I found a the #9 pin wire broke. Is it is living once again !!! Now about the driver test , can u elaborate on that test again thanks a million RON KK4PWF

Sent from my iPhone

On Aug 24, 2013, at 12:14 PM, "Terry Wagoner" <wagstw46@...> wrote:

> Ron:
>
> I forgot to summarize our discussion on attempting to load and adjust SWR on the Hustler vertical. Lets reserve detailed discussion once you get the receiver working and hopefully the transmitter at same time if it is a VFO problem.
>
> Very briefly:
>
> I dont know of anyway that you could have caused loss of receive while loading in to this vertical. Also, you dont need an analyzer to adjust it. Nice tool, but not a requirement. Hams have been adjusting verticals for years with SWR bridge, but in my experience the old fashioned Diode Field Strength meter is better tool. Dummy load has nice low SWR but not good radiator. Same with verticals can get the SWR down but that doesnt mean it is radiating effectively.
>
> Anyway you mentioned you began seeing power fall off as you tried to tune the Hustler. It is possible that with many repeated key down cycles that you could have seen emission falling off on the Driver tube and the Finals. They will get hot if using full power to tune an antenna. The tubes could be getting soft. Also, you may want to do a visual inspection inside the PA cage with HV caps discharged to make sure RF choke does not appear overheated and bypass cap at its base not overheated. Again do this after get the receiver going.
>
> Please dont jump back and forth between receiver troubleshooting and transmitter troubleshooting.
>
> I can give you a Driver stage test later that you perform with SG switch off that will tell you the condition of the 12BY7A.
>
> Lastly, SWR will not burn up your 6146 final tubes as some persist in thinking and teaching nor can it effect the receiver circuits. About worse thing that can happen is if you have a very high impedance at the SO-239 or an actual open coax connection. If that occurs can have very high rf voltage across the Plate Load cap and it could arc over. Manual will tell you need to have under 2:1 SWR but that is a very conservative statement. As long as you have the range in your Pi-network caps and can adjust them to address the reactive component there is no worry about hurting the rig and certainly not the receiver. They may not align exactly to marks on the white arc but that isnt important.

>
> Focus on making sure you have good VFO signal and then good VCO signal if restoring the VFO doesnt fix your problem.
>
> Please report progress on recheck of 8/9 jumper, trying the remote vfo, measuring VCO and VFO signal levels.
>
> OK I think that covers everything we discussed. You might want to print these notes.
>
> Terry K9TW
>
>
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>

44292. KENWOOD HYBRID USER NET (August 25th, update)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 18:38:56 UTC
From: mvgilger
Topic: 44292 Message: 44292

The Saturday's net on 40 meter we had 14 stations checking in under good band conditions. There were 3 new check-ins, WQ2A, KB3FWW, and VE3JEA. Out of those, there was:

2 running TS-520(x)
1 running TS-530(x)
5 running TS-820(x)
3 running TS-830S
0 running TS-900

I was running my TS-940s. The rest were running non hybrids of one model or another.

The Sunday's net on 20 meter we had 8 stations checking in under good band conditions. Out of those, there was:

4 running TS-520(x)
1 running TS-530(x)
0 running TS-820(x)
1 running TS-830S

I was running my TS-940s. The rest were running non hybrids of one model or another.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940's, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins

November 2012, Saturday's, net total = 47, Sundays total = 20
December 2012, Saturday's, net total = 74, Sunday's total = 70
January 2013, Saturday's, net total = 93, Sunday's total = 87
February 2013, Saturday's net total = 103, Sundays total = 87
March 2013, Saturday's, net total = 112, Sunday's total =39
April 2013, Saturday's net total = 52, Sunday's total = 29

May 2013, Saturday's net total = 45, Sunday's total = 50
June 2013, Saturday's net total = 30, Sunday's total = 27
July 2013, Saturday's net total = 63, Sunday's total = 41
August 2013, Saturday's net total = 62, Sunday's total = 43 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44293. Re: partial dead ts-820s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-25 19:00:26 UTC
From: Terry Wagoner
Topic: 44123 Message: 44293

Ron:

Thats great news. I have had same thing happen so I usually take a jumper test lead and connect 8/9 at rear pins of the tube socket which gives you a good positive connection and allows you to look at the leads landed on it.

Search on Message 40016 to see the Driver tube test. If you cant find it then let me know. Only thing I would add to it is to let the Driver tube rest a little bit in between each band test. The Driver tube is running Class A and right up against its maximum plate current so it gets pretty hot. I have never had one fail during this test, but it is possible. You will need to increase CAR Level on 10 meters and may not be able to get full scale deflection (FSD). Just peak it for max and watch it for a few seconds to see if ALC slowly drifts lower under keydown.

If the Driver tube passes this test then it is possible that the power drift that you witnessed is due to your finals getting a little soft. I usually measure all the 6146 dc voltages at the tube socket pins on the final board to make sure they are to spec and not drifting off under key down. Very seldom see any of these voltages fall off under key down. Screen grid is most important.

I know fellows who have run literally for 30 plus years on same set of S2001 and 6146 finals and they may not be able to get 100 watts out at spec plate current anymore, but they continue to use them as CW and SSB it is not a high duty cycle mode and 80 watts output is OK.

When I start to see approx 70 watts out on 20 meters I recommend to the owners that it is time to change the finals. I rotate my spare finals so I never see less than like new output. Dont forget if you change them you will need to neutralize. You can use your O-scope for that. I would recommend 6146B or 6146W and no need for a matched set.

Let me know how Driver tube works out. Ken K4EAA sells pulls and NOS 12BY7A tubes on his site. No need to neutralize after changing driver tube. Be careful removing the tube shield. Sometimes the ground strap bonds and seizes to the shield. Take a mini screw driver and spread the shield slightly at the split and work it off the tube. Maker sure ground strap is inside it when you slip it back over the new tube.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Ron <bozo231@...> wrote:
>
> Hey Terry it was a pleasure talking to u and thanks for all ur help!!!! I jumped the 8/9 pin and it came to life !!! After checking the remote Vfo I found a the #9 pin wire broke. Is it is living once again !!! Now about the driver test , can u elaborate on that test again thanks a million RON KK4PWF
>
> Sent from my iPhone
>

> On Aug 24, 2013, at 12:14 PM, "Terry Wagoner" <wagstw46@...> wrote:
>
>

44294. Re: [TS-520_820_530_830] KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 02:45:06 UTC
From: Don
Topic: 44099 Message: 44294

Wow
KB-1 knob sold for almost $300 bucks
I am lucky to have one on my TS-830s and one on the matching VFO
That would make $600 dollars before i even put a price on the radio and
VFO,if i was to sell them.
Just replaced a dial lamp in my TS-520s,,that was a blast.
Cleaned the front panel and all the knobs with Mr Clean,,,,years of
germs collected on it.
Hybrid guy forever.

http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d&nma=true&si=pUM4XGE5Zb9Gb5r8fSSuokatfjU%253D&orig_cvip=true&rt=nc&_trksid=p2047675.
<http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d&nma=true&si=pUM4XGE5Zb9Gb5r8fSSuokatfjU%253D&orig_cvip=true&rt=nc&_trksid=p2047675.l2557>l2557
<http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d&nma=true&si=pUM4XGE5Zb9Gb5r8fSSuokatfjU%253D&orig_cvip=true&rt=nc&_trksid=p2047675.l2557>

Don/Ve2ud

On 19/08/2013 8:14 AM, Don D wrote:
>
> k4eaa k1 knob must be worth more than the radio.
>
> http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625
> <http://www.ebay.com/itm/Kenwood-TS-830S-KB1-VFO-Knob-/281150191141?pt=UK_Mobile_Phones_Communication_Ham_Radio_Receivers_Transceivers&hash=item4175db7625>
>
> http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d
> <http://www.ebay.com/itm/Kenwood-KB-1-Metal-VFO-Knob-TS-530S-TS-830S-New-in-Box-KB1-/281151956381?pt=LH_DefaultDomain_0&hash=item4175f6659d>
>
> http://k4eaa.com/k1-knob.htm
>
> Don/Ve2ud
>
>

[Non-text portions of this message have been removed]

44295. Re: [TS-520_820_530_830] KB-1 Knob

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 03:54:26 UTC
From: Wes Will
Topic: 44099 Message: 44295

On 08/25/2013 09:45 PM, Don wrote:
> Wow
> KB-1 knob sold for almost $300 bucks

Wow, indeed. That's just plain NUTS.

Me, I've got a Dremel tool, and a drill press which will make nicely-symmetrical holes in the original knob, and a torch that will quite easily melt lead or pewter with which to fill them. Oh, and a lawn-mower-blade balancing cone which very likely would do to balance a plastic knob filled with lead, should I feel the need to get a heavier knob.

Three hundred clams for a knob, even an undoubtedly very NICE knob, is just silly.

That sort of thing is for folk with more money than good sense, is my opinion.

Yes, it's their money, and they're more than welcome to do with it what they please. But you would think with the application of just a LITTLE intelligence something better might be done with it, wouldn't you?

(In the same vein, you don't -even- want to get me going on the money-wasting, gas-guzzling, 4-wheeled bung-holes known as "Hummers." Or their owners.)

But that's nothing to do with hybrids. Putting the rectifier board back into a 520SE, however, is. Made a start on that today, as a break from tweaking and repairing all the test equipment that is waiting on the bench for my attention.

My enduring thanks to Bob for leaving a tag-end of the original wires, with the colour code visible on the insulation on the wire-wrap posts of the rectifier board he sent me.

That, sir, was a rig-saver. Having to trace each and every individual wire back to where they connected on the other end, then checking them all against the schematic, well, 'time-consuming' wouldn't cover it. I would have done it, had you not left enough wire on the new board to be certain of the correct attachments. With my notes and the pictures I took, along with that little tag-end clue, the odds are a lot higher that I got things on the right peg.

Plus, I'm chasing down as many of them as I can anyway, just to get more familiar with the innards of this thing. It appears that once it's working I can likely leave it alone a long time, and just use it. But then again, sometimes things just go "Pop!" and the magic smoke leaks

out, so knowing where I'm going will never be wasted time or effort.

--
Wes Will
N9KDY
Opinionated? MOI?! Mais NON!

44296. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 15:37:02 UTC
From: Terry Wagoner
Topic: 44244 Message: 44296

OK I cant stand it any more. IT WAS A JOKE! Apparently not a very funny one. I guess that stand up comic job is not in the cards anytime soon for me.

Gordon 2.......Terry 0

Back to Hybrids.

Terry K9TW

> OH THANK YOU GORDON YOU ARE MY HERO!
>
> Terry does the all the heavy lifting. Sitting here with bloody finger tips. Gordon sneaks up from behind, kicks sand in my eyes, crosses the finish line first, and then takes the trophy.

44297. Anyone going to the Shelby Hamfest?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 15:05:44 UTC
From: Barry
Topic: 44297 Message: 44297

I'm looking forward to my first Shelby Hamfest. Is anybody else going to try to make it? It'd be nice to put faces to names that I see here if you're heading that way.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44298. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 19:44:26 UTC
From: n6wk_skcc3
Topic: 44244 Message: 44298

LOL!
The Sweep Generator is working GREAT! Thanks to your help.
However, it's a Wavetek and the guys on the HP forum wouldn't know about it. <Grin>
I love the new HP scope though. so easy to use. It almost does everything by itself..hi hi..

73,
Gordon

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> OH THANK YOU GORDON YOU ARE MY HERO!
>
> Terry does the all the heavy lifting. Sitting here with bloody finger tips. Gordon sneaks up from behind, kicks sand in my eyes, crosses the finish line first, and then takes the trophy.
>
> Dave why do you think I held your hand and provided you the test method. Just some fishing expedition? Just a lucky guess?
>
> OK Gordon 1.............Terry 0
>
> I dont know which hurts worse the finger tips or my bruised ego. Well when both heal up I will be back to play. Now that I know the rules I will be wearing my goggles and watching for dust coming up from behind!
>
> Oh by the way Gordon how is that Sweep Generator problem coming along? Oh never mind I am sure the fellows on the HP forum will be glad to give you a hand!
>
> Terry K9TW
>
> "What happens if you try to make your initial plate current dip in CW mode and not Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so."
>
> Report back this result.
> > >
> > > Terry K9TW
>

44299. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 19:46:53 UTC
From: n6wk_skcc3
Topic: 44244 Message: 44299

I thought it was a joke.. just wasn't 100% sure.. LOL
I didn't mean to step on anyones toes, just wanted to contribute something I was sure I knew.
I wonder what makes those 56K resistor go open? It's a fairly common problem.

73,
Gordon
N6WK

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> OK I cant stand it any more. IT WAS A JOKE! Apparently not a very funny one. I guess that stand up comic job is not in the cards anytime soon for me.
>
> Gordon 2.......Terry 0
>
> Back to Hybrids.
>
> Terry K9TW
>
>
> > OH THANK YOU GORDON YOU ARE MY HERO!
> >
> > Terry does the all the heavy lifting. Sitting here with bloody finger tips. Gordon sneaks up from behind, kicks sand in my eyes, crosses the finish line first, and then takes the trophy.
>

44300. TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 20:33:08 UTC
From: Charlie
Topic: 44300 Message: 44300

I finally had my first opportunity to open my 520SE and decided to perform the alignment as described in section 6.3 (Receiver RF Section Alignment) but ran into a potential problem right off.
While adjusting the 1.8 MHz antenna and mixer coils I observed that there was no change in the S-meter deflection whatsoever. The coil slugs are moving and I've re-read section 6 numerous times but I am unable to determine why there is no change in the S-meter. I stopped at this point rather than proceed to the next set of coils.
The stand-by switch is in REC, dummy load attached, SG switch is on, the VFO plug is in and functional, Drive set to 12 o'clock position, RF ATT off, RIT off, Function switch to CAL, and the S-meter functions normally.
Please be advised that I have a "gift" of missing the obvious at times but this really has me puzzled. Why no meter movement?
Is there some setting of a switch or dial that I'm overlooking?
Is there something that I'm missing that is "understood" but not specified in the manual?
Why is there no S-meter response?

73
Charlie
KB3BTO

44301. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 21:39:59 UTC
From: w5rkl
Topic: 44300 Message: 44301

You said you set the FUNCTION switch to "CAL"?

What "position" is the Function switch knob pointing to?

1. 25Khz
2. RMT
or
3. FIX

The FUNCTION switch knob should point to "25Khz" not "RMT" or "FIX"..

Have you tried "listening" for the Marker signal on other bands?

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
> I finally had my first opportunity to open my 520SE and decided to perform the alignment as described in section 6.3 (Receiver RF Section Alignment) but ran into a potential problem right off.
> While adjusting the 1.8 MHz antenna and mixer coils I observed that there was no change in the S-meter deflection whatsoever. The coil slugs are moving and I've re-read section 6 numerous times but I am unable to determine why there is no change in the S-meter. I stopped at this point rather than proceed to the next set of coils.
> The stand-by switch is in REC, dummy load attached, SG switch is on, the VFO plug is in and functional, Drive set to 12 o'clock position, RF ATT off, RIT off, Function switch to CAL, and the S-meter functions normally.
> Please be advised that I have a "gift" of missing the obvious at times but this really has me puzzled. Why no meter movement?
> Is there some setting of a switch or dial that I'm overlooking?
> Is there something that I'm missing that is "understood" but not specified in the manual?
> Why is there no S-meter response?
>
> 73
> Charlie
> KB3BTO
>

44302. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 21:43:24 UTC
From: w5rkl
Topic: 44300 Message: 44302

I forgot to ask.

What symptoms have occurred that tells you your TS-520SE needs an alignment?

73
Mike W5RKL

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
> I finally had my first opportunity to open my 520SE and decided to perform the alignment as described in section 6.3 (Receiver RF Section Alignment) but ran into a potential problem right off.
> While adjusting the 1.8 MHz antenna and mixer coils I observed that there was no change in the S-meter deflection whatsoever. The coil slugs are moving and I've re-read section 6 numerous times but I am unable to determine why there is no change in the S-meter. I stopped at this point rather than proceed to the next set of coils.
> The stand-by switch is in REC, dummy load attached, SG switch is on, the VFO plug is in and functional, Drive set to 12 o'clock position, RF ATT off, RIT off, Function switch to CAL, and the S-meter functions normally.
> Please be advised that I have a "gift" of missing the obvious at times but this really has me puzzled. Why no meter movement?
> Is there some setting of a switch or dial that I'm overlooking?
> Is there something that I'm missing that is "understood" but not specified in the manual?
> Why is there no S-meter response?
>
> 73
> Charlie
> KB3BTO
>

44303. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-26 23:30:11 UTC
From: Charlie
Topic: 44300 Message: 44303

--- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@...> wrote:
>
> I forgot to ask.
>
> What symptoms have occurred that tells you your TS-520SE needs an alignment?
>

There were no symptoms, Mike. The rig was performing just fine. I just had my first opportunity to open the case and wanted to take this opportunity to perform an alignment to ensure everything was as it should be. I'm so fond of this radio that I'm selling my TS-940 and, while I was replacing the 940 with the 520, decided to open her and look around to become more familiar with the actual location of the boards, etc. A manual is one thing but there's no substitute for "hands on" experience for me.
The "CAL" remark was a poor choice on my part. I should have stated "CAL-25kHz" just like in the manual.
The only solution that comes to mind is that the slugs are broken and just spinning in place. Perhaps the previous owner got too heavy-handed?
I'm a firm believer in "Rule #1, when you find yourself in a hole quit digging." That's why I threw this question out to the group. I was hoping that I simply overlooked something obvious.
Did I?

73
Charlie
KB3BTO

44304. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 00:03:45 UTC
From: Terry Wagoner
Topic: 44244 Message: 44304

Gordon:

Glad both pieces are working for you. Always a risk on eBay not being able to see them in operation.

I just bought the new Rigol 1052 digital and it is my first use of a digital scope so jury is still out. I plan to take some key Hybrid waveforms and store them. I had run Tek465 and 475A and 2245A over last 10 years or so when I got serious about Hybrid repair and was planning on getting another used Tek scope, but decided to take a chance on this Rigol.

Glad you have tools now to do the sweeps and alignments of the CE transmitter that you wanted to do. Pretty hard to stagger tune a BPF without sweep gen and scope.

73s Terry
--- In TS-520_820_530_830@yahoogroups.com, "n6wk_skcc3" <n6wk@...> wrote:
>
> LOL!
> The Sweep Generator is working GREAT! Thanks to your help.
> However, it's a Wavetek and the guys on the HP forum wouldn't know about it. <Grin>
> I love the new HP scope though. so easy to use. It almost does everything by itself..hi hi..
>
> 73,
> Gordon
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > OH THANK YOU GORDON YOU ARE MY HERO!
> >
> > Terry does the all the heavy lifting. Sitting here with bloody finger tips. Gordon sneaks up from behind, kicks sand in my eyes, crosses the finish line first, and then takes the trophy.
> >
> > Dave why do you think I held your hand and provided you the test method. Just some fishing expedition? Just a lucky guess?
> >
> > OK Gordon 1.............Terry 0
> >
> > I dont know which hurts worse the finger tips or my bruised ego. Well when both heal up I will be back to play. Now that I know the rules I will be wearing my goggles and watching for dust coming up from behind!
> >
> > Oh by the way Gordon how is that Sweep Generator problem coming along? Oh never mind I am sure the fellows on the HP forum will be glad to give you a hand!
> >
> > Terry K9TW

> >
> > "What happens if you try to make your initial plate current dip in CW mode and not Tune? Pre-position the Plate Tuning cap on the white arc for band you are loading in, meter in Ip position, place hand on Plate Tune control, Flip to send and be prepared to quickly adjust for plate current dip. Do not allow current to peg FSD for more than second or so."
> >
> > Report back this result.
> > > >
> > > > Terry K9TW
> >
>

44305. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 00:41:13 UTC
From: Terry Wagoner
Topic: 44244 Message: 44305

Well I have never measured the IR drop across them but I have measured SG current several times on various Hybrids and get around 21ma at 100 watts out and approx 225ma Ip. If we assume that SG current in Tune mode would be proportional them maybe seeing 4th of that or approx 5ma. So if we assume 125 volts drop @ 5ma then power = 125 x .005 = .63 watts. A 1/2 watt resistor should be able to withstand .6 watts forever. If we had 7ma screen grid current in Tune it would be approx .875 watts. Also the duty cycle is pretty low just the time it takes to peak the Drive and make that initial Ip dip. Seems like a 1/2 watt resistor is speced correctly for this app and should never fail?

I once read on Tom Rauch W8JI site that carbon composition resistors should not be used in power supply voltage divider circuits as they have two failure modes. 1. They are susceptable to moisture in the air and the moisture causes the lead to corrode where it is embedded in the carbon and forms very high resistance contact point or an open. AND 2. With elevated temperatures carbon composition resistors age down in value and in divider circuits this means more current flow and get hotter and age down in value more and get hotter and age down in resistance more and so on until low resistance value and higher bleeder current causes it to eventually short and maybe burn.

I dont know if any of this is documented by the resistor manufacturer app notes or not. I just know I find the Cathode meter shunt resistors more commonly are high in value and have not aged down in value.

So short answer is I dont know why this happens to the screen voltage divider resistors, but as you say pretty common failure.

73s Terry K9TW
--- In TS-520_820_530_830@yahoogroups.com, "n6wk_skcc3" <n6wk@...> wrote:
>
> I thought it was a joke.. just wasn't 100% sure.. LOL
> I didn't mean to step on anyones toes, just wanted to contribute something I was sure I knew.
> I wonder what makes those 56K resistor go open? It's a fairly common problem.
>
> 73,
> Gordon
> N6WK
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > OK I cant stand it any more. IT WAS A JOKE! Apparently not a very funny one. I guess that stand up comic job is not in the cards anytime soon for me.
> >
> > Gordon 2.......Terry 0
> >
> > Back to Hybrids.

> >
> > Terry K9TW
> >
> >
> > > OH THANK YOU GORDON YOU ARE MY HERO!
> > >
> > > Terry does the all the heavy lifting. Sitting here with bloody finger tips. Gordon sneaks up from behind, kicks sand in my eyes, crosses the finish line first, and then takes the trophy.
> >
>

44306. Re: [TS-520_820_530_830] Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 02:04:31 UTC
From: Don Cunningham
Topic: 44244 Message: 44306

Terry,

As I have told you, I am not much technician, but in experience over the years with the tube Drakes, Collins, etc rigs I have never seen a carbon comp drift low, always high. Even a cigar box full I left in the storage building where the Okie 115+ summers baked them, ALL were high in resistance. I'd be curious of others experiences with these. Most all of the cathode resistors are way high on Drake tube transmitters, so much so that I keep a bunch just for that purpose. I have gone to the Ohmite OX (or is it OY, memory block tonight) series lately though. Hard to find decent, affordable carbon ones.
73,
Don, wB5HAK
On 8/26/2013 7:41 PM, Terry Wagoner wrote:
>
> Well I have never measured the IR drop across them but I have measured
> SG current several times on various Hybrids and get around 21ma at 100
> watts out and approx 225ma Ip. If we assume that SG current in Tune
> mode would be proportional them maybe seeing 4th of that or approx
> 5ma. So if we assume 125 volts drop @ 5ma then power = 125 x .005 =
> .63 watts. A 1/2 watt resistor should be able to withstand .6 watts
> forever. If we had 7ma screen grid current in Tune it would be approx
> .875 watts. Also the duty cycle is pretty low just the time it takes
> to peak the Drive and make that initial Ip dip. Seems like a 1/2 watt
> resistor is speced correctly for this app and should never fail?
>
> I once read on Tom Rauch W8JI site that carbon composition resistors
> should not be used in power supply voltage divider circuits as they
> have two failure modes. 1. They are susceptable to moisture in the air
> and the moisture causes the lead to corrode where it is embedded in
> the carbon and forms very high resistance contact point or an open.
> AND 2. With elevated temperatures carbon composition resistors age
> down in value and in divider circuits this means more current flow and
> get hotter and age down in value more and get hotter and age down in
> resistance more and so on until low resistance value and higher
> bleeder current causes it to eventually short and maybe burn.
>
> I dont know if any of this is documented by the resistor manufacturer
> app notes or not. I just know I find the Cathode meter shunt resistors
> more commonly are high in value and have not aged down in value.
>
> So short answer is I dont know why this happens to the screen voltage
> divider resistors, but as you say pretty common failure.
>
> 73s Terry K9TW

> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "n6wk_skcc3" <n6wk@...>
> wrote:
> >
> > I thought it was a joke.. just wasn't 100% sure.. LOL
> > I didn't mean to step on anyones toes, just wanted to contribute
> something I was sure I knew.
> > I wonder what makes those 56K resistor go open? It's a fairly common
> problem.
> >
> > 73,
> > Gordon
> > N6WK
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@> wrote:
> > >
> > > OK I cant stand it any more. IT WAS A JOKE! Apparently not a very
> funny one. I guess that stand up comic job is not in the cards anytime
> soon for me.
> > >
> > > Gordon 2.......Terry 0
> > >
> > > Back to Hybrids.
> > >
> > > Terry K9TW
> > >
> > >
> > > > OH THANK YOU GORDON YOU ARE MY HERO!
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> > > > Terry does the all the heavy lifting. Sitting here with bloody
> finger tips. Gordon sneaks up from behind, kicks sand in my eyes,
> crosses the finish line first, and then takes the trophy.
> > >
> >
>
>

[Non-text portions of this message have been removed]

44307. Re: TS830S, no plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 02:44:57 UTC
From: Terry Wagoner
Topic: 44244 Message: 44307

Hi Don:

Your experience mirrors mine. I am just reporting what I saw on Toms site explaining why carbon resistors in voltage divider service fail.

My experience with the 56k ohm screen grid divider resistors is that I have found them looking pristine but open or very high in value and I have also found them discolored. To me discolored would indicate heat damage and heat has to be dissipation which means current flow. Now with opens or very high resistance maybe the moisture corrosion at the lead to carbon interface is plausible? I have no idea how this connection is made perhaps just contact pressure?

Perhaps there is a manufacturing defect that causes them to fail after only 35 years in this intermittent duty voltage divider service! Just kidding.

Nothing we need to lose sleep over just would be interesting to understand the failure mechanism. Also most of the time it is just one that has failed. I always replace both.

As Gordon points out pretty easy to trouble shoot. Almost always when you have Ip in CW mode and not in Tune you can bet you have no screen grid voltage and should look at 56k resistors.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...> wrote:
>
> Terry,
>
> As I have told you, I am not much technician, but in experience over the
> years with the tube Drakes, Collins, etc rigs I have never seen a carbon
> comp drift low, always high. Even a cigar box full I left in the
> storage building where the Okie 115+ summers baked them, ALL were high
> in resistance. I'd be curious of others experiences with these. Most
> all of the cathode resistors are way high on Drake tube transmitters, so
> much so that I keep a bunch just for that purpose. I have gone to the
> Ohmite OX (or is it OY, memory block tonight) series lately though.
> Hard to find decent, affordable carbon ones.
> 73,
> Don, wB5HAK
> On 8/26/2013 7:41 PM, Terry Wagoner wrote:
> >
> > Well I have never measured the IR drop across them but I have measured
> > SG current several times on various Hybrids and get around 21ma at 100
> > watts out and approx 225ma Ip. If we assume that SG current in Tune
> > mode would be proportional them maybe seeing 4th of that or approx
> > 5ma. So if we assume 125 volts drop @ 5ma then power = 125 x .005 =
> > .63 watts. A 1/2 watt resistor should be able to withstand .6 watts

> > forever. If we had 7ma screen grid current in Tune it would be approx
> > .875 watts. Also the duty cycle is pretty low just the time it takes
> > to peak the Drive and make that initial Ip dip. Seems like a 1/2 watt
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> > I once read on Tom Rauch W8JI site that carbon composition resistors
> > should not be used in power supply voltage divider circuits as they
> > have two failure modes. 1. They are susceptable to moisture in the air
> > and the moisture causes the lead to corrode where it is embedded in
> > the carbon and forms very high resistance contact point or an open.
> > AND 2. With elevated temperatures carbon composition resistors age
> > down in value and in divider circuits this means more current flow and
> > get hotter and age down in value more and get hotter and age down in
> > resistance more and so on until low resistance value and higher
> > bleeder current causes it to eventually short and maybe burn.
> >
> > I dont know if any of this is documented by the resistor manufacturer
> > app notes or not. I just know I find the Cathode meter shunt resistors
> > more commonly are high in value and have not aged down in value.
> >
> > So short answer is I dont know why this happens to the screen voltage
> > divider resistors, but as you say pretty common failure.
> >
> > 73s Terry K9TW
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "n6wk_skcc3" <n6wk@>
> > wrote:
> > >
> > > I thought it was a joke.. just wasn't 100% sure.. LOL
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> > > I wonder what makes those 56K resistor go open? It's a fairly common
> > problem.
> > > >
> > > > 73,
> > > > Gordon
> > > > N6WK
> > > >
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> > <wagstw46@> wrote:
> > > > >
> > > > > OK I cant stand it any more. IT WAS A JOKE! Apparently not a very
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> > soon for me.
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> > > > > Gordon 2.......Terry 0
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> > > >
> > > > Terry K9TW
> > > >
> > > >
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> > > > > >
> > > > > > Terry does the all the heavy lifting. Sitting here with bloody
> > finger tips. Gordon sneaks up from behind, kicks sand in my eyes,
> > crosses the finish line first, and then takes the trophy.
> > > > >
> > > >
> > >
> > >
>
>
>
> [Non-text portions of this message have been removed]
>

44308. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 03:20:41 UTC
From: Terry Wagoner
Topic: 44300 Message: 44308

Charlie:

Is the rig new to you? If so, no problem wanting to ensure it is at peak RX and TX performance. No way to tell how many tweakers have been under the hood and no point of reference unless have same or similar rig to do AB testing. Kenwood provided Sect 6 in the instruction manual for the owner/operator. Takes no technician knowledge and minimal rf service bench test gear.

To Mikes point one way to check where the RX performance is at is to use the Marker and see what S-meter indication you get on each band. This is a rough test and in part you do not know how well the S-meter has been caled. Normally a 50uv or -73dBM signal at 14.2 mhz is injected and span pot is adjusted to S9. Some people just crank the pot up because they like to see and give nice reports. About the highest it can be set is something under 10 over.

Anyway did you check Marker S-meter indication on each band before embarking on coil pack alignment? If rig is aligned well and you have spec dc voltages to the gain devices and spec AGC bus voltage to gain controlled stages then should see on order of S8 to S9 on all bands with perhaps exception of 10 meters which may be around S6 to S7. If you had these levels then probably wont see much RX performance improvement by running Sect 6. If much lower than this then probably can do some good with a coil pack alignment.

Also does the peak S-meter indication occur at same position of Drive control (1200) as it does when adjusting TX drive ALC indication? This is good indication Drive coils have been pretty well peaked. If not then another reason to do complete Sect 6.

I would start with making sure 9vdc regulated is spot on and RF-1 is set to 3.3vdc.

I would not stop at coil pack alignment. Continue on to the Noise blanker and the select IF transformers and do not touch the ones they note as those require a good signal generator and sweep gen for proper alignment.

In fact at this point I would just do as much of Sect 6 that you can do. It is not uncommon for carrier balance and carrier null/suppression to have drifted off over time. Performing a good Section 6 alignment can put the RX and TX pretty close to factory performance.

As to you not seeing any change in S-meter on 1.8mhz couple of things.
1. Are you 100% certain you are adjusting 1.8mhz Ant and Mixer coils? Easy to get on the wrong coils.

2. If slug was just spinning you would not see it moving up and down in the cardboard former. Make sure you turn it full travel as sometimes folks really crank them to one extreme or other.

I do not have a TS-520S here or I would give you some rough dimensions of the 1.8 mhz core position in the former.

3. If you cannot get any change on 1.8 mhz just go ahead and move on to 10 meters and make sure you follow the remaining band sequence.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
>
>
>
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "w5rkl" <w5rkl@> wrote:
> >
> > I forgot to ask.
> >
> > What symptoms have occurred that tells you your TS-520SE needs an alignment?
> >
>
> There were no symptoms, Mike. The rig was performing just fine. I just had my first opportunity to open the case and wanted to take this opportunity to perform an alignment to ensure everything was as it should be. I'm so fond of this radio that I'm selling my TS-940 and, while I was replacing the 940 with the 520, decided to open her and look around to become more familiar with the actual location of the boards, etc. A manual is one thing but there's no substitute for "hands on" experience for me.
> The "CAL" remark was a poor choice on my part. I should have stated "CAL-25kHz" just like in the manual.
> The only solution that comes to mind is that the slugs are broken and just spinning in place. Perhaps the previous owner got too heavy-handed?
> I'm a firm believer in "Rule #1, when you find yourself in a hole quit digging." That's why I threw this question out to the group. I was hoping that I simply overlooked something obvious.
> Did I?
>
> 73
> Charlie
> KB3BTO
>

44309. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 12:14:36 UTC
From: Terry Wagoner
Topic: 44300 Message: 44309

Charlie;

One more comment to Mikes point about if not broke dont fix it.

You have to be very careful doing any preventive maintenance on these old rigs. It is pretty easy to induce new failures in them. Sometimes these failures can be immediate such as holding molex connector bodies in your hand that you just pulled off the board or cracking a slug tuned core or twisting the former off its mounts and sometimes can be a latent failure that manifest itself later as an intermittent problem. These are old phenolic boards with plating that doesnt meet todays PC board quality standards.

The radio is of course yours and free to do what you want but if you have never done a coil pack alignment there are some things you should be aware of before proceeding. A good visual is important under good lite. If you see cracked cores or formers twisted and cocked on the boards you need to stop and talk about how to address these conditions. To proceed can result in having a radio that now does not work. Also can help yourself by doing some pre-lube on the cores prior to attempting to turn them. Of course need the proper alignment tool.

Terry K9TW

> Charlie:
>
> Is the rig new to you? If so, no problem wanting to ensure it is at peak RX and TX performance. No way to tell how many tweakers have been under the hood and no point of reference unless have same or similar rig to do AB testing.

44310. Looking for a Kenwood BS-8 panadaptor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 12:09:00 UTC
From: ec4ach
Topic: 44310 Message: 44310

Hi all,

I am looking for a BS-8 panadaptor unit to install into the SM-220 that I located here in Spain, because it doesn't equipped with this unit.

I would like to know also the opinion of the members of the Group that have installed this optional unit into your SM-220 and it's useful or only is a "toy".

Many thanks in advance for everything.

Best 73 de David, EC4ACH.

44311. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 14:15:38 UTC
From: Charlie
Topic: 44300 Message: 44311

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Charlie:
>
> Is the rig new to you? If so, no problem wanting to ensure it is at peak RX and TX performance. No way to tell how many tweakers have been under the hood and no point of reference unless have same or similar rig to do AB testing. Kenwood provided Sect 6 in the instruction manual for the owner/operator. Takes no technician knowledge and minimal rf service bench test gear.

Terry, this has been my backup rig for the past 4 years but is now being promoted to #1, hence my desire to ensure that it's ready and operating as designed
I was following the order of tasks outlined in Section 6 of the instruction manual and, since the S-meter appeared to function adequately, haven't checked it for adjustment but will do so.
I will also follow up on your other suggestions and respond with my results.
I have been able to determine that the coil slugs in question have full range of travel but plan on lubrication of all slugs to prevent any damage.
I also checked the S-meter for movement again while I moved both slugs full range and there was no change on the meter and I have double-checked that I'm adjusting the correct coils.
According to my understanding of coil diagram 6-10, the antenna and mixer coils are the middle 2 coils directly behind the 1.8 MHz oscillator coil. Hopefully, I'm not wrong.
I'm going to lubricate the coils now, wait 24 hours, and get after it again.

73
Charlie
KB3BTO

44312. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 14:29:33 UTC
From: Charlie
Topic: 44300 Message: 44312

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Charlie;
>
> One more comment to Mikes point about if not broke dont fix it.
>
Yes, I understand and fully agree. It was not my intent to fix anything but merely to make an adjustment.
I did observe that the antenna coil was slanted in toward the board but it didn't look otherwise damaged and a continuity check of the contacts on the PC board for this coil verified that there was no open.
Oh, I am using the proper alignment tool but it never hurts to ask.
As far as test equipment goes I have 100 MHz scope, VTVM, DMM, RF probe, and an old Heathkit and Eico signal generator. Sadly, my URM-25E fails to generate a signal at the required 50uV so its on the "disabled list" until I can get to it, whenever that will be.
Thanks again, Terry. I hope to have an update in a day or two.

73
Charlie
KB3BTO

44313. Re: [TS-520_820_530_830] Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 15:10:31 UTC
From: Don Allen
Topic: 44300 Message: 44313

Charlie,

I have a URM-25D that I like very well, and it still works like a charm. It was a fully reconditioned unit that I bought 20+ years ago from Fair Radio Sales.

One additional piece of test gear that I recently added to the line-up here is an Elecraft XG-3 programmable RF signal source. One of the preset levels is -73dBm, or 50uV. Great product...

http://www.elecraft.com/XG3/xg3.htm

73
Don W9CW

On 8/27/2013 9:29 AM, Charlie wrote:
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> <wagstw46@...> wrote:
> >
> > Charlie;
> >
> > One more comment to Mikes point about if not broke dont fix it.
>

> >
> Yes, I understand and fully agree. It was not my intent to fix
> anything but merely to make an adjustment.
> I did observe that the antenna coil was slanted in toward the board
> but it didn't look otherwise damaged and a continuity check of the
> contacts on the PC board for this coil verified that there was no open.
> Oh, I am using the proper alignment tool but it never hurts to ask.
> As far as test equipment goes I have 100 MHz scope, VTVM, DMM, RF
> probe, and an old Heathkit and Eico signal generator. Sadly, my
> URM-25E fails to generate a signal at the required 50uV so its on the
> "disabled list" until I can get to it, whenever that will be.
> Thanks again, Terry. I hope to have an update in a day or two.
>
> 73
> Charlie
> KB3BTO
>

>

[Non-text portions of this message have been removed]

44314. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 15:27:57 UTC
From: Terry Wagoner
Topic: 44300 Message: 44314

OK Charlie.

I used a URM-25 in the distant past and it is a good sig gen and more than adequate for your hybrid work. It will pay to fix it and hope it is something simple. Thanks for the update. It helps us know who we are dealing with. Never any intent to question anyones knowledge or ability just need some point of reference.

No need to worry about S-meter cal absent your URM-25. Can zero and when complete with the coil pack alignment just set span trimmer for S9 indication at 14.2mhz and call it good as really only need to use S-meter for providing comparison type reports to the other station for things like when they ask about performance of one antenna to the other or front to back on beams etc. Once you get known 50uv test signal can go back and set the span trimmer.

It is easy to get turned around on the Ant coils as they dont line up with the Het Osc coil markings on the drawing shown toward the front panel. 1.8mhz Ant and Mixer coils are in line with the 28 mhz label toward the front panel and are the coils closer to the band switch shaft and not the outside edge of the rig. Sometimes people see that 1.8mhz label for the Het Osc and think that the entire row is for 1.8Mhz.

They want you to do 1.8 first as it serves as the step up transformer for all the bands except the 15mhz WWV. It is L1 on the schematic. If it were bad you would have very weak or no receive.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Charlie;
> >
> > One more comment to Mikes point about if not broke dont fix it.
> >
> Yes, I understand and fully agree. It was not my intent to fix anything but merely to make an adjustment.
> I did observe that the antenna coil was slanted in toward the board but it didn't look otherwise damaged and a continuity check of the contacts on the PC board for this coil verified that there was no open.
> Oh, I am using the proper alignment tool but it never hurts to ask.
> As far as test equipment goes I have 100 MHz scope, VTVM, DMM, RF probe, and an old Heathkit and Eico signal generator. Sadly, my URM-25E fails to generate a signal at the

required 50uV so its on the "disabled list" until I can get to it, whenever that will be.
> Thanks again, Terry. I hope to have an update in a day or two.
>
> 73
> Charlie
> KB3BTO
>

44315. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 15:30:31 UTC
From: Terry Wagoner
Topic: 44300 Message: 44315

Don:
I carried my XG-3 and short bnc jumper and some adapters in my back pack and it sure came in handy to test potential purchases. Generated a lot of questions from sellers.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Don Allen <w9cw@...> wrote:
>
> Charlie,
>
> I have a URM-25D that I like very well, and it still works like a
> charm. It was a fully reconditioned unit that I bought 20+ years ago
> from Fair Radio Sales.
>
> One additional piece of test gear that I recently added to the line-up
> here is an Elecraft XG-3 programmable RF signal source. One of the
> preset levels is -73dBm, or 50uV. Great product...
>
> http://www.elecraft.com/XG3/xg3.htm
>
> 73
> Don W9CW
>
> On 8/27/2013 9:29 AM, Charlie wrote:
> >
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> > <wagstw46@> wrote:
> > >
> > > Charlie;
> > >
> > > One more comment to Mikes point about if not broke dont fix it.
> > >
> >
> >
> > >
> > Yes, I understand and fully agree. It was not my intent to fix
> > anything but merely to make an adjustment.
> > I did observe that the antenna coil was slanted in toward the board
> > but it didn't look otherwise damaged and a continuity check of the
> > contacts on the PC board for this coil verified that there was no open.
> > Oh, I am using the proper alignment tool but it never hurts to ask.
> > As far as test equipment goes I have 100 MHz scope, VTVM, DMM, RF

> > probe, and an old Heathkit and Eico signal generator. Sadly, my
> > URM-25E fails to generate a signal at the required 50uV so its on the
> > "disabled list" until I can get to it, whenever that will be.
> > Thanks again, Terry. I hope to have an update in a day or two.
> >
> > 73
> > Charlie
> > KB3BTO
> >
> >
>
>
>
> [Non-text portions of this message have been removed]
>

44316. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 16:28:22 UTC
From: Charlie
Topic: 44300 Message: 44316

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> OK Charlie.
>

>
> It is easy to get turned around on the Ant coils as they dont line up with the Het Osc coil markings on the drawing shown toward the front panel. 1.8mhz Ant and Mixer coils are in line with the 28 mhz label toward the front panel and are the coils closer to the band switch shaft and not the outside edge of the rig. Sometimes people see that 1.8mhz label for the Het Osc and think that the entire row is for 1.8Mhz.

Terry, it looks like my "gift" of missing the obvious has struck again. I'M ON THE WRONG END OF THE COIL PACK!
After I lubricated the slugs, I came back into the shack a while later to flip the rig so that the lubricant would spread more evenly. I picked up the bottom of the case to put it in a safer place and took one look at the diagram pasted to the bottom and immediately realized my mistake. It's like you wrote,"Sometimes people see..." Man, oh man, is my face red!
Life is certainly a humbling experience at times, and this counts as one of those times. I'll let you know how I make out after I DO IT THE RIGHT WAY.
Thanks again, Terry and Mike.

73
Charlie
KB3BTO

44317. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 16:37:45 UTC
From: Charlie
Topic: 44300 Message: 44317

--- In TS-520_820_530_830@yahoogroups.com, Don Allen <w9cw@...> wrote:
>
> Charlie,
>
> I have a URM-25D that I like very well, and it still works like a
> charm. It was a fully reconditioned unit that I bought 20+ years ago
> from Fair Radio Sales.
>
> One additional piece of test gear that I recently added to the line-up
> here is an Elecraft XG-3 programmable RF signal source. One of the
> preset levels is -73dBm, or 50uV. Great product...
>
> http://www.elecraft.com/XG3/xg3.htm
>
> 73
> Don W9CW
>
Thanks, Don. I'll check it out. My URM has to be cranked up to near maximum to put out a readable wave form. I re-capped much of it this past winter but spring came and chores around the house took priority, as they do every year.
I'll attempt to work on it this winter but I have other projects backed up so the URM will have to wait its turn.
I read where someone called working on the URM "tedious." To me, that was an understatement. Man, are those components packed in there, like sardines in a can or worse.
Happy hamming to you, Don.

73
Charlie
KB3BTO

44318. Re: [TS-520_820_530_830] Looking for a Kenwood BS-8 panadaptor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 17:51:20 UTC
From: <pmarkavage@...>
Topic: 44310 Message: 44318

If you can find a BS-8 cheap, get it, because it just adds eye candy to your SM-220 but I wouldn't spend big money for one today. It's just not that good as a panadapter. I've had my SM-220 for over 30 years and for the last 25 years only used it to monitor my transmitted signal.

Pete, wa2cwa
http://www.manualman.com

On Tue, 27 Aug 2013 12:09:00 -0000 "ec4ach" <boalflor@...> writes:
> Hi all,
>
> I am looking for a BS-8 panadaptor unit to install into the SM-220
> that I located here in Spain, because it doesn't equipped with this
> unit.
>
> I would like to know also the opinion of the members of the Group
> that have installed this optional unit into your SM-220 and it's
> useful or only is a "toy".
>
> Many thanks in advance for everything.
>
> Best 73 de David, EC4ACH.

44319. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 19:47:35 UTC
From: Terry Wagoner
Topic: 44300 Message: 44319

Charlie:

Sometimes these manuals are just not very well human factored. You wont be the last to make this mistake. No harm done as you will have to adjust the slug you was trying to tune eventually in the sequence.

Yes we would like to hear how it goes.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > OK Charlie.
> >
>
> >
> > It is easy to get turned around on the Ant coils as they dont line up with the Het Osc coil markings on the drawing shown toward the front panel. 1.8mhz Ant and Mixer coils are in line with the 28 mhz label toward the front panel and are the coils closer to the band switch shaft and not the outside edge of the rig. Sometimes people see that 1.8mhz label for the Het Osc and think that the entire row is for 1.8Mhz.
>
>
> Terry, it looks like my "gift" of missing the obvious has struck again. I'M ON THE WRONG END OF THE COIL PACK!
> After I lubricated the slugs, I came back into the shack a while later to flip the rig so that the lubricant would spread more evenly. I picked up the bottom of the case to put it in a safer place and took one look at the diagram pasted to the bottom and immediately realized my mistake. It's like you wrote,"Sometimes people see..." Man, oh man, is my face red!
> Life is certainly a humbling experience at times, and this counts as one of those times.
> I'll let you know how I make out after I DO IT THE RIGHT WAY.
> Thanks again, Terry and Mike.
>
> 73
> Charlie
> KB3BTO
>

44320. Re: Looking for a Kenwood BS-8 panadaptor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 20:00:30 UTC
From: Terry Wagoner
Topic: 44310 Message: 44320

I agree with Pete. Before you go this route take a look at the L-pan model on their website. The new IQ/SDR panadapters are getting to be very popular. Much better performer than the Kenwoods. Can read reviews on Eham and see some demos on You Tube. Suggest also look at Jan N8CBX QRZ page and email him. He has SDR panadapter mated with his TS-820. I think if I was to buy today I would get the L-pan unit.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> If you can find a BS-8 cheap, get it, because it just adds eye candy to
> your SM-220 but I wouldn't spend big money for one today. It's just not
> that good as a panadapter. I've had my SM-220 for over 30 years and for
> the last 25 years only used it to monitor my transmitted signal.
>
> Pete, wa2cwa
> http://www.manualman.com
>
>
> On Tue, 27 Aug 2013 12:09:00 -0000 "ec4ach" <boalflor@...> writes:
> > Hi all,
> >
> > I am looking for a BS-8 panadaptor unit to install into the SM-220
> > that I located here in Spain, because it doesn't equipped with this
> > unit.
> >
> > I would like to know also the opinion of the members of the Group
> > that have installed this optional unit into your SM-220 and it's
> > useful or only is a "toy".
> >
> > Many thanks in advance for everything.
> >
> > Best 73 de David, EC4ACH.
>

44321. Re: Anyone going to the Shelby Hamfest?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 19:38:04 UTC
From: Ramius
Topic: 44297 Message: 44321

I'm planning on going Saturday, perhaps someone in the group could pick out a freq for us to talk on for meeting up, etc.

I'm KK4MSC, btw. I'll be riding with WA4PBA, who is not a member of this group.

Be happy to meet up with anyone in the group who wants to get together.

R.

--- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@...> wrote:
>
> I'm looking forward to my first Shelby Hamfest. Is anybody else going to try to make it? It'd be nice to put faces to names that I see here if you're heading that way.
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>

44322. Re: TS830S, no plate current in TUNE mode - promising solution

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 21:44:43 UTC
From: David L
Topic: 44244 Message: 44322

The fix is in place. R15 was the culprit. If it ever fails again I'll switch to a different type resistor.

--- In TS-520_820_530_830@yahoogroups.com, "David L" <dlacroix@...> wrote:
>
> Many thx for the info Gordon. I checked R15 as you suggested. It looked totally normal. Then I tested it with ohmmeter in circuit and it seemed a little squirrelly. So I powered up and checked voltages. SG2 on one side of R15 had plenty of voltage. The other side of R15 was zero volts. So I pulled R15 out of the board and sure enough it's open. I'm short on resistors and went to the local radio shack..No luck. Will have to wait until Monday to get that 56K resistor and will update then.
>
> --- In TS-520_820_530_830@yahoogroups.com, n6wk@ wrote:
> >
> > Most likely R15 (56K) on the rectifier Board is open which will stop you
> > from getting IP in Tune Position.
> >
> > 73,
> > Gordon
> >
> > On 8/24/2013 7:00 AM, David L wrote:
> > >
> > >
> > > Thanks for the info Terry, I think we're onto something.
> > > I set the CAR control about 2/3 up and keyed in CW mode. Now I can dip
> > > the plate and get about 300ma Ip and 100 watts output. That makes me
> > > feel a LOT better. So why can't I get Ip in TUNE mode?
> > >
> > > BTW, the fan is a bit sluggish, I think I'll pop it out and lube it,
> > > and I want to put a 3-wire power cord on it. Any problems with doing
> > > that in your mind?
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Terry Wagoner"
> > > <wagstw46@> wrote:
> > > >
> > > > Lots of good intentions here. Daves advice to go back to basics is
> > > good. Lets look at what we believe we know.
> > > >
> > > > The fact that you can adjust resting plate current to 60ma tells you:
> > > > 1. Filaments are lit.
> > > >
> > > > 2. Cathode resistors are not open and you have emission from finals.
> > > >
> > > > 3. Screen grid switch is in On position and working. Working means

> > > it has transitioned from -100vdc to + 260vdc or so. Fellows please if
> > > SG switch wasnt on and working he would have no resting plate current
> > > as the tubes are cut off by high negative voltage applied to the
> > > screen grids. This is done so you can "cold" neutralize the finals.
> > > Sometimes when switch is turned to on it does not make the needed
> > > transition so you need to exercise the switch. In this case switch has
> > > to have good contact as he has 60ma resting plate current.
> > > >
> > > > 4. Ip meter switch contacts are good.
> > > >
> > > > 5. If you get full scale deflection in the ALC box in Tune at 0900
> > > Car Level this means you have good Driver tube,rf drive level at 6146
> > > control grid is exceeding the dc bias offset voltage, ALC amp circuit
> > > is working, ALC bus voltage is being lowered, meter circuit sees it
> > > and drive meter up scale.
> > > >
> > > > By the way no reason to keep the indication in the ALC box. ALC
> > > black box has no meaning while loading the rig. Bring CAR level pot up
> > > to give yourself a decent indication where you can see the peak. 2/3
> > > scale is a good spot. You are tuning the TX Mixer and Driver Tube tank
> > > circuits to resonance (max rf voltage) and not setting a grid current
> > > level. This is a Class AB1 linear not a Class C amplifier. The moment
> > > there is a hint of grid current the ALC reduces the TIF amp signal to
> > > the TX Mixer. Max grid current is around 40ua. You cannot hurt the
> > > 6146 final grids contrary to what some people believe and teach.
> > > >
> > > > 6. Having 900vdc on panel meter tells you the HV rectifier and caps
> > > are good and HV meter string is good. Does not tell you that you have
> > > 900vdc at anodes of the 6146 final tubes. Most likely you do as Plate
> > > choke should not have failed while sitting in storage.
> > > >
> > > > 7. What happens if you try to make your initial plate current dip in
> > > CW mode and not Tune? Pre-position the Plate Tuning cap on the white
> > > arc for band you are loading in, meter in Ip position, place hand on
> > > Plate Tune control, Flip to send and be prepared to quickly adjust for
> > > plate current dip. Do not allow current to peg FSD for more than
> > > second or so.
> > > >
> > > > Report back this result.
> > > >
> > > > Terry K9TW
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>, Dave LaCroix
> > > <dlacroix@> wrote:
> > > > >
> > > > > My 830's been on the shelf for 15 years and I fired it up today to
> > > check it out. Here's as far as I got:
> > > > > * Verified bias is 60ma
> > > > > * Tuned for ALC, LOAD full CCW, CAR has to be set at 9 oclock to

> > > stay in the ALC range
> > > > > * Tuned to dip plate current, meter reads zero all the time.
> > > > > * SG switch in back is ON.
> > > > >
> > > > > Any thoughts on how to bring her back to life?
> > > > >
> > > > > [Non-text portions of this message have been removed]
> > > > >
> > > >
> > >
> > >
> >
> > --
> >
> >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
>

44323. Re: Looking for a Kenwood BS-8 panadaptor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-27 21:02:50 UTC
From: ec4ach
Topic: 44310 Message: 44323

Many thanks for your opinions about BS-8 unit.

I understand that is difficult to obtain one of this units in these days, but there is no problem. I supposed also that not was very usefull, only a "decorative" accesory for the SM-220.

I will take a look at the video that Terry mentioned in your message.

Again, many thanks for all.

Best for everyone.

David, EC4ACH.

--- In TS-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> If you can find a BS-8 cheap, get it, because it just adds eye candy to
> your SM-220 but I wouldn't spend big money for one today. It's just not
> that good as a panadapter. I've had my SM-220 for over 30 years and for
> the last 25 years only used it to monitor my transmitted signal.
>
> Pete, wa2cwa
> http://www.manualman.com
>
>
> On Tue, 27 Aug 2013 12:09:00 -0000 "ec4ach" <boalflor@...> writes:
> > Hi all,
> >
> > I am looking for a BS-8 panadaptor unit to install into the SM-220
> > that I located here in Spain, because it doesn't equipped with this
> > unit.
> >
> > I would like to know also the opinion of the members of the Group
> > that have installed this optional unit into your SM-220 and it's
> > useful or only is a "toy".
> >
> > Many thanks in advance for everything.
> >
> > Best 73 de David, EC4ACH.
>

44324. RE: [TS-520_820_530_830] Looking for a Kenwood BS-8 panadaptor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 08:14:13 UTC
From: fpath fpath
Topic: 44310 Message: 44324

David,

I have several of the SM220's and only one with BS8, if it had good sensitivity would be great. I look at it as something just to say I have a complete station. go with the recommendations of the others and get a good add-on panoramic display

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: boalflor@...
Date: Tue, 27 Aug 2013 12:09:00 +0000
Subject: [TS-520_820_530_830] Looking for a Kenwood BS-8 panadaptor.

Hi all,

I am looking for a BS-8 panadaptor unit to install into the SM-220 that I located here in Spain, because it doesn't equipped with this unit.

I would like to know also the opinion of the members of the Group that have installed this optional unit into your SM-220 and it's useful or only is a "toy".

Many thanks in advance for everything.

Best 73 de David, EC4ACH.

[Non-text portions of this message have been removed]

44325. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 12:54:07 UTC
From: Charlie
Topic: 44300 Message: 44325

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Charlie:
>
> Sometimes these manuals are just not very well human factored. You wont be the last to make this mistake. No harm done as you will have to adjust the slug you was trying to tune eventually in the sequence.
>
> Yes we would like to hear how it goes.
>
> Terry K9TW
>
I totally agree. Since this is the Instruction Manual and not the Service Manual it would be more constructive to include more basic directions for the novice technician. Well, after all, this is technical hobby and it does require a larger measure of mental effort than most hobbies around these days. I'm not lazy and I'm not stupid and I do love to learn so this hobby is most rewarding to me.
Hopefully, some other "gifted" individual will read this message and not make the same mistake as I did.
I'll respond with my post-alignment comments as soon as I finish the task. It should be today, sometime, I hope.

73
Charlie
KB3BTO

44326. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 13:48:22 UTC
From: Terry Wagoner
Topic: 44300 Message: 44326

Charlie:

There was no inference that you were stupid at all?

I was trying to say that the Kenwood documentation could be better and often contributes to confusion and mistakes. By human factoring I am saying there is a art and science to writing good instructions to make them user friendly and reduce the chance of human error. I always like it when a caution statement or note comes after the step!

Sometimes working from reproduction copies complicates things too especially looking at diagrams and photos/images that are dark or blurred.

I am delighted that you recognize that maintaining your own Kenwood hybrid takes a modicum of knowledge and experience and the desire to learn.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
>
>
>
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Charlie:
> >
> > Sometimes these manuals are just not very well human factored. You wont be the last to make this mistake. No harm done as you will have to adjust the slug you was trying to tune eventually in the sequence.
> >
> > Yes we would like to hear how it goes.
> >
> > Terry K9TW
> >
> I totally agree. Since this is the Instruction Manual and not the Service Manual it would be more constructive to include more basic directions for the novice technician. Well, after all, this is technical hobby and it does require a larger measure of mental effort than most hobbies around these days. I'm not lazy and I'm not stupid and I do love to learn so this hobby is most rewarding to me.
> Hopefully, some other "gifted" individual will read this message and not make the same mistake as I did.
> I'll respond with my post-alignment comments as soon as I finish the task. It should be

today, sometime, I hope.
>
> 73
> Charlie
> KB3BTO
>

44327. Re: Anyone going to the Shelby Hamfest?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 14:01:47 UTC
From: Barry
Topic: 44297 Message: 44327

That would be great. I'll take the HT with me while I'm walking around.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, "Ramius" <ramiusu96@...> wrote:
>
>
> I'm planning on going Saturday, perhaps someone in the group could pick out a freq for us to talk on for meeting up, etc.
>
> I'm KK4MSC, btw. I'll be riding with WA4PBA, who is not a member of this group.
>
> Be happy to meet up with anyone in the group who wants to get together.
>
> R.

44328. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 14:24:09 UTC
From: Charlie
Topic: 44300 Message: 44328

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Charlie:
>
> There was no inference that you were stupid at all?

Terry, honestly, I didn't take it that way. That's just a modified saying that I often use. The actual version is, "I not lazy, I'm not stupid, and I'm not afraid to take a chance." I just tweaked it a little to suit this particular little adventure.
Here's my update: The alignment procedure works and the rig had drifted a little so an update was warranted; however, the 14MHz coils were not cooperating and I broke off the tip (2 actually) of the adjustment tool trying to coax movement from the coil slug. I'll order more tools, several, try a little more lubricant and move on down the line and do want I can before I finish the alignment. I think that oiling of the fan comes next and then maybe some Deoxit in the pots and on the switches while I wait for my new batch of alignment tools.
Thanks again for your help, Terry.
Until next time...

73
Charlie
KB3BTO

44329. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 16:40:44 UTC
From: Terry Wagoner
Topic: 44300 Message: 44329

Ok I miss read what you were saying.

Better to break off a tip of plastic alignment tool than to crack the core or rip it off its mounts. You can try heating core with tip of a soldering iron with small tip. If you are breaking off alignment tools then the core sounds like it is frozen to me.

This is the sort of thing Mike was cautioning about with these old rigs. Need to be aware there is potential to induce new faults. Hopefully a little prep can prevent this. I have had success applying small drop of WD-40 at top edge of cores with a tooth pick so it runs down around the circumference between core and former.

I am not sure what you mean by rig drifted some? If you are talking about frequency drift you are not affecting that with coil pack alignment. That is typically due to 9VDC regulator problem or a problem on the VFO board. There is a warm up drift spec and a post warm up drift spec in your manual. Should be able to meet and exceed those specs. If frequency is jumping as you turn the VFO or has dead spots then the VFO air variable capacitor rotor shaft wiper contact is likely dirty and will need good cleaning.

Make sure you set the Het Osc coils on the slow side of the response curve slope. If you are doing this by ear or with RF probe/VTVM if you set RF voltage peak approaching from the fast side of the response curve the oscillator may not start each time you switch to that band.

Lastly it is not likely that you cant simply try to get oil into the lube holes unless you have some form of hypodermic oiler. I like to remove fan rotor so can get good access to the bushing holders. These have felt wicks in them that are typically all dried out. The small screws that hold the motor and fan together and the fan blade on the shaft have thread sealant on them. I heat the screws with soldering iron and they usually turn easily then. Just make sure you get orientation correct on re-assembly so the lube holes point up. With bushing holders laying flat can now give them a good soak to wick up the oil. After reassembly I let fan sit on paper towel to catch any excess oil. Once you do this method you should be able to get some oil in the small lube holes if you lube the fan once a year. If the felts are ever allowed to dry out then may have to disassemble and re-saturate.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Charlie" <cshaw@...> wrote:
>
>
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Charlie:
> >

> > There was no inference that you were stupid at all?
>
> Terry, honestly, I didn't take it that way. That's just a modified saying that I often use. The actual version is, "I not lazy, I'm not stupid, and I'm not afraid to take a chance." I just tweaked it a little to suit this particular little adventure.
> Here's my update: The alignment procedure works and the rig had drifted a little so an update was warranted; however, the 14MHz coils were not cooperating and I broke off the tip (2 actually) of the adjustment tool trying to coax movement from the coil slug. I'll order more tools, several, try a little more lubricant and move on down the line and do want I can before I finish the alignment. I think that oiling of the fan comes next and then maybe some Deoxit in the pots and on the switches while I wait for my new batch of alignment tools.
> Thanks again for your help, Terry.
> Until next time...
>
> 73
> Charlie
> KB3BTO
>

44330. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 17:58:56 UTC
From: Charlie
Topic: 44300 Message: 44330

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>

>
> Better to break off a tip of plastic alignment tool than to crack the core or rip it off its mounts. You can try heating core with tip of a soldering iron with small tip. If you are breaking off alignment tools then the core sounds like it is frozen to me.

That's an interesting tip, Terry. I might try that or I might just let the slugs remain as they were. I don't want to create a problem for myself. "If it ain't broke..." right? I generally work 20 meters and she was purring along nicely without my fumbling around.
By, "drift," I meant that turning the first few cores that I turned resulted in an increase in the S-meter reading and that probably age has taken it's toll on the previous alignment and she "drifted" a little. Obtaining maximum reading is the desired result per the manual, so this is progress.
Also, thanks for the tip about the fan. I do have a clock oiler that use for these sort of things. The long needle-like probe that distributes the oil is just wonderful in those hard to get places. Perhaps it will work in this case? We shall see.
One last goodie. I recently purchase a TS-520S "parts only" bench queen so that I can obtain parts, such as coil slugs, when and if the need arises. Something tells me that was a wise move on my part. The bench queen arrived with a 20 amp fuse installed where the 2 amp fuse should be and it would appear, due to the melted insulation on numerous wires, that this same technician (?) used a super-heated piece of rebar to remove some components from the RF Unit board. It's quite a sight under the hood.
As always, thank you, Terry.

73
Charlie
KB3BTO

44331. help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-28 10:10:58 UTC
From: vierugo
Topic: 44331 Message: 44331

Hi to all
During calibration bpf-a for ts-830 , step 10, page 35, service manual,
i was taken off the sweep generator from the one who had lent me;
(he informed me that he sold it for discontinued business !)

at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
can anyone suggest a procedure to try to end the calibration with alternative method ?

now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
(i not attempted for others bands)
the components touched are T13,T14,T15

Ugo

44332. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 00:21:29 UTC
From: Terry Wagoner
Topic: 44331 Message: 44332

Ugo:

I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.

However, that being said. You can do the old fashioned method using a regular RF sig gen and a RV millivolt meter or O-scope and inject 50khz to 100 khz steps at VFO signal input on PLL board and then measure the RF voltage levels at the Emitter of buffer amp Q35. You make yourself a table of frequency vs rf output voltage and then plot the points on a graph paper. Before I got a good Sweep gen I use to plot the points using Excel. When you get close to Fc (5.750mhz) best to use smaller frequency steps and take more points. This method has been used for many years by hams to sweep all kinds of filters and you will get a nice graph of the frequency response curve as you have left the filter adjustments.

I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.

For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.

Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.

So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.

You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.

You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.

Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.

I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "vierugo" <vierugo@...> wrote:
>
> Hi to all
> During calibration bpf-a for ts-830 , step 10, page 35, service manual,
> i was taken off the sweep generator from the one who had lent me;
> (he informed me that he sold it for discontinued business !)
>
> at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
> can anyone suggest a procedure to try to end the calibration with alternative method ?
>
> now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
> (i not attempted for others bands)
> the components touched are T13,T14,T15
>
> Ugo
>

44333. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 11:23:39 UTC
From: Terry Wagoner
Topic: 44331 Message: 44333

I forgot to ask before you attempted sweeping the PLL BPFs was your digital display accurate?

Have you checked the accuracy of the PLL 10mhz clock? If not go to TP-2 and connect your Freq Counter (assumes calibrated freq counter) and measure and if off adjust using trimmer cap TC-1.

Also go to CON output and measure 0.5-1.0mhz out as you vary the VFO thru range.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Ugo:
>
> I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.
>
> However, that being said. You can do the old fashioned method using a regular RF sig gen and a RV millivolt meter or O-scope and inject 50khz to 100 khz steps at VFO signal input on PLL board and then measure the RF voltage levels at the Emitter of buffer amp Q35. You make yourself a table of frequency vs rf output voltage and then plot the points on a graph paper. Before I got a good Sweep gen I use to plot the points using Excel. When you get close to Fc (5.750mhz) best to use smaller frequency steps and take more points. This method has been used for many years by hams to sweep all kinds of filters and you will get a nice graph of the frequency response curve as you have left the filter adjustments.
>
> I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.
>
> For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
>
> Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.
>
> So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.
>
> You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure

you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
>
> You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.
>
> Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
>
> I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "vierugo" <vierugo@> wrote:
> >
> > Hi to all
> > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
> > i was taken off the sweep generator from the one who had lent me;
> > (he informed me that he sold it for discontinued business !)
> >
> > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
> > can anyone suggest a procedure to try to end the calibration with alternative method ?
> >
> > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
> > (i not attempted for others bands)
> > the components touched are T13,T14,T15
> >
> > Ugo
> >
>

44334. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 08:35:56 UTC
From: vierugo
Topic: 44331 Message: 44334

Hi Terry
thank you for response and alternative method !

I apologize if i have not seen an answer exists that could help me but I have some problem with English (as you can see from the way I write) and did not know how formulate the question in the search;

Your answer and the method that at this point becomes the only solution possible for my situation;

This night I had temporarily resolved the problem by going in different bands, and varying slightly t14 t13 t15 I did reappear in the display pointing to the frequency limits min and max of each band: Of course not 'a solution but at least I have a starting point min (i attempted a QSO with french om and i received S5-9 :-)

Regarding Emitter of Q35 I used in hook with small wire with a stiff end, of those used for the experimental breadboards (Arduino ecc....), which hook remains far from the other terminals of the transistor and that this may 'be locked to the frame of the apparatus with tape (i used same system for check anchor point at position not good)

Well let's see what I can do by following your advice

i'll let you know

Ugo

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> Ugo:
>
> I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.
>
> However, that being said. You can do the old fashioned method using a regular RF sig gen and a RV millivolt meter or O-scope and inject 50khz to 100 khz steps at VFO signal input on PLL board and then measure the RF voltage levels at the Emitter of buffer amp Q35. You make yourself a table of frequency vs rf output voltage and then plot the points on a graph paper. Before I got a good Sweep gen I use to plot the points using Excel. When you get close to Fc (5.750mhz) best to use smaller frequency steps and take more points. This method has been used for many years by hams to sweep all kinds of filters and you will get a nice graph of the frequency response curve as you have left the filter adjustments.
>
> I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.
>
> For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and

find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
>
> Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.
>
> So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.
>
> You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
>
> You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.
>
> Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
>
> I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "vierugo" <vierugo@> wrote:
> >
> > Hi to all
> > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
> > i was taken off the sweep generator from the one who had lent me;
> > (he informed me that he sold it for discontinued business !)
> >
> > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
> > can anyone suggest a procedure to try to end the calibration with alternative method ?
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> > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
> > (i not attempted for others bands)
> > the components touched are T13,T14,T15
> >
> > Ugo
> >
>

44335. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 11:32:19 UTC
From: vierugo
Topic: 44331 Message: 44335

Hi Terry
okay this can be the first step

Ciao
Ugo

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
> I forgot to ask before you attempted sweeping the PLL BPFs was your digital display accurate?
>
> Have you checked the accuracy of the PLL 10mhz clock? If not go to TP-2 and connect your Freq Counter (assumes calibrated freq counter) and measure and if off adjust using trimmer cap TC-1.
>
> Also go to CON output and measure 0.5-1.0mhz out as you vary the VFO thru range.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@> wrote:
> >
> > Ugo:
> >
> > I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.
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> >
> > For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
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> > Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the

three adjustments interact. Usually I adjust for Fc first.
> >
> > So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.
> >
> > You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
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> > Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
> >
> > I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "vierugo" <vierugo@> wrote:
> > >
> > > Hi to all
> > > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
> > > i was taken off the sweep generator from the one who had lent me;
> > > (he informed me that he sold it for discontinued business !)
> > >
> > > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
> > > can anyone suggest a procedure to try to end the calibration with alternative method ?
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> > > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
> > > (i not attempted for others bands)
> > > the components touched are T13,T14,T15
> > >
> > > Ugo
> > >
> >
>

44336. Re: Anyone going to the Shelby Hamfest?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 12:35:07 UTC
From: Ramius
Topic: 44297 Message: 44336

What freq will you be on?

R.

--- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@...> wrote:
>
> That would be great. I'll take the HT with me while I'm walking around.
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> --- In TS-520_820_530_830@yahoogroups.com, "Ramius" <ramiusu96@> wrote:
> >
> >
> > I'm planning on going Saturday, perhaps someone in the group could pick out a freq for us to talk on for meeting up, etc.
> >
> > I'm KK4MSC, btw. I'll be riding with WA4PBA, who is not a member of this group.
> >
> > Be happy to meet up with anyone in the group who wants to get together.
> >
> > R.
>

44337. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 16:02:19 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44337

Ugo: OK dont worry about your English. If you need more help or do not understand what I have written just come back and ask.   I never advise anyone to attempt to adjust any KW hybrid BPFs if they do not have a Sweep Gen. Can always do the old manual method with RF sig gen and plot the as found response curve on graph paper, but almost impossible to properly stagger tune the 3 resonant circuits with this method. TS-520 has couple of BPF and for life of me cannot figure out way people mess with the slugs on these. If you just want to see where they are set then a RF sig gen and RF probe/VTVM and injecting steps and recording the RF output voltage and then plotting the points is a fun exercise to show the response curve, but it will be a frustrating exercise if you then need to adjust and run another stepped "sweep". Maybe you can find someone close to you that will have a RF sweep gen that you can borrow? Terry K9TW --- In ts-520_820_530_830@yahoogroups.com, <vierugo@...> wrote: Hi Terry
thank you for response and alternative method !

I apologize if i have not seen an answer exists that could help me but I have some problem with English (as you can see from the way I write) and did not know how formulate the question in the search;

Your answer and the method that at this point becomes the only solution possible for my situation;

This night I had temporarily resolved the problem by going in different bands, and varying slightly t14 t13 t15 I did reappear in the display pointing to the frequency limits min and max of each band: Of course not 'a solution but at least I have a starting point min (i attempted a QSO with french om and i received S5-9 :-)

Regarding Emitter of Q35 I used in hook with small wire with a stiff end, of those used for the experimental breadboards (Arduino ecc....), which hook remains far from the other terminals of the transistor and that this may 'be locked to the frame of the apparatus with tape (i used same system for check anchor point at position not good)

Well let's see what I can do by following your advice

i'll let you know

Ugo

--- In TS-520_820_530_830@yahoogroups.com , "Terry Wagoner" <wagstw46@...> wrote:
>
> Ugo:
>
> I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.
>
> However, that being said. You can do the old fashioned method using a regular RF sig gen and a RV millivolt meter or O-scope and inject 50khz to 100 khz steps at VFO signal

input on PLL board and then measure the RF voltage levels at the Emitter of buffer amp Q35. You make yourself a table of frequency vs rf output voltage and then plot the points on a graph paper. Before I got a good Sweep gen I use to plot the points using Excel. When you get close to Fc (5.750mhz) best to use smaller frequency steps and take more points. This method has been used for many years by hams to sweep all kinds of filters and you will get a nice graph of the frequency response curve as you have left the filter adjustments.
>
> I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.
>
> For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
>
> Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.
>
> So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.
>
> You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
>
> You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.
>
> Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
>
> I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com , "vierugo" <vierugo@> wrote:
> >
> > Hi to all
> > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
> > i was taken off the sweep generator from the one who had lent me;
> > (he informed me that he sold it for discontinued business !)
> >

> > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
> > can anyone suggest a procedure to try to end the calibration with alternative method ?
> >
> > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
> > (i not attempted for others bands)
> > the components touched are T13,T14,T15
> >
> > Ugo
> >
>

44338. Grounding Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 15:57:58 UTC
From: <jweigh@...>
Topic: 44338 Message: 44338

As I am about to set up my shack(spare bdrm) on the other side of the house from the mains ground rod. I am confused by the statement below. Do I keep all shack/ antenna grounds separate from mains grnd or do I join shack/Ant grnds to mains rod in parallel??? Any clarification would greatly be appreciated. (I noted the parts that confuse me) This was excerpted from another site Replacing of the old 2-wire line cords on our rigs with 3 wire grounded cords? Surprisingly, not a good idea. In fact, many electrical codes around the country would frown on it. The reason is that it is expected the ONLY ground on the house wiring to exist at the service entrance. Adding additional grounds at points perhaps on the other side of the house could produce ground loops, unexpected ground current flows, and unpredictable ground potentials .   Because your Amateur equipment has its own ground system (or SHOULD), they do not want you to connect it to the primary service ground . Stick with a 2-wire line cord and the best local ground system you can attach to your gear. Thanks, Jerry K4GEW

44339. MFJ-721 SSB CW AUDIO FILTER manual

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 21:53:35 UTC
From: <andrew@...>
Topic: 44339 Message: 44339

Anyone have a MFJ-721 SSB CW AUDIO FILTER manual?
Would you mind emailing me a copy?
Andy N7EBG N7EBG@...

44340. RE: [TS-520_820_530_830] Grounding Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 22:51:54 UTC
From: fpath fpath
Topic: 44338 Message: 44340

Jerry,

Good rule of thumb from my past experience and from when designing and making HTC cables is your radio ground, tower ground and common house ground should all be connected, (bonded together). Subject to soil conductivity, the first 5 feet of the ground rod is the most important. As I have ground water at 6 feet, I installed 3x 8ft earth stakes on my tower (one per leg), outside my radio shack 3x earth stakes 5 feet apart. Then bonded back to the house earth system (240v system) which is then bonded to my copper water pipes (VK standards) Hope that helps, if you need we can discuss all the jargon abt when how and why.

73's

Dave

VK5PDL

From: jweigh@...
To: TS-520_820_530_830@yahoogroups.com
Date: Thu, 29 Aug 2013 08:57:58 -0700
Subject: [TS-520_820_530_830] Grounding Question

As I am about to set up my shack(spare bdrm) on the other side of the house from the mains ground rod. I am confused by the statement below. Do I keep all shack/ antenna grounds separate from mains grnd or do I join shack/Ant grnds to mains rod in parallel??? Any clarification would greatly be appreciated. (I noted the parts that confuse me) This was excerpted from another site Replacing of the old 2-wire line cords on our rigs with 3 wire grounded cords? Surprisingly, not a good idea. In fact, many electrical codes around the country would frown on it. The reason is that it is expected the ONLY ground on the house wiring to exist at the service entrance. Adding additional grounds at points perhaps on the other side of the house could produce ground loops, unexpected ground current flows, and unpredictable ground potentials . Because your Amateur equipment has its own ground system (or SHOULD), they do not want you to connect it to the primary service ground . Stick with a 2-wire line cord and the best local ground system you can attach to your gear. Thanks, Jerry K4GEW

[Non-text portions of this message have been removed]

44341. Re: [TS-520_820_530_830] Grounding Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-29 23:14:22 UTC
From: Don Allen
Topic: 44338 Message: 44341

Station ground and electrical service (service entrance) ground should
be bonded together - not isolated.

See this link. It's probably more info than you'll ever need, but a
very good treatise on station grounding.

http://www.w8ji.com/station_ground.htm

73
Don W9CW

Also, if electrical codes frown on replacing the 2-wire electrical cord
and plug, especially a non-polarized 2-wire plug, with a 3-wire cord
(including the safety ground), why are all appliances, PCs, printers,
and high-end consumer electronics include a 3-wire (grounded) plug?

On 8/29/2013 10:57 AM, jweigh@... wrote:
>
> As I am about to set up my shack(spare bdrm) on the other side of the
> house from the mains ground rod. I am confused by the statement below.
> Do I keep all shack/ antenna grounds separate from mains grnd or do I
> join shack/Ant grnds to mains rod in parallel??? Any clarification
> would greatly be appreciated. (I noted the parts that confuse me)
> This was excerpted from another site Replacing of the old 2-wire line
> cords on our rigs with 3 wire grounded cords? Surprisingly, not a good
> idea. In fact, many electrical codes around the country would frown
> on it. The reason is that it is expected the ONLY ground on the house
> wiring to exist at the service entrance. Adding additional grounds at
> points perhaps on the other side of the house could produce ground
> loops, unexpected ground current flows, and unpredictable ground
> potentials . Because your Amateur equipment has its own ground system
> (or SHOULD), they do not want you to connect it to the primary service
> ground . Stick with a 2-wire line cord and the best local ground
> system you can attach to your gear. Thanks, Jerry K4GEW
>
>

[Non-text portions of this message have been removed]

44342. Re: [TS-520_820_530_830] Grounding Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 01:36:15 UTC
From: amfone
Topic: 44338 Message: 44342

Not grounding the two together, the station ground and the service ground can create a ground potential difference and a better chance to attract that dreaded beast a lighting strike.

tim
wb8uhz

_____
From: Don Allen <w9cw@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 29, 2013 7:14 PM
Subject: Re: [TS-520_820_530_830] Grounding Question

Station ground and electrical service (service entrance) ground should be bonded together - not isolated.

See this link. It's probably more info than you'll ever need, but a very good treatise on station grounding.

http://www.w8ji.com/station_ground.htm

73
Don W9CW

Also, if electrical codes frown on replacing the 2-wire electrical cord and plug, especially a non-polarized 2-wire plug, with a 3-wire cord (including the safety ground), why are all appliances, PCs, printers, and high-end consumer electronics include a 3-wire (grounded) plug?

On 8/29/2013 10:57 AM, jweigh@... wrote:
>
> As I am about to set up my shack(spare bdrm) on the other side of the
> house from the mains ground rod. I am confused by the statement below.
> Do I keep all shack/ antenna grounds separate from mains grnd or do I
> join shack/Ant grnds to mains rod in parallel??? Any clarification
> would greatly be appreciated. (I noted the parts that confuse me)
> This was excerpted from another site Replacing of the old 2-wire line
> cords on our rigs with 3 wire grounded cords? Surprisingly, not a good
> idea. In fact, many electrical codes around the country would frown
> on it. The reason is that it is expected the ONLY ground on the house
> wiring to exist at the service entrance. Adding additional grounds at
> points perhaps on the other side of the house could produce ground
> loops, unexpected ground current flows, and unpredictable ground
> potentials . Because your Amateur equipment has its own ground system
> (or SHOULD), they do not want you to connect it to the primary service
> ground . Stick with a 2-wire line cord and the best local ground
> system you can attach to your gear. Thanks, Jerry K4GEW

>
>

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[Non-text portions of this message have been removed]

44343. packratt 232mbx

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 03:40:20 UTC
From: jim
Topic: 44343 Message: 44343

hello out there can anyone in the group tell me were i can get the the cable for the tm 281 mobile that hooks up to the radio to the packratt 232

44344. Re: [TS-520_820_530_830] packratt 232mbx

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 05:05:54 UTC
From: Wes Will
Topic: 44343 Message: 44344

On 08/29/2013 10:40 PM, jim wrote:
> hello out there can anyone in the group tell me were i can get the the
> cable for the tm 281 mobile that hooks up to the radio to the packratt 232
>

Replied OFF LIST.

Wrong place, even if it's a Kenwood 2-meter rig...

--
Wes Will
N9KDY

44345. Re: Anyone going to the Shelby Hamfest?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 15:12:52 UTC
From: Barry
Topic: 44297 Message: 44345

One of the guys that's going said he'd be monitoring 146.000 with his friends, so I figure that's good for me.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, "Ramius" <ramiusu96@...> wrote:
>
> What freq will you be on?
>
> R.
>
> --- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@> wrote:
> >
> > That would be great. I'll take the HT with me while I'm walking around.
> >
> > Barry
> > KK4RXN
> > Jeremiah 29:11-13 / John 3:16
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "Ramius" <ramiusu96@> wrote:
> > >
> > >
> > > I'm planning on going Saturday, perhaps someone in the group could pick out a freq for us to talk on for meeting up, etc.
> > >
> > > I'm KK4MSC, btw. I'll be riding with WA4PBA, who is not a member of this group.
> > >
> > > Be happy to meet up with anyone in the group who wants to get together.
> > >
> > > R.
> >
>

44346. Re: Anyone going to the Shelby Hamfest?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 15:13:56 UTC
From: Barry
Topic: 44297 Message: 44346

Correction - 146.400.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@...> wrote:
>
> One of the guys that's going said he'd be monitoring 146.000 with his friends, so I figure that's good for me.
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> --- In TS-520_820_530_830@yahoogroups.com, "Ramius" <ramiusu96@> wrote:
> >
> > What freq will you be on?
> >
> > R.
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@> wrote:
> > >
> > > That would be great. I'll take the HT with me while I'm walking around.
> > >
> > > Barry
> > > KK4RXN
> > > Jeremiah 29:11-13 / John 3:16
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, "Ramius" <ramiusu96@> wrote:
> > > >
> > > >
> > > > I'm planning on going Saturday, perhaps someone in the group could pick out a freq for us to talk on for meeting up, etc.
> > > >
> > > > I'm KK4MSC, btw. I'll be riding with WA4PBA, who is not a member of this group.
> > > >
> > > > Be happy to meet up with anyone in the group who wants to get together.
> > > >
> > > > R.
> > >
> > >
> >
>

44347. RE: Grounding Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 16:10:31 UTC
From: <hardedge@...>
Topic: 44338 Message: 44347

Possibly because of the increased levels of non-conductive material used in devices that no longer allow for efficient internal grounding. Case in point, here in NJ the grounding spec has shifted from cold water pipes to gas pipes because of increased use of PVC products in the former. -O'B. ex-KA2MKI --- In ts-520_820_530_830@yahoogroups.com, <amfone20000@...> wrote: Not grounding the two together, the station ground and the service ground can create a ground potential difference and a better chance to attract that dreaded beast a lighting strike.

tim
wb8uhz

_____
From: Don Allen < w9cw@... >
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 29, 2013 7:14 PM
Subject: Re: [TS-520_820_530_830] Grounding Question

Station ground and electrical service (service entrance) ground should
be bonded together - not isolated.

See this link. It's probably more info than you'll ever need, but a
very good treatise on station grounding.

http://www.w8ji.com/station_ground.htm

73
Don W9CW

Also, if electrical codes frown on replacing the 2-wire electrical cord
and plug, especially a non-polarized 2-wire plug, with a 3-wire cord
(including the safety ground), why are all appliances, PCs, printers,
and high-end consumer electronics include a 3-wire (grounded) plug?

On 8/29/2013 10:57 AM, jweigh@... wrote:
>
> As I am about to set up my shack(spare bdrm) on the other side of the
> house from the mains ground rod. I am confused by the statement below.
> Do I keep all shack/ antenna grounds separate from mains grnd or do I
> join shack/Ant grnds to mains rod in parallel??? Any clarification
> would greatly be appreciated. (I noted the parts that confuse me)
> This was excerpted from another site Replacing of the old 2-wire line
> cords on our rigs with 3 wire grounded cords? Surprisingly, not a good
> idea. In fact, many electrical codes around the country would frown
> on it. The reason is that it is expected the ONLY ground on the house
> wiring to exist at the service entrance. Adding additional grounds at
> points perhaps on the other side of the house could produce ground

> loops, unexpected ground current flows, and unpredictable ground
> potentials . Because your Amateur equipment has its own ground system
> (or SHOULD), they do not want you to connect it to the primary service
> ground . Stick with a 2-wire line cord and the best local ground
> system you can attach to your gear. Thanks, Jerry K4GEW
>
>

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[Non-text portions of this message have been removed]

44348. TS-830M

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-30 17:15:39 UTC
From: alan023@btinternet.com
Topic: 41298 Message: 44348

Hi do any members of the group have experience with the TS-830M . My question is ,is it possible to fit (or has any one done it) the cw narrow filter YK-88C . There is no position beause the AM filter takes the space of the optional CW filter . Did Kenwood make a special IF board for this AM version or did they modify the existing board . Would i have to make a small board with both SSB and CW filters on it with relay switching , or is there an easier to achieve what i want a 500hz CW filter
73 Alan G4MJO

44349. Cable to connect kenwood TS 820 S to HeathKit SB 200

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 02:19:31 UTC
From: schneiderandrew
Topic: 44349 Message: 44349

Cable to connect kenwood TS 820 S to HeathKit SB 200
I need some help building the interface cable
I have the 8 pin remote connector. I have the Kenwood TS820s manual and have looked at page 37 Fig 30.

Can some one explain this cable build in simple terms?

I guess as I get older I am getting more brain dead.

Thanks to all.

Andy N7EBG
801-529-3033
N7EBG@...

44350. TS-511 Help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 03:28:12 UTC
From: <stever1k@...>
Topic: 44350 Message: 44350

I have a TS-511 and am having problems getting the 500Hz CW filter installed and working correctly. I have it installed and I get no receive the way it is. So am wondering is there something I need to do besides install the filter and go to the CW position. There is no mention of anything in the manual about installing it. However, there are two small jumpers on either side of the filter on the IF board that look like they might need to be removed...Does anyone know anything about the TS-511 it is an oldie. Steve NU0P

44351. Re: [TS-520_820_530_830] Cable to connect kenwood TS 820 S to HeathKit SB 200

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 12:52:13 UTC
From: W5RKL
Topic: 44349 Message: 44351

Andy,

Be forewarned, the SB-200 relay voltage is -120VDC!!! Harbach sells a "Soft Key" ($27) mod for the SB-200. If that mod has not been installed in your SB-200 then I highly recommend you purchase and install it in your SB-200. See the following link for details on the Soft Key mod:

http://harbachelectronics.com/main/page_products_sb200__sb201.html

The 8 pin remote socket is used to control a linear amplifier's relay. You will need the following plugs

1. RCA male
2. 8 octal male
3. 2 lengths of shielded cable, one for the relay and one for the ALC

The relay connection is made by connecting the center conductor on one end to pin 5 and the shield to pin 1 on the 820's 8 pin octal plug. Connect the other end of the same shielded cable, center conductor to the center pin of the RCA male plug and the shield to the outer ring of the RCA plug.
Mark this RCA plug as "RELAY"

The ALC connection is made by connecting the center conductor of the other shielded cable to pin 6 and the shield to 4 on the 8 pin octal plug. Connect the other end of the second shielded cable, center conductor to the center pin of the RCA male plug and the shield to the outer ring of the RCA plug.
Mark this RCA plug as "ALC".

That's all there is to the RELAY and ALC connections.

Plug the "ALC" RCA plug into the SB-200's "ALC" socket and the "RELAY" RCA plug into the SB-200's "RELAY" socket then plug the 8 pin octal plug in the TS-820's 8 pin REMOTE socket.

Connect a short length of coax cable, RG-8x is fine, between the TS-820's rear SO-239 and the SB-200's SO-239 "INPUT" socket. The SB-200's OUTPUT socket connects to the antenna, SWR meter, tuner, etc.

If you do not have the SB-200 manual, purchase it then read the operation section thoroughly until you understand how to safely and properly use the amplifier before attempting to operate the SB-200.

73
Mike W5RKL

On 8/30/2013 9:19 PM, schneiderandrew wrote:
>
> Cable to connect kenwood TS 820 S to HeathKit SB 200
> I need some help building the interface cable
> I have the 8 pin remote connector. I have the Kenwood TS820s manual
> and have looked at page 37 Fig 30.
>
> Can some one explain this cable build in simple terms?
>
> I guess as I get older I am getting more brain dead.
>
> Thanks to all.
>
> Andy N7EBG
> 801-529-3033
> N7EBG@... <mailto:N7EBG%40wmsinc.org>
>
>

[Non-text portions of this message have been removed]

44352. Re: [TS-520_820_530_830] Cable to connect kenwood TS 820 S to HeathKit SB 200

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 13:04:30 UTC
From: W5RKL
Topic: 44349 Message: 44352

Andy,

I failed to indicate how many RCA male plugs you will need. Purchase at least 4 RCA male plugs. You can purchase them at Radio Shack in a 4 pack under part number 274-319 for $3.49.

Radio Shack sells a 6 foot shielded cable with an RCA male plug on one end and stripped and tinned wires on the other end under part number 42-2371 for $6.49 "each". You would need 2 of these to make the connections between the TS-820's 8 pin octal plug and the SB-200's RELAY and ALC sockets.

73
Mike W5RKL

On 8/31/2013 7:52 AM, W5RKL wrote:
>
> Andy,
>
> Be forewarned, the SB-200 relay voltage is -120VDC!!! Harbach sells a
> "Soft Key" ($27) mod for the SB-200. If that mod has not been installed
> in your SB-200 then I highly recommend you purchase and install it in
> your SB-200. See the following link for details on the Soft Key mod:
>
> http://harbachelectronics.com/main/page_products_sb200__sb201.html
>
> The 8 pin remote socket is used to control a linear amplifier's relay.
> You will need the following plugs
>
> 1. RCA male
> 2. 8 octal male
> 3. 2 lengths of shielded cable, one for the relay and one for the ALC
>
> The relay connection is made by connecting the center conductor on one
> end to pin 5 and the shield to pin 1 on the 820's 8 pin octal plug.
> Connect the other end of the same shielded cable, center conductor to
> the center pin of the RCA male plug and the shield to the outer ring of
> the RCA plug.
> Mark this RCA plug as "RELAY"
>
> The ALC connection is made by connecting the center conductor of the
> other shielded cable to pin 6 and the shield to 4 on the 8 pin octal plug.
> Connect the other end of the second shielded cable, center conductor to
> the center pin of the RCA male plug and the shield to the outer ring of
> the RCA plug.

> Mark this RCA plug as "ALC".
>
> That's all there is to the RELAY and ALC connections.
>
> Plug the "ALC" RCA plug into the SB-200's "ALC" socket and the "RELAY"
> RCA plug into the SB-200's "RELAY" socket then plug the 8 pin octal plug
> in the TS-820's 8 pin REMOTE socket.
>
> Connect a short length of coax cable, RG-8x is fine, between the
> TS-820's rear SO-239 and the SB-200's SO-239 "INPUT" socket. The
> SB-200's OUTPUT socket connects to the antenna, SWR meter, tuner, etc.
>
> If you do not have the SB-200 manual, purchase it then read the
> operation section thoroughly until you understand how to safely and
> properly use the amplifier before attempting to operate the SB-200.
>
> 73
> Mike W5RKL
>
> On 8/30/2013 9:19 PM, schneiderandrew wrote:
> >
> > Cable to connect kenwood TS 820 S to HeathKit SB 200
> > I need some help building the interface cable
> > I have the 8 pin remote connector. I have the Kenwood TS820s manual
> > and have looked at page 37 Fig 30.
> >
> > Can some one explain this cable build in simple terms?
> >
> > I guess as I get older I am getting more brain dead.
> >
> > Thanks to all.
> >
> > Andy N7EBG
> > 801-529-3033
> > N7EBG@... <mailto:N7EBG%40wmsinc.org> <mailto:N7EBG%40wmsinc.org>
> >
> >
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44353. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 13:09:01 UTC
From: Charlie
Topic: 44300 Message: 44353

--- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...> wrote:
>
>
>
> Better to break off a tip of plastic alignment tool than to crack the core or rip it off its mounts. You can try heating core with tip of a soldering iron with small tip. If you are breaking off alignment tools then the core sounds like it is frozen to me.
>
> This is the sort of thing Mike was cautioning about with these old rigs. Need to be aware there is potential to induce new faults. Hopefully a little prep can prevent this. I have had success applying small drop of WD-40 at top edge of cores with a tooth pick so it runs down around the circumference between core and former.

Just to wrap up this particular issue, the new alignment tools arrived yesterday. I ordered them on the 28th and they got here on the 30th. Amazing! Ken Kemski (ken@...), as always, does a fantastic job filling his orders.
Anyway, that last drop of oil that I added to the 14MHz coils did the trick and the slugs are now adjustable and I've completed the alignment. My rig is operational again.
Now on to the next little adventure.

73
Charlie
KB3BTO

44354. Re: [TS-520_820_530_830] Cable to connect kenwood TS 820 S to HeathKit SB 200

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 13:35:09 UTC
From: W5RKL
Topic: 44349 Message: 44354

My brain is slow this morning.

The SB-200 should be operated from "240VAC" ONLY!!!

If your shack does not have 240VAC available then you will have to have
an electrician come and install a 240VAC line to your shack with the
appropriate socket. The SB-200 power plug will also have to be replaced
with a 240VAC plug.

There may be some hams who may tell you they are operating their SB-200
off of 120VAC without any problem. Do NOT follow that advice!! For
safety and reduced risk of fire from overheated house wiring, do NOT
operate your SB-200 from the 120VAC wall outlet!!!

73
Mike W5RKL

On 8/31/2013 8:04 AM, W5RKL wrote:
>
> Andy,
>
> I failed to indicate how many RCA male plugs you will need. Purchase at
> least 4 RCA male plugs. You can purchase them at Radio Shack in a 4 pack
> under part number 274-319 for $3.49.
>
> Radio Shack sells a 6 foot shielded cable with an RCA male plug on one
> end and stripped and tinned wires on the other end under part number
> 42-2371 for $6.49 "each". You would need 2 of these to make the
> connections between the TS-820's 8 pin octal plug and the SB-200's RELAY
> and ALC sockets.
>
> 73
> Mike W5RKL
>
> On 8/31/2013 7:52 AM, W5RKL wrote:
> >
> > Andy,
> >
> > Be forewarned, the SB-200 relay voltage is -120VDC!!! Harbach sells a
> > "Soft Key" ($27) mod for the SB-200. If that mod has not been installed
> > in your SB-200 then I highly recommend you purchase and install it in
> > your SB-200. See the following link for details on the Soft Key mod:
> >
> > http://harbachelectronics.com/main/page_products_sb200__sb201.html
> >

> > The 8 pin remote socket is used to control a linear amplifier's relay.
> > You will need the following plugs
> >
> > 1. RCA male
> > 2. 8 octal male
> > 3. 2 lengths of shielded cable, one for the relay and one for the ALC
> >
> > The relay connection is made by connecting the center conductor on one
> > end to pin 5 and the shield to pin 1 on the 820's 8 pin octal plug.
> > Connect the other end of the same shielded cable, center conductor to
> > the center pin of the RCA male plug and the shield to the outer ring of
> > the RCA plug.
> > Mark this RCA plug as "RELAY"
> >
> > The ALC connection is made by connecting the center conductor of the
> > other shielded cable to pin 6 and the shield to 4 on the 8 pin octal
> plug.
> > Connect the other end of the second shielded cable, center conductor to
> > the center pin of the RCA male plug and the shield to the outer ring of
> > the RCA plug.
> > Mark this RCA plug as "ALC".
> >
> > That's all there is to the RELAY and ALC connections.
> >
> > Plug the "ALC" RCA plug into the SB-200's "ALC" socket and the "RELAY"
> > RCA plug into the SB-200's "RELAY" socket then plug the 8 pin octal plug
> > in the TS-820's 8 pin REMOTE socket.
> >
> > Connect a short length of coax cable, RG-8x is fine, between the
> > TS-820's rear SO-239 and the SB-200's SO-239 "INPUT" socket. The
> > SB-200's OUTPUT socket connects to the antenna, SWR meter, tuner, etc.
> >
> > If you do not have the SB-200 manual, purchase it then read the
> > operation section thoroughly until you understand how to safely and
> > properly use the amplifier before attempting to operate the SB-200.
> >
> > 73
> > Mike W5RKL
> >
> > On 8/30/2013 9:19 PM, schneiderandrew wrote:
> > >
> > > Cable to connect kenwood TS 820 S to HeathKit SB 200
> > > I need some help building the interface cable
> > > I have the 8 pin remote connector. I have the Kenwood TS820s manual
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> > > Can some one explain this cable build in simple terms?
> > >
> > > I guess as I get older I am getting more brain dead.
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> > > Thanks to all.
> > >
> > > Andy N7EBG
> > > 801-529-3033
> > > N7EBG@... <mailto:N7EBG%40wmsinc.org>
> <mailto:N7EBG%40wmsinc.org> <mailto:N7EBG%40wmsinc.org>
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44355. Re: Cable to connect kenwood TS 820 S to HeathKit SB 200 FIXED

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 11:26:20 UTC
From: <andrew@...>
Topic: 44355 Message: 44355

Took me 8 hours, some previous notes and long suffering on my part and got it built.

Another modern miracle.

I have no idea why some simple things are so hard to get through my old brain.

Andy N7EBG

44356. Re: [TS-520_820_530_830] Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 15:24:32 UTC
From: Timothy Johnston
Topic: 44300 Message: 44356

For reference, what oil did you usw and did you have to aply any heat.

Tj K4TFJ
On Aug 31, 2013 9:09 AM, "Charlie" <cshaw@...> wrote:

> **
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "Terry Wagoner" <wagstw46@...>
> wrote:
> >
> >
> >
> > Better to break off a tip of plastic alignment tool than to crack the
> core or rip it off its mounts. You can try heating core with tip of a
> soldering iron with small tip. If you are breaking off alignment tools then
> the core sounds like it is frozen to me.
> >
> > This is the sort of thing Mike was cautioning about with these old rigs.
> Need to be aware there is potential to induce new faults. Hopefully a
> little prep can prevent this. I have had success applying small drop of
> WD-40 at top edge of cores with a tooth pick so it runs down around the
> circumference between core and former.
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> Just to wrap up this particular issue, the new alignment tools arrived
> yesterday. I ordered them on the 28th and they got here on the 30th.
> Amazing! Ken Kemski (ken@...), as always, does a fantastic job
> filling his orders.
> Anyway, that last drop of oil that I added to the 14MHz coils did the
> trick and the slugs are now adjustable and I've completed the alignment. My
> rig is operational again.
> Now on to the next little adventure.
>
> 73
> Charlie
> KB3BTO
>
>
>

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44357. Re: [TS-520_820_530_830] Re: Cable to connect kenwood TS 820 S to HeathKit SB 200 FIXED

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 16:13:38 UTC
From: Don Allen
Topic: 44355 Message: 44357

The SB-200 will work fine on a 120VAC line if you have a dedicated 20A line "for its use only." Using it on a 120VAC branch circuit is certainly not advised - as per Mike. In my case, I use my SB-200 on a dedicated 120VAC Romex 12/3 line with a 20A breaker and a 20A 120VAC outlet, and the distance from the breaker box to the outlet is only 20 feet. The SB-200's maximum current draw on 120VAC line is 16A (and, 8A on a 240VAC line). If you do operate your SB-200 on 240VAC, not only do you have to change the plug, but the jumpers on Terminal Strip S underneath the SB-200 chassis. This is described on Pictorial 7 of the SB-200 manual.

73
Don W9CW

On 8/31/2013 6:26 AM, andrew@... wrote:
>
>
> Took me 8 hours, some previous notes and long suffering on my part and
> got it built.
>
> Another modern miracle.
>
> I have no idea why some simple things are so hard to get through my old
> brain.
>
> Andy N7EBG
>
>

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44358. Re: [TS-520_820_530_830] Re: Cable to connect kenwood TS 820 S to HeathKit SB 200 FIXED

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 19:26:25 UTC
From: Mike
Topic: 44355 Message: 44358

Andy,

It's entirely up to you whether you operate your SB-200 on 120VACor 240VAC.

Operating the amplifier on a 120VAC 20amps circuit leaves only "4 amps"
of a "safety margin" which, in my opinion, is "insufficient"!

73
Mike W5RKL

On 8/31/2013 11:13 AM, Don Allen wrote:
>
> The SB-200 will work fine on a 120VAC line if you have a dedicated 20A
> line "for its use only." Using it on a 120VAC branch circuit is
> certainly not advised - as per Mike. In my case, I use my SB-200 on a
> dedicated 120VAC Romex 12/3 line with a 20A breaker and a 20A 120VAC
> outlet, and the distance from the breaker box to the outlet is only 20
> feet. The SB-200's maximum current draw on 120VAC line is 16A (and, 8A
> on a 240VAC line). If you do operate your SB-200 on 240VAC, not only
> do you have to change the plug, but the jumpers on Terminal Strip S
> underneath the SB-200 chassis. This is described on Pictorial 7 of the
> SB-200 manual.
>
> 73
> Don W9CW
>
> On 8/31/2013 6:26 AM, andrew@... <mailto:andrew%40tklcorp.com>
> wrote:
> >
> >
> > Took me 8 hours, some previous notes and long suffering on my part and
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> > Another modern miracle.
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> > Andy N7EBG
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> >
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44359. Re: [TS-520_820_530_830] Re: Cable to connect kenwood TS 820 S to HeathKit SB 200 FIXED

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 20:22:25 UTC
From: Don Allen
Topic: 44355 Message: 44359

I certainly don't intend to "agree to disagree" here, but I've never observed a 16A line current peak using my SB-200 on my dedicated 120VAC line. The maximum 16A line current spec @ 120VAC comes from the specifications page of the SB-200 manual. If you're planning to run the SB-200 on SSB, the maximum line voltage current will only occur in very short transient periods. Mike is correct that the SB-200 works _best_ off of 240VAC (as with practically all linears, including the Elecraft KPA500 and Ameritron AL-811 and ALS-600), but if that was technically the only operational voltage option for the SB-200... why did Heathkit NOT supply the SB-200 with a proper 240VAC line cord and plug. Rather, they supplied the kit with a standard 120VAC line cord with a grounded 120VAC plug. Heathkit plainly advertised the SB-200 as either 120VAC or 240VAC capable.

It would be interesting to take a poll of SB-200/SB-201 owners on this. It's my feeling that a majority of SB-200s are connected to a 120VAC line... hopefully, not on a shared branch circuit.

However, if you were planning to run the SB-200 on one outlet of a 120VAC branch circuit, especially if the same circuit supplies 120VAC to your TS-820S, DON"T DO IT! I would strongly suggest you to run a dedicated line for the SB-200. If you are paying for a dedicated line to the shack, go ahead with the 240VAC installation instead. It won't cost you much more, as labor is the majority of the installation expense.

73
Don W9CW

On 8/31/2013 2:26 PM, Mike wrote:
>
> Andy,
>
> It's entirely up to you whether you operate your SB-200 on 120VACor
> 240VAC.
>
> Operating the amplifier on a 120VAC 20amps circuit leaves only "4 amps"
> of a "safety margin" which, in my opinion, is "insufficient"!
>
> 73
> Mike W5RKL
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> On 8/31/2013 11:13 AM, Don Allen wrote:
> >
> > The SB-200 will work fine on a 120VAC line if you have a dedicated 20A
> > line "for its use only." Using it on a 120VAC branch circuit is

> > certainly not advised - as per Mike. In my case, I use my SB-200 on a
> > dedicated 120VAC Romex 12/3 line with a 20A breaker and a 20A 120VAC
> > outlet, and the distance from the breaker box to the outlet is only 20
> > feet. The SB-200's maximum current draw on 120VAC line is 16A (and, 8A
> > on a 240VAC line). If you do operate your SB-200 on 240VAC, not only
> > do you have to change the plug, but the jumpers on Terminal Strip S
> > underneath the SB-200 chassis. This is described on Pictorial 7 of the
> > SB-200 manual.
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> > 73
> > Don W9CW
> >
> > On 8/31/2013 6:26 AM, andrew@...
> <mailto:andrew%40tklcorp.com> <mailto:andrew%40tklcorp.com>
> > wrote:
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> > > Another modern miracle.
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> > > Andy N7EBG
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44360. Re: [TS-520_820_530_830] Re: Cable to connect kenwood TS 820 S to HeathKit SB 200 FIXED

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 21:11:54 UTC
From: <pmarkavage@...>
Topic: 44355 Message: 44360

I'm in deep trouble now. I've been running all my stuff, including my SB-200(and several other linears over the years), off one 120VAC line for the last 45 years.

Pete, wa2cwa
http://www.manualman.com

On Sat, 31 Aug 2013 15:22:25 -0500 Don Allen <w9cw@...> writes:
> I certainly don't intend to "agree to disagree" here, but I've never
>
> observed a 16A line current peak using my SB-200 on my dedicated
> 120VAC
> line. The maximum 16A line current spec @ 120VAC comes from the
> specifications page of the SB-200 manual. If you're planning to run
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> SB-200 on SSB, the maximum line voltage current will only occur in
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> off of 240VAC (as with practically all linears, including the
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> KPA500 and Ameritron AL-811 and ALS-600), but if that was
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> the only operational voltage option for the SB-200... why did
> Heathkit
> NOT supply the SB-200 with a proper 240VAC line cord and plug.
> Rather,
> they supplied the kit with a standard 120VAC line cord with a
> grounded
> 120VAC plug. Heathkit plainly advertised the SB-200 as either 120VAC
> or
> 240VAC capable.
>
> It would be interesting to take a poll of SB-200/SB-201 owners on
> this.
> It's my feeling that a majority of SB-200s are connected to a 120VAC
>
> line... hopefully, not on a shared branch circuit.
>
> However, if you were planning to run the SB-200 on one outlet of a
> 120VAC branch circuit, especially if the same circuit supplies
> 120VAC to
> your TS-820S, DON"T DO IT! I would strongly suggest you to run a
> dedicated line for the SB-200. If you are paying for a dedicated

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> to the shack, go ahead with the 240VAC installation instead. It
> won't
> cost you much more, as labor is the majority of the installation
> expense.
>
> 73
> Don W9CW
>
>
>
> On 8/31/2013 2:26 PM, Mike wrote:
> >
> > Andy,
> >
> > It's entirely up to you whether you operate your SB-200 on
> 120VACor
> > 240VAC.
> >
> > Operating the amplifier on a 120VAC 20amps circuit leaves only "4
> amps"
> > of a "safety margin" which, in my opinion, is "insufficient"!
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> > 73
> > Mike W5RKL
> >
> > On 8/31/2013 11:13 AM, Don Allen wrote:
> > >
> > > The SB-200 will work fine on a 120VAC line if you have a
> dedicated 20A
> > > line "for its use only." Using it on a 120VAC branch circuit is
> > > certainly not advised - as per Mike. In my case, I use my SB-200
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> > > dedicated 120VAC Romex 12/3 line with a 20A breaker and a 20A
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> > > feet. The SB-200's maximum current draw on 120VAC line is 16A
> (and, 8A
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> only
> > > do you have to change the plug, but the jumpers on Terminal
> Strip S
> > > underneath the SB-200 chassis. This is described on Pictorial 7
> of the
> > > SB-200 manual.
> > >
> > > 73
> > > Don W9CW
> > >

> > > On 8/31/2013 6:26 AM, andrew@...
> > <mailto:andrew%40tklcorp.com> <mailto:andrew%40tklcorp.com>
> > > wrote:
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44361. Re: [TS-520_820_530_830] Re: Cable to connect kenwood TS 820 S to HeathKit SB 200 FIXED

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-08-31 21:46:48 UTC
From: Gregory Graham
Topic: 44355 Message: 44361

Well I did that also, never giving special thought to the current
draw. For years I ran my SB-220 on a 220 line so that was no problem
but recently after 20 years off the air I set up an SB-201 and was
running both on the same circuit. After bringing this to my
attention, I found that two receptacles 8 feet apart were on separate
20 amp circuits. So, looks like the 820 gets a new power location. I
think it is a good idea just from the voltage drop possibility and
safety to run them on separate circuits if possible. I like 220 volts
if it can be done reasonably but for me it would require a long
difficult run so yes, nice to have but not a big compromise. I also
look at the little power cord from the back of the 820 and wonder if it
could carry 16 amps.

So another thought, anyone have a feel for what the market might be
for some new KB1 knobs?

Gregory
NR6C

On 8/31/2013 2:11 PM, pmarkavage@... wrote:
>
> I'm in deep trouble now. I've been running all my stuff, including my
> SB-200(and several other linears over the years), off one 120VAC line for
> the last 45 years.
>
> Pete, wa2cwa
> http://www.manualman.com
>
> On Sat, 31 Aug 2013 15:22:25 -0500 Don Allen <w9cw@...
> <mailto:w9cw%40w9cw.com>> writes:
> > I certainly don't intend to "agree to disagree" here, but I've never
> >
> > observed a 16A line current peak using my SB-200 on my dedicated
> > 120VAC
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> > specifications page of the SB-200 manual. If you're planning to run
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> > Don W9CW
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> > > Andy,
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> > > Operating the amplifier on a 120VAC 20amps circuit leaves only "4
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> > > Mike W5RKL
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> > > On 8/31/2013 11:13 AM, Don Allen wrote:
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> > Yahoo! Groups Links
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44362. Re: TS-520SE RECEIVER RF SECTION ALIGNMENT QUESTION.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 12:37:30 UTC
From: Charlie
Topic: 44300 Message: 44362

--- In TS-520_820_530_830@yahoogroups.com, Timothy Johnston <timothy.f.johnston@...> wrote:
>
> For reference, what oil did you usw and did you have to aply any heat.
>
> Tj K4TFJ
> On Aug 31, 2013 9:09 AM, "Charlie" <cshaw@...> wrote:
>
I used "clock oiler" and that's what I generally rely on for any hard to get at objects that require lubrication. A clock oiler has a 3-4 inch long needle-like probe attached to the oil supply and that provides a method to apply oil in tight quarters.
I'm not sure of the specific composition of the oil itself but I believe it to be a light machine oil. I applied one small drop, let it wait for 24 hours, and then attempted to turn the slug. When that failed I simply repeated the process while being cautious not to over-oil the slug and end up shorting out a component somewhere.
I never had to resort to Terry's tip about heating the slug so that little trick will have to wait for another time.

73
Charlie
KB3BTO

44363. RE: Grounding Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 14:07:02 UTC
From: <jweigh@...>
Topic: 44338 Message: 44363

Thanks to all responders. I feel good about what I plan now and will follow the advise of bonding all ground rods together to the service entrance ground after grounding the TS830s and it's other components together in the shack at their respective ground lugs on the back of each unit. This is without a doubt the VERY best place to come if you own any of these really neat old radios. Thanks again, Jerry K4gew --- In ts-520_820_530_830@yahoogroups.com, <hardedge@...> wrote: Possibly because of the increased levels of non-conductive material used in devices that no longer allow for efficient internal grounding. Case in point, here in NJ the grounding spec has shifted from cold water pipes to gas pipes because of increased use of PVC products in the former. -O'B. ex-KA2MKI --- In ts-520_820_530_830@yahoogroups.com , <amfone20000@...> wrote: Not grounding the two together, the station ground and the service ground can create a ground potential difference and a better chance to attract that dreaded beast a lighting strike.

tim
wb8uhz

From: Don Allen < w9cw@... >
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, August 29, 2013 7:14 PM
Subject: Re: [TS-520_820_530_830] Grounding Question

Station ground and electrical service (service entrance) ground should
be bonded together - not isolated.

See this link. It's probably more info than you'll ever need, but a
very good treatise on station grounding.

http://www.w8ji.com/station_ground.htm

73
Don W9CW

Also, if electrical codes frown on replacing the 2-wire electrical cord
and plug, especially a non-polarized 2-wire plug, with a 3-wire cord
(including the safety ground), why are all appliances, PCs, printers,
and high-end consumer electronics include a 3-wire (grounded) plug?

On 8/29/2013 10:57 AM, jweigh@... wrote:
>
> As I am about to set up my shack(spare bdrm) on the other side of the
> house from the mains ground rod. I am confused by the statement below.
> Do I keep all shack/ antenna grounds separate from mains grnd or do I
> join shack/Ant grnds to mains rod in parallel??? Any clarification
> would greatly be appreciated. (I noted the parts that confuse me)

> This was excerpted from another site Replacing of the old 2-wire line
> cords on our rigs with 3 wire grounded cords? Surprisingly, not a good
> idea. In fact, many electrical codes around the country would frown
> on it. The reason is that it is expected the ONLY ground on the house
> wiring to exist at the service entrance. Adding additional grounds at
> points perhaps on the other side of the house could produce ground
> loops, unexpected ground current flows, and unpredictable ground
> potentials . Because your Amateur equipment has its own ground system
> (or SHOULD), they do not want you to connect it to the primary service
> ground . Stick with a 2-wire line cord and the best local ground
> system you can attach to your gear. Thanks, Jerry K4GEW
>
>

[Non-text portions of this message have been removed]

[Non-text portions of this message have been removed]

44364. vr-2

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 14:36:36 UTC
From: <bozo231@...>
Topic: 44364 Message: 44364

does anyone have an old rf board that i could get the vr-2 off of or does anyone have one in a parts bin ? i am in need of one or two plz let me know!!! thanks Ron KK4PWF

44365. Kenwood HF Net Weekly Update for September 1, 2013

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 18:39:29 UTC
From: <mgilger@...>
Topic: 44365 Message: 44365

The Saturday's net on 40 meter we had 22 stations checking in under good band conditions. There were 6 new stations checking in, KD4GIX, K2MA, KD8OWH, KA1HIR, KC9SQC, and K2LDM. Out of all the check ins, there was: 3 running TS-520(x)

2 running TS-530(x)

2 running TS-820(x)

3 running TS-830S

0 running TS-900

I was running my TS-940s. The rest were running non hybrids of one model or another.

The Sunday’s net on 20 meter we had 7 stations checking in under good band conditions. Out of those, there was:

2 running TS-520(x)

1 running TS-530(x)

1 running TS-820(x)

2 running TS-830S

I was running my TS-940s. The rest were running non hybrids of one model or another.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940’s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to

make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:

http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 – Oct. 2012
Saturday total 754 check-ins, Sunday total 563 check-ins

November 2012, Saturday’s, net total = 47, Sundays total = 20

December 2012, Saturday’s, net total = 74, Sunday’s total = 70

January 2013, Saturday’s, net total = 93, Sunday’s total = 87

February 2013, Saturday’s net total = 103, Sundays total = 87

March 2013, Saturday’s, net total = 112, Sunday’s total =39

April 2013, Saturday’s net total = 52, Sunday’s total = 29

May 2013, Saturday’s net total = 45, Sunday’s total = 50

June 2013, Saturday’s net total = 30, Sunday’s total = 27

July 2013, Saturday’s net total = 63, Sunday’s total = 41

August 2013, Saturday’s net total = 82, Sunday’s total = 50 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44366. RE: vr-2

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 19:28:09 UTC
From: <wagstw46@...>
Topic: 44364 Message: 44366

Ron: I think you have a typo. If the VR-2 you need is the span pot (to set S9) for the TS820 S-meter it is a vertical lead 500k ohm pot on the IF board and not the RF board.   If no one has a TS-820 IF board that they are willing to harvest parts from (which would be best for you) then take a look on Ebay and see if you can find a miniature vertical mount substitute. Best if it is vertical mount style. If I am confused about what you need please disregard this response. I am going by what I understood you to say last time we talked.   Terry K9TW   --- In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote: does anyone have an old rf board that i could get the vr-2 off of or does anyone have one in a parts bin ? i am in need of one or two plz let me know!!! thanks Ron KK4PWF

44367. Re: [TS-520_820_530_830] RE: vr-2

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 19:55:55 UTC
From: Ronald Robinson
Topic: 44364 Message: 44367

U r right Terry , thanks for having my bac
board not the k lol yes it is the vertical lead 500k ohm pot on the IF board not the rf
!!!!!!!!!

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 1, 2013 2:28 PM
Subject: [TS-520_820_530_830] RE: vr-2

Ron: I think you have a typo. If the VR-2 you need is the span pot (to set S9) for the TS820 S-meter it is a vertical lead 500k ohm pot on the IF board and not the RF board. If no one has a TS-820 IF board that they are willing to harvest parts from (which would be best for you) then take a look on Ebay and see if you can find a miniature vertical mount substitute. Best if it is vertical mount style. If I am confused about what you need please disregard this response. I am going by what I understood you to say last time we talked. Terry K9TW --- In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
does anyone have an old rf board that i could get the vr-2 off of or does anyone have one in a parts bin ? i am in need of one or two plz let me know!!! thanks Ron KK4PWF

Yahoo! Groups Links

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44368. RE: Re: [TS-520_820_530_830] RE: vr-2

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-01 20:49:08 UTC
From: <wagstw46@...>
Topic: 44364 Message: 44368

Ron: No problem. I dont have a TS-820 board that I could harvest a VR-2 from. Hopefully some one else will. If not then suggest you try Ebay for a sub and also ask Bob Mansker what he gets for a good TS-820 board. You could then swap boards and keep your original board for a parts board. Hate to make a parts board out of it if all you need is VR-2. Of course could also look for a "tech special" TS-820 if you have good credit at bank and can get a 2nd mortgage! Good luck Terry K9TW --- In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote: U r right Terry , thanks for having my bac
board not the k lol yes it is the vertical lead 500k ohm pot on the IF board not the rf !!!!!!!!!

From: " wagstw46@... " < wagstw46@... >
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 1, 2013 2:28 PM
Subject: [TS-520_820_530_830] RE: vr-2

Ron: I think you have a typo. If the VR-2 you need is the span pot (to set S9) for the TS820 S-meter it is a vertical lead 500k ohm pot on the IF board and not the RF board.   If no one has a TS-820 IF board that they are willing to harvest parts from (which would be best for you) then take a look on Ebay and see if you can find a miniature vertical mount substitute. Best if it is vertical mount style. If I am confused about what you need please disregard this response. I am going by what I understood you to say last time we talked.   Terry K9TW   --- In ts-520_820_530_830@yahoogroups.com , <bozo231@...> wrote: does anyone have an old rf board that i could get the vr-2 off of or does anyone have one in a parts bin ? i am in need of one or two plz let me know!!! thanks Ron KK4PWF

Yahoo! Groups Links

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44369. excessive loss through CW filter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-02 14:10:33 UTC
From: Craig Roberts
Topic: 44355 Message: 44369

I have installed Trio/Kenwood YK-88C filters in both my TS-830S and TS-530S with varying results.

The 830 appears to act normally with some attenuation of the incoming CW signals but nothing abnormal. On the 530, however, the passband with the filter in seems very narrow and the signals knocked down to almost oblivion unless unless centered absolutely precisely. Even then, they are noticeably weaker than on the 830.

I must say that the 530 sounds terrific on strong signals with the filter in since atmospheric noise is totally eliminated, but weak signal reception is greatly compromised.

Watcha think?

Thanks and 73,

Craig
W3CRR

44370. TS-830S freq display anomaly

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-02 14:54:38 UTC
From: Craig Roberts
Topic: 44355 Message: 44370

Oh -- and then there's that last little annoyance left on my TS-830S.
The display reads high by about 100 - 200 Hz. And, that's with the
trimmer dedicated to correcting such things at its limit. In other
words, the "lowest" display reading it will set is still about 150 Hz
higher than the actual frequency.

This by the way, has been determined by comparing the display with my
TS-530S which was just carefully and accurately aligned by one of our
fully equipped gurus (who lives 2,800 miles away).

Since nothing more than an ancient VTVM and a DVM comprise my test bench
at the moment, I am at a distinct disadvantage when it comes to
servicing my otherwise perfectly functioning 830.

Any "quick and dirty" (but not too dirty) ideas?

Many thanks,

Craig
W3CRR

[Non-text portions of this message have been removed]

44371. RE: RE: Re: [TS-520_820_530_830] RE: vr-2

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-02 16:56:27 UTC
From: <ke5ftf@...>
Topic: 44364 Message: 44371

I believe that I have a good 820S IF board... Sell for $45 without filters plus my cost to mail...
I'll also check if I have a Parts Only IF board... Bob ke5ftf 73s **********

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ron: No problem. I dont have a TS-820 board that I could harvest a VR-2 from. Hopefully some one else will. If not then suggest you try Ebay for a sub and also ask Bob Mansker what he gets for a good TS-820 board. You could then swap boards and keep your original board for a parts board. Hate to make a parts board out of it if all you need is VR-2. Of course could also look for a "tech special" TS-820 if you have good credit at bank and can get a 2nd mortgage! Good luck Terry K9TW --- In ts-520_820_530_830@yahoogroups.com , <bozo231@...> wrote: U r right Terry , thanks for having my bac

board not the k lol yes it is the vertical lead 500k ohm pot on the IF board not the rf !!!!!!!!!

_____

From: " wagstw46@... " < wagstw46@... >

To: TS-520_820_530_830@yahoogroups.com

Sent: Sunday, September 1, 2013 2:28 PM

Subject: [TS-520_820_530_830] RE: vr-2

Ron: I think you have a typo. If the VR-2 you need is the span pot (to set S9) for the TS820 S-meter it is a vertical lead 500k ohm pot on the IF board and not the RF board.   If no one has a TS-820 IF board that they are willing to harvest parts from (which would be best for you) then take a look on Ebay and see if you can find a miniature vertical mount substitute. Best if it is vertical mount style. If I am confused about what you need please disregard this response. I am going by what I understood you to say last time we talked.   Terry K9TW   --- In ts-520_820_530_830@yahoogroups.com , <bozo231@...> wrote: does anyone have an old rf board that i could get the vr-2 off of or does anyone have one in a parts bin ? i am in need of one or two plz let me know!!! thanks Ron KK4PWF

Yahoo! Groups Links

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44372. Source problem???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-03 03:05:39 UTC
From: W5RKL
Topic: 44372 Message: 44372

Here's a problem for the inexperienced hams to solve. This is NOT a made up problem, this problem actually occurred in my Heathkit SB-100. I know this is not a Kenwood hybrid but it is a good problem to solve for those studying vacuum tube theory.

Remember all those times you were told to take voltage measurements? Well this is where all that comes "pays off"!!!

Symptom:
Receive audio is distorted
The S meter, after 3 to 4 minutes warm up, drifts below zero and remains pegged hard against the meter peg
No signal, calibrator or strong receive signal brings the S meter above zero

Initial checks:
Meter zero pot is adjusted but no change, meter remains pegged below zero
Detuning the Preselector results in no change in the symptoms except the audio level is lower
Adjusting the RF Gain control CCW causes the S meter to rise above zero and when set fully CCW the meter pegs fully to the right.

Voltages were check for the receiver RF amp, receiver first mixer, first and second IF amplifiers. All 4 stages are directly or indirectly through resistors, connected to the same common receiver's AGC buss.

The following voltage measurements were taken and the results are as follows:

Receiver RF Amp and first receiver mixer's plate and screen voltages are good when compared to the manual's voltage chart
Receiver RF amp and first receiver mixer's grid voltages have decreased by .2VDC less than the voltage chart levels

First IF amplifier's plate and screen voltages were found to be significantly lower than the manual's voltage chart
First IF amplifier's grid voltage was found to be +1.5VDC

Second IF amplifier's plate and screen voltage were found to be lower than the manual's voltage chart
Second IF amplifier's grid voltage was +.8VDC

With all this information, what is the exact source of the problem?

Don't guess, use the information provided to solve the exact source of the problem then explain steps taken to fix all the problems.

Your choices are

1. Loss of operating bias to all 4 stages
2. First IF amp grid resistor had significantly increased in resistance value
3. RF gain control is very dirty resulting in improper operationg
4. Bias supply's filter capacitor has failed resulting in AC ripple on the bias buss
5. One of the tubes is gassy
6. Audio tube has a grid to screen short
7. Bad meter zero pot

73
Mike W5RKL

[Non-text portions of this message have been removed]

44373. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-03 07:18:52 UTC
From: vierugo
Topic: 44331 Message: 44373

Hi Terry
ok, so if I write something outrageous are justified :-)

In step 10 of calibration should therefore be made as follows:

1) disconnect connector 1 in pll board
2) disconnect connector 5 in pll board
3) connect cathode d24 with jumper wire to R44
4) connect local rf generator input fq meter (for read frequency)
5) connect out fq meter (RF signal) connector to rear, ext VFO-
6) connect a wire from emitter to Q35 volmeter scaled to millivolts
7) normalize out from RF to 224 mV

start your procedures with T14, T15, T13

one's question:

T14 is Fc (central)
T15 is Fh
T13 is Fl

is correct or i swap T15 and T13

Ciao
Ugo

--- In TS-520_820_530_830@...m, <wagstw46@...> wrote:
>
> Ugo: OK dont worry about your English. If you need more help or do not understand what I have written just come back and ask. I never advise anyone to attempt to adjust any KW hybrid BPFs if they do not have a Sweep Gen. Can always do the old manual method with RF sig gen and plot the as found response curve on graph paper, but almost impossible to properly stagger tune the 3 resonant circuits with this method. TS-520 has couple of BPF and for life of me cannot figure out way people mess with the slugs on these. If you just want to see where they are set then a RF sig gen and RF probe/VTVM and injecting steps and recording the RF output voltage and then plotting the points is a fun exercise to show the response curve, but it will be a frustrating exercise if you then need to adjust and run another stepped "sweep". Maybe you can find someone close to you that will have a RF sweep gen that you can borrow? Terry K9TW --- In ts-520_820_530_830@yahoogroups.com, vierugo@ wrote: Hi Terry
> thank you for response and alternative method !
>
> I apologize if i have not seen an answer exists that could help me but I have some problem with English (as you can see from the way I write) and did not know how formulate the question in the search;
>
> Your answer and the method that at this point becomes the only solution possible for my

situation;
>
> This night I had temporarily resolved the problem by going in different bands, and varying slightly t14 t13 t15 I did reappear in the display pointing to the frequency limits min and max of each band: Of course not 'a solution but at least I have a starting point min (i attempted a QSO with french om and i received S5-9 :-)
>
> Regarding Emitter of Q35 I used in hook with small wire with a stiff end, of those used for the experimental breadboards (Arduino ecc....), which hook remains far from the other terminals of the transistor and that this may 'be locked to the frame of the apparatus with tape (i used same system for check anchor point at position not good)
>
> Well let's see what I can do by following your advice
>
> i'll let you know
>
> Ugo
>
>
> --- In TS-520_820_530_830@yahoogroups.com , "Terry Wagoner" wagstw46@ wrote:
> >
> > Ugo:
> >
> > I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.
> >
> > However, that being said. You can do the old fashioned method using a regular RF sig gen and a RV millivolt meter or O-scope and inject 50khz to 100 khz steps at VFO signal input on PLL board and then measure the RF voltage levels at the Emitter of buffer amp Q35. You make yourself a table of frequency vs rf output voltage and then plot the points on a graph paper. Before I got a good Sweep gen I use to plot the points using Excel. When you get close to Fc (5.750mhz) best to use smaller frequency steps and take more points. This method has been used for many years by hams to sweep all kinds of filters and you will get a nice graph of the frequency response curve as you have left the filter adjustments.
> >
> > I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.
> >
> > For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
> >
> > Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.
> >
> > So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.
> >
> > You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to

6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
> >
> > You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.
> >
> > Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
> >
> > I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com , "vierugo" <vierugo@> wrote:
> > >
> > > Hi to all
> > > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
> > > i was taken off the sweep generator from the one who had lent me;
> > > (he informed me that he sold it for discontinued business !)
> > >
> > > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
> > > can anyone suggest a procedure to try to end the calibration with alternative method ?
> > >
> > > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
> > > (i not attempted for others bands)
> > > the components touched are T13,T14,T15
> > >
> > > Ugo
> > >
> >
>

44374. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-03 18:07:16 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44374

Ugo:
I would just connect the RF sig gen output signal to PLL board Conn 6 Pin 1 but you can connect at Ext VFO if you want.
Using a Sweep Gen with Kenwood markers and O-scope I typically would first adjust the series resonator T14 for a peak very near 5.750mz (14.580mz) which is Fc (Center frequency) .
I then adjust the parallel resonators for equal roll off which should occur at 5.400mhz(14.230mhz) and at 6.100mhz (14.930mhz). These interact so have to go back and forth to get as close as possible. Basically with a Sweep gen and marker signals you just adjust all three filter elements to match the frequency response curve shown in the service manual.as close as you can and dont concern yourself about the rf output voltage levels from Q35. The response curves are fairly symmetrical.
However from my notes I do find some Q5 emitter rf voltage levels for the corresponding frequencies of Fc, Fh, and Fl.

Perhaps you can use these levels for you standard RF sig gen method of tuning the BPF resonators?
Here is what I have:
Fc (Center) usually occurs close to 160mv. Fl (Low) close to 130mv and Fh (High) close to 120mv. So if you assume roll off occurs from 120mv to 130mv then can use those levels as starting points for adjusment of the two parallel resonators. You may be able to see as you swing your sig gen frequency up or down from FC when the rate of change is getting steeper?
If I was to try adjusting them without a Sweep Gen. I would start with the series resonator T14 and adjust if for a peak output rf voltage at Q35 emitter with 5.750mhz @224mv from the RF sig gen injected .
I guess then would swing the RF sig gen freq down from Fc until see the rate of RF voltage fall getting steeper and note that freq.Then would go back to Fc and swing RF sig gen freq up from FC until see rate of rf voltage fall getting steeper and note that freq. See if this occurs close to 120 to 130mv. .
Based on the levels I noted above I think would adjust T15 for Fh and T13 for Fl and set them for an output level of approx 120 to 130 mv if I was unable to see where the rate of change gets faster.
I suspect just adjusting T15 and T13 for approx 120mv to 140 mv level is about as good as you will be able to do.
you can then run a manual stepped sweep again and plot on graph paper and compare to the response curve in the Service Manual. If you get FC close to 5.750mhz and 160mv I would not mess with T14 anymore.
Terry K9TW. . . . .

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry

ok, so if I write something outrageous are justified :-)

In step 10 of calibration should therefore be made as follows:

1) disconnect connector 1 in pll board

2) disconnect connector 5 in pll board

3) connect cathode d24 with jumper wire to R44

4) connect local rf generator input fq meter (for read frequency)

5) connect out fq meter (RF signal) connector to rear, ext VFO-

6) connect a wire from emitter to Q35 volmeter scaled to millivolts

7) normalize out from RF to 224 mV

start your procedures with T14, T15, T13

one's question:

T14 is Fc (central)

T15 is Fh

T13 is Fl

is correct or i swap T15 and T13

Ciao

Ugo

--- In TS-520_820_530_830@yahoogroups.com , <wagstw46@...> wrote:

>

> Ugo: OK dont worry about your English. If you need more help or do not understand what I have written just come back and ask. Â I never advise anyone to attempt to adjust any KW hybrid BPFs if they do not have a Sweep Gen. Can always do the old manual method with RF sig gen and plot the as found response curve on graph paper, but almost impossible to properly stagger tune the 3 resonant circuits with this method.Â TS-520 has couple of BPF and for life of me cannot figure out way people mess with the slugs on these. Â If Â you just want to see where they are set then a RF sig gen and RF probe/VTVM and injecting steps and recording the RF output voltage and then plotting the points is a fun exercise to show the response curve, but it will be a frustrating exercise if you then need to adjust and run another stepped "sweep".Â Maybe you can find someone close to you that will have a RF sweep gen that you can borrow? Terry K9TW --- In ts-520_820_530_830@yahoogroups.com , vierugo@ wrote: Hi Terry

> thank you for response and alternative method !

>

> I apologize if i have not seen an answer exists that could help me but I have some problem with English (as you can see from the way I write) and did not know how formulate the question in the search;

>

> Your answer and the method that at this point becomes the only solution possible for my situation;

>

> This night I had temporarily resolved the problem by going in different bands, and varying slightly t14 t13 t15 I did reappear in the display pointing to the frequency limits min and max of each band: Of course not 'a solution but at least I have a starting point min (i attempted a QSO with french om and i received S5-9 :-)

>

> Regarding Emitter of Q35 I used in hook with small wire with a stiff end, of those used for the experimental breadboards (Arduino ecc....), which hook remains far from the other terminals of the transistor and that this may 'be locked to the frame of the apparatus with tape (i used same system for check anchor point at position not good)

>

> Well let's see what I can do by following your advice

>

> i'll let you know

>

> Ugo

>

>

> --- In TS-520_820_530_830@yahoogroups.com , "Terry Wagoner" wagstw46@ wrote:

> >

> > Ugo:

> >

> > I sent a response earlier but it has not shown up? You really need a Sweep Gen with Kenwood markers to be able do do the stagger tuning you need to do.

> >

> > However, that being said. You can do the old fashioned method using a regular RF sig gen and a RV millivolt meter or O-scope and inject 50khz to 100 khz steps at VFO signal input on PLL board and then measure the RF voltage levels at the Emitter of buffer amp Q35.

You make yourself a table of frequency vs rf output voltage and then plot the points on a graph paper. Before I got a good Sweep gen I use to plot the points using Excel. When you get close to Fc (5.750mhz) best to use smaller frequency steps and take more points. This method has been used for many years by hams to sweep all kinds of filters and you will get a nice graph of the frequency response curve as you have left the filter adjustments.

> >

> > I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.

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> > For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.

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> > Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.

> >

> > So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.

> >

> > You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.

> >

> > You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.

> >

> > Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.

> >

> > I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.

> >

> > Terry K9TW

> >

> > --- In TS-520_820_530_830@yahoogroups.com , "vierugo" <vierugo@> wrote:

> > >

> > > Hi to all

> > > During calibration bpf-a for ts-830 , step 10, page 35, service manual,

> > > i was taken off the sweep generator from the one who had lent me;

> > > (he informed me that he sold it for discontinued business !)

> > >

> > > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz

> > > can anyone suggest a procedure to try to end the calibration with alternative method ?

> > >

> > > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!

> > > (i not attempted for others bands)

> > > the components touched are T13,T14,T15

> > >

> > > Ugo

> > >

> >

>

44375. Vacuum tube theory videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-03 20:09:32 UTC
From: W5RKL
Topic: 44375 Message: 44375

I made a couple of short videos showing what happens to the Grid, Cathode, and Screen voltage of a simple amplifier circuit (IF amp in this case) when grid voltage changes by the application of AGC voltage based on the strength of a receive signal. The videos are of the first IF stage, V3, in my Heathkit SB-100. Although the SB-100 is NOT an Kenwood hybrid, the idea behind the videos is to show basic vacuum tube concepts. The same thing applies to your hybrids final amplifier or driver tubes. As the grid voltage varies so does the gain of the tube(s) as shown in the videos. You can perform these simple test yourself but you will need a VTVM or two, the 1Meg probes for each VTVM, and take the time to experiment. If you are studying vacuum tube theory, experiments such as this can easily make what you read/studied, "make sense"!

There are 2 videos, one shows the variations in cathode voltage along with grid voltage (AGC voltage) and the other shows the variations in grid and screen voltage.
\
Both videos begin with the tube operating at maximum gain. As the signal is applied, AGC voltage is produced that is applied to the grid of the tube resulting in a "reduction" in the tube's gain. When the gain is reduced the grid voltage increases (combination of fixed operating bias and AGC voltage), the Cathode voltage decreases due to reduced electron flow in the tube, and the Screen voltage increases due to a reduced voltage drop in the screen circuit. The opposite occurs when the gain is "increased" caused by the reduction in the strength of the receive signal.

If you all remember the many times we have said the importance of measuring voltages, this is a clear example of what we are talking about!

If you are interested in seeing the videos drop me a private email and I'll send them to you. Each video is "10meg" so your Internet service provider/email server must allow you to receive files larger than 10meg. I hope to have them uploaded to the Files section soon.

The videos can be viewed using Windows Media Player, included with all versions of Windows.

I'm working on another video to show what happens when the a tube that shares the AGC buss with another tube, turns Positive due to excessive gas. It's easy to "simulate" a gassy tube by using a 1.5VDC AA battery and applying that voltage to the grid of one tube we'll call tube "A" while monitor the grid, cathode, and screen voltage of the other tube we'll call tube "B". What do you think will happen to tube "B's" grid voltage? Also what happens to the output signal of both tube "A" and tube "B"?

73
Mike W5RKL

[Non-text portions of this message have been removed]

44376. RE: RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-03 20:44:11 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44376

Ugo:
Just a reminder. When you asked about an alternate method to check the alignment of the PLL BPF without a Sweep Gen. I suggested you could use the manual stepped method with a RF Sig gen and a RF millivolt meter or O-scope. At that time I suggested if you took enough rf output voltage data points stepping from 5.000mhz to 6.500mhz and plotted them on graph paper you would be able to see what the response curve looks like as presently adjusted.
I also mentioned that trying to align a 3 element Butterworth BPF by this method is not easy or recommended method because you cannot see in real time the effect any adjustment on any resonator makes on the response curve. It just isnt very practical.
Today in lieu of a Sweep gen and Scope tech would use Spectrum Analyzer and Tracking Gen, 2 port VNA, and/or perhaps a return loss bridge. In old days we would grid dip each resonator and squeeze turns of coils and call it good. .
I am curious if you ran an as left manual sweep and plotted the points on a graph and compared it to the response curve in the Service Manual? If so, what did you determine?
You are looking for a filter response where FC (center) is 5.750mhz (14.580mhz) and the filter is approx 700khz wide. If close to that then assuming rest of PLL is aligned properly the PLL should work fine unless you or someone else tweaked on the other two BPFs?
Terry K9TW.

I

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ugo:

I would just connect the RF sig gen output signal to PLL board Conn 6 Pin 1 but you can connect at Ext VFO if you want.

Using a Sweep Gen with Kenwood markers and O-scope I typically would first adjust the series resonator T14 for a peak very near 5.750mz (14.580mz) which is Fc (Center frequency) .

I then adjust the parallel resonators for equal roll off which should occur at 5.400mhz(14.230mhz) and at 6.100mhz (14.930mhz). These interact so have to go back and forth to get as close as possible. Basically with a Sweep gen and marker signals you just adjust all three filter elements to match the frequency response curve shown in the service manual.as close as you can and dont concern yourself about the rf output voltage levels from Q35. The response curves are fairly symmetrical.

However from my notes I do find some Q5 emitter rf voltage levels for the corresponding frequencies of Fc, Fh, and Fl.

Perhaps you can use these levels for you standard RF sig gen method of tuning the BPF resonators?

Here is what I have:

Fc (Center) usually occurs close to 160mv. Fl (Low) close to 130mv and Fh (High) close to 120mv. So if you assume roll off occurs from 120mv to 130mv then can use those levels as starting points for adjusment of the two parallel resonators. You may be able to see as you swing your sig gen frequency up or down from FC when the rate of change is getting steeper?

If I was to try adjusting them without a Sweep Gen. I would start with the series resonator T14 and adjust if for a peak output rf voltage at Q35 emitter with 5.750mhz @224mv from the RF sig gen injected .

I guess then would swing the RF sig gen freq down from Fc until see the rate of RF voltage fall getting steeper and note that freq.Then would go back to Fc and swing RF sig gen freq up from FC until see rate of rf voltage fall getting steeper and note that freq. See if this occurs close to 120 to 130mv. .

Based on the levels I noted above I think would adjust T15 for Fh and T13 for Fl and set them for an output level of approx 120 to 130 mv if I was unable to see where the rate of change gets faster.

I suspect just adjusting T15 and T13 for approx 120mv to 140 mv level is about as good as you will be able to do.

you can then run a manual stepped sweep again and plot on graph paper and compare to the response curve in the Service Manual. If you get FC close to 5.750mhz and 160mv I would not mess with T14 anymore.

Terry K9TW. . . . .

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Hi Terry

ok, so if I write something outrageous are justified :-)

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Ciao

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> > You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.

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> > Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.

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> > I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.

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> > Terry K9TW

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> > --- In TS-520_820_530_830@yahoogroups.com , "vierugo" <vierugo@> wrote:

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> > > Hi to all

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> > > (he informed me that he sold it for discontinued business !)

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> > > can anyone suggest a procedure to try to end the calibration with alternative method ?

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> > > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!

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> > > the components touched are T13,T14,T15

> > >

> > > Ugo

> > >

> >

>

44377. TS820s running on 12V

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 01:34:16 UTC
From: schneiderandrew
Topic: 44377 Message: 44377

Anyone every run the TS820s on 12V?

Can someone give me suggestions on how to make this connection.

Thank you

Andy N7EBG
N7EBG@...

44378. Re: [TS-520_820_530_830] TS820s running on 12V

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 03:38:23 UTC
From: Joseph Stiles
Topic: 44377 Message: 44378

Andy,

You will have to get another connector OR re-wire your 120volt one. The wiring scheme for 12(13.8vdc) is shown on page 7 of the "operating manual," Fig 1b

73 Joe
WB7UQU

From: schneiderandrew <andrew@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 3, 2013 6:34 PM
Subject: [TS-520_820_530_830] TS820s running on 12V

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Can someone give me suggestions on how to make this connection.

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Andy N7EBG
N7EBG@...

[Non-text portions of this message have been removed]

44379. RE: TS820s running on 12V

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 12:51:59 UTC
From: <ke5ftf@...>
Topic: 44377 Message: 44379

You have to get another Jones Plug & wire it up (in manual)...
Your CW power on 12 volts will be less than on 120 AC...
I have sold several DS-1A converters..
Happy solder smoke in your eyes.. :)
Bob

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Anyone every run the TS820s on 12V?

Can someone give me suggestions on how to make this connection.

Thank you

Andy N7EBG
N7EBG@...

44380. Re: Vacuum tube theory videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 14:26:39 UTC
From: Bill Kuhn
Topic: 44375 Message: 44380

I'd love to see the videos.

Could you possibly put them on YouTube?

If not, I can make them available on my SkyDrive as downloadable files
if you want.

73 DE NO0OO

Bill Kuhn

44381. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 07:52:44 UTC
From: vierugo
Topic: 44331 Message: 44381

Hello Terry

the problem with this is that TS-830M had been tampered with, altered, modified by the previous owner for 11 meters and power to the limit:
-some of the cables in the back were almost charred and I do not know 'how did I conduct
-coils and transformers for the various ranges, apart from the 11 meters, seemed turn at random and the power transformer is not 'original which ones (some power supplies are lower: I 700 V not 800 for example ....!)
-the resistors of both the rectifier is in the final stage had been put in parallel to obtain values similar to the original ones, but with Watt > 2 and value alterated which is absolutely wrong
-the power tubes are the 6146b and the other the 6156w while the other valve is not the original one (the initial part of the code almost unreadable, and is not the correct one)
-capacitors and discharge resistors on the two electrolytic 100 uF, 500V are dropped ,eliminated, and you know how dangerous such a choice!
..... etc. etc.

Unfortunately I had the bad idea to buy online trusting of what is said by the seller and I was wrong

at this point or gave fire to everything or tried to put it back in the running:
I chose the second way:
- I cleaned all the contacts
- I replaced the cables charred (including some high voltage wires close to the chassis)
- I restored the inductance of 6.8 uH in the final stage and from 0.01 uF capacitor
(I have not found the capacitor 1nF class 1, although I would try what I 10Kv 1 nF)
- I replace all electrolytic capacitor in all board's (> 80 element !!!) with exception for freq board because no simple in double printed board remove components without create damage !

After I started to re-check all power and start alignment from step -1 , service manual , and since I had lent a sweep generator , when i am at step 10 , I started doing the calibration:
given that the filter was not absolutely as was apparent from the graph I tried to change T13 T14 T15 but as I said I had to return the instrument because the owner had sold and so are in a situation halfway;
I tried to go back and now I can see the display of the VFO from the bottom to the top, for each band, but BPFA is definitely out of the correct valuesR03;:
What do I have to lose in an attempt to make and do as you said previous commentary?
the two filters that follow?
no , no ..... do not touch them if I do not have a sweep, but the price is prohibitive besides the fact that I have not even a spectrum analyzer;
i dont know if BP-B BPF-C are altered , i can check but i can't touch without the sweep !

the only tools at my disposal are a frequency meter , borrow an oscilloscope, an usual digital multimeter and a grid-dip homemade

Well I hope I have answered your question.

What would you do in my place ?

this week I should start doing some measurements so you'll know how to proceed;

Ugo

(in the meantime I'm thinking if an Arduino with a varicap and a pair of D/A A/D + the gnuplot program + user program and doing what you said :
I could automate the sampling in steps of 50 or 100 khz tensions
(i can parallelize the rf capacitor with varicap varing voltage ....)
and transmit via socket [fq , voltage] in emitter from arduino to pc ; after with gnuplot reads the vector created and graph the values in a cartesian plane with a jpeg image can be view with refresh automatic (via html / user application ...) ;

This procedure in 5/10 seconds at max can give a correct picture of where are several voltage spikes ..... bah we'll see!)

--- In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Ugo:
> Just a reminder. When you asked about an alternate method to check the alignment of the PLL BPF without a Sweep Gen. I suggested you could use the manual stepped method with a RF Sig gen and a RF millivolt meter or O-scope. At that time I suggested if you took enough rf output voltage data points stepping from 5.000mhz to 6.500mhz and plotted them on graph paper you would be able to see what the response curve looks like as presently adjusted.
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> I am curious if you ran an as left manual sweep and plotted the points on a graph and compared it to the response curve in the Service Manual? If so, what did you determine?
> You are looking for a filter response where FC (center) is 5.750mhz (14.580mhz) and the filter is approx 700khz wide. If close to that then assuming rest of PLL is aligned properly the PLL should work fine unless you or someone else tweaked on the other two BPFs?
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> I then adjust the parallel resonators for equal roll off which should occur at 5.400mhz(14.230mhz) and at 6.100mhz (14.930mhz). These interact so have to go back and forth to get as close as possible. Basically with a Sweep gen and

marker signals you just adjust all three filter elements to match the frequency response curve shown in the service manual.as close as you can and dont concern yourself about the rf output voltage levels from Q35. The response curves are fairly symmetrical.
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> However from my notes I do find some Q5 emitter rf voltage levels for the corresponding frequencies of Fc, Fh, and Fl.
>
>
>
> Perhaps you can use these levels for you standard RF sig gen method of tuning the BPF resonators?
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> Here is what I have:
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> Fc (Center) usually occurs close to 160mv. Fl (Low) close to 130mv and Fh (High) close to 120mv. So if you assume roll off occurs from 120mv to 130mv then can use those levels as starting points for adjusment of the two parallel resonators. You may be able to see as you swing your sig gen frequency up or down from FC when the rate of change is getting steeper?
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> If I was to try adjusting them without a Sweep Gen. I would start with the series resonator T14 and adjust if for a peak output rf voltage at Q35 emitter with 5.750mhz @224mv from the RF sig gen injected .
>
> I guess then would swing the RF sig gen freq down from Fc until see the rate of RF voltage fall getting steeper and note that freq.Then would go back to Fc and swing RF sig gen freq up from FC until see rate of rf voltage fall getting steeper and note that freq. See if this occurs close to 120 to 130mv. .
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> Based on the levels I noted above I think would adjust T15 for Fh and T13 for Fl and set them for an output level of approx 120 to 130 mv if I was unable to see where the rate of change gets faster.
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> I suspect just adjusting T15 and T13 for approx 120mv to 140 mv level is about as good as you will be able to do.
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> Terry K9TW. . . . .
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> T13 is Fl
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> is correct or i swap T15 and T13
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> Ciao
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> Ugo
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> > > I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.
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> > > For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
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> > > Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.
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> > > So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as you adjust.
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> > > You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
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> > > You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.
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> > > Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
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> > > I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
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> > > Terry K9TW
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> > > --- In TS-520_820_530_830@yahoogroups.com , "vierugo" <vierugo@> wrote:
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> > > > Hi to all
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> > > > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
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> > > > i was taken off the sweep generator from the one who had lent me;
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> > > > (he informed me that he sold it for discontinued business !)

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> > > > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
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> > > > can anyone suggest a procedure to try to end the calibration with alternative method ?
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> > > > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies the display off!
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> > > > (i not attempted for others bands)
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> > > > the components touched are T13,T14,T15
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> > > > Ugo
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44382. Meter problem with TS-520 se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 06:53:45 UTC
From: <densoldman@...>
Topic: 44382 Message: 44382

Hi all I have just been given a TS-520se which had been in someones garage for several years. I took the covers off and gave it a good visual check and re seated the tubes and then connected it to a variac and gradually bought it up to full ac over a couple of days. Next was to connect it to a dummy load and try to tune it and here we met the first problem. having checked that that plate idle was correct which it was I tried to peak the drive in tune mode and the meter pegged backwards. In other words no reading, so I switched to cw and turned the carrier down to limit output and the same thing happened. The next step was to connect to a well tuned antenna and peak the drive in receive and then dip the plate very quickly in cw as it did not like the tune mode. all settings were exactly as manual. and it gave a good 100w out on 20m band. At this stage I quit until I could get Ideas from here. My technical experience is limited so I don't want to delve too far without some ideas first and being in the uk so far I have found no one local who is well up on hybrids. 7s de Mike m0mcy (recently passed) formerly 2e0mcy

44383. De-Oxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 16:06:13 UTC
From: ponsford_michael
Topic: 44383 Message: 44383

Hello to the group

I have read many times in various postings here about using De-Oxit for switch contact cleaning. There appears to be several different types/grades available, and I am seeking advice please as to which is the correct one to use on the noisy bandswitch in my TS-530S.

Advice appreciated.

Many thanks

73

Mick - M0GWD
Portsmouth, UK

44384. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 17:04:27 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44384

Ugo:

Yes now I understand your problem. This would be OK if owner had been honest and you got it for a very good price knowing it would require a lot of work. Well any time any of us buy a Hybrid site unseen it is a risk.

When I buy off Ebay or QTH or QRZ I email the owner and ask for telephone number and call and talk to seller. You can tell a lot about the radio and the person by how they answer your questions. I ask them to talk to me ham-to-ham and man-to-man and give me what they really know about the radio. If I do not like what I hear then I walk away. No guarantee you will still not get a problem rig, but most times the person will tell you what they really know about the radio.

Also must be cautious when they say things like it worked last time I tried it or when I put it in storage it worked or I only operate on 80 meters or I dont have an antenna to try it. All words that should cause you to be concerned.

I also ask about what is my "right of return". If they say no return and sale is final, then I usually make a low ball offer if interested at all or I move on and look for another radio.

OK just wanted to make sure you had completed Step 9. If you have correct VCO frequencies at the bottom ,middle and high end of the VFO on each band and most importantly you have close to 1.0rf rms volts on all bands at TP-3 on the RF board then you should have good RX and TX mixer action.

Let us know how you make out using the regular rf signal generator. Sounds like you have the ability to make a sweep generator. There may be a DDS kit available?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hello Terry

the problem with this is that TS-830M had been tampered with, altered, modified by the previous owner for 11 meters and power to the limit:
-some of the cables in the back were almost charred and I do not know 'how did I conduct
-coils and transformers for the various ranges, apart from the 11 meters, seemed turn at random and the power transformer is not 'original which ones (some power supplies are lower: I 700 V not 800 for example ....!)
-the resistors of both the rectifier is in the final stage had been put in parallel to obtain values similar to the original ones, but with Watt > 2 and value alterated which is absolutely wrong
-the power tubes are the 6146b and the other the 6156w while the other valve is not the original one (the initial part of the code almost unreadable, and is not the correct one)
-capacitors and discharge resistors on the two electrolytic 100 uF, 500V are dropped ,eliminated, and you know how dangerous such a choice!
..... etc. etc.

Unfortunately I had the bad idea to buy online trusting of what is said by the seller and I was wrong

at this point or gave fire to everything or tried to put it back in the running:
I chose the second way:
- I cleaned all the contacts
- I replaced the cables charred (including some high voltage wires close to the chassis)
- I restored the inductance of 6.8 uH in the final stage and from 0.01 uF capacitor
(I have not found the capacitor 1nF class 1, although I would try what I 10Kv 1 nF)
- I replace all electrolytic capacitor in all board's (> 80 element !!!) with exception for freq board because no simple in double printed board remove components without create damage !

After I started to re-check all power and start alignment from step -1 , service manual , and since I had lent a sweep generator , when i am at step 10 , I started doing the calibration:
given that the filter was not absolutely as was apparent from the graph I tried to change T13 T14 T15 but as I said I had to return the instrument because the owner had sold and so are in a situation halfway;
I tried to go back and now I can see the display of the VFO from the bottom to the top, for each band, but BPFA is definitely out of the correct values:
What do I have to lose in an attempt to make and do as you said previous commentary?
the two filters that follow?
no , no ..... do not touch them if I do not have a sweep, but the price is prohibitive besides the fact that I have not even a spectrum analyzer;
i dont know if BP-B BPF-C are altered , i can check but i can't touch without the sweep !

the only tools at my disposal are a frequency meter , borrow an oscilloscope, an usual digital multimeter and a grid-dip homemade

Well I hope I have answered your question.

What would you do in my place ?

this week I should start doing some measurements so you'll know how to proceed;

Ugo

(in the meantime I'm thinking if an Arduino with a varicap and a pair of D/A A/D + the gnuplot program + user program and doing what you said :
I could automate the sampling in steps of 50 or 100 khz tensions
(i can parallelize the rf capacitor with varicap varing voltage ....)
and transmit via socket [fq , voltage] in emitter from arduino to pc ; after with gnuplot reads the vector created and graph the values in a cartesian plane with a jpeg image can be view with refresh automatic (via html / user application ...) ;

This procedure in 5/10 seconds at max can give a correct picture of where are several voltage spikes ..... bah we'll see!)

--- In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Ugo:
> Just a reminder. When you asked about an alternate method to check the alignment of the PLL BPF without a Sweep Gen. I suggested you could use the manual stepped method with a RF Sig gen and a RF millivolt meter or O-scope. At that time I suggested if you took enough rf output voltage data points stepping from 5.000mhz to 6.500mhz and plotted

them on graph paper you would be able to see what the response curve looks like as presently adjusted.Â
> I also mentioned that trying to align a 3 element Butterworth BPF by this method is not easy or recommended method because you cannot see in real time the effect any adjustment on any resonator makes on the response curve. It just isnt very practical.Â
> Today in lieu of a Sweep gen and Scope tech would use Spectrum Analyzer and Tracking Gen, 2 port VNA, and/or Â perhaps a return loss bridge. In old days we would grid dip each resonator and squeeze turns of coils and call it good. . Â
> I am curious if you ran an as left manual sweep and plotted the points on a graph and compared it to the response curve in the Service Manual? Â If so, what did you determine?
> You are looking for a filter response where FC (center) is 5.750mhz (14.580mhz) and the filter is approx 700khz wide. If close to that then assuming rest of PLL is aligned properly the PLL should work fine unless you or someone else tweaked on the other two BPFs?Â
> Terry K9TW.Â
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> I Â
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> --- In TS-520_820_530_830@yahoogroups.com, ts-520_820_530_830@yahoogroups.com wrote:
>
> Ugo:
>
> I would just connect the RF sig gen output signal to PLL board Conn 6 Pin 1 but you can connect at Ext VFO if you want.Â
>
> Using a Sweep Gen with Kenwood markers Â and O-scope I typically would first adjust the series resonator T14 Â for a peak very near 5.750mz (14.580mz) which is Fc (Center frequency) .Â
>
> I then adjust the parallel resonators for equal roll off which should occur at 5.400mhz(14.230mhz) and at 6.100mhz (14.930mhz). These interact so have to go back and forth to get as close as possible.Â Basically with a Sweep gen and marker signals you just adjust all three filter elements to match the frequency response curve shown in the service manual.as close as you can and dont concern yourself about the rf output voltage levels from Q35. Â The response curves are fairly symmetrical.Â
>
> However from my notes I do find some Q5 emitter rf voltage levels for the corresponding Â frequencies Â of Fc, Fh, and Fl. Â
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>
> Perhaps you can use these levels for you standard RF sig gen method of tuning the BPF resonators?
>
> Here is what I have:
>
> Fc (Center) usually occurs close to 160mv. Fl (Low) close to 130mv and Fh (High) close to 120mv. So if you assume roll off occurs from 120mv to 130mv then can use those levels as starting points for adjusment of the two parallel resonators. Â You may be able to see as you swing your sig gen frequency up or down from FC when the rate of change is getting steeper?Â
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> is correct or i swap T15 and T13
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> > > I would use a Freq Counter on the output of your RF sig gen unless it has good calibrated output. Also important the your RF sig gen output level does not vary as you change the frequency.
>
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> > >
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>
> > > For your first pass can just slowly sweep the RF Sig gen from 5.000mhz to 6.100mhz and find the peak and just add 8.830 to what you read on your freq counter. It should be very close to 14.580 if someone hasnt messed with the adjustments.
>
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> > >
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>
> > > Problem is this manual stepped graph paper method is not very good for making adjustments. It can take many repeat cycles to see the results of your adjustments and the three adjustments interact. Usually I adjust for Fc first.
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>
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> > >
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>
> > > So much easier to have Sweep gen with Hybrid markers and watch your changes on the O-scope in real time as

you adjust.
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> > >
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>
> > > You dont need a 35mhz or 40mhz sweep or rf sig gen. For BPF-A you will inject 5mhz to 6mhz and for BPF-B and BPF-C you will inject 14.0mhz to 15.5mhz. There is a mixing scheme involved. For BPF-A Step 10 you are lifting the VFO signal to the PLL and substituting your RF sig gen from about 5.000mhz to 6.500mhz. I would use a frequency counter to make sure you know what the actual frequency of your rf sig generator is. Set sig gen level to 0dBm or 224mv.
>
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> > >
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>
> > > You should see peaks in rf output voltage level at Q35 emitter at Fcl (5.400Mhz), Fc(5.750mhz), and Fch (6.100mhz). Fcl and Fch are the 3dB roll off points of the filter. Filter should be approx 700khz wide. With 224mv of 5.750mhz injected you should see approx 160mv output at emitter of Q35 which corresponds to 14.580mhz Fc.
>
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> > >
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>
> > > Just make sure you have the bandswitch matrix disabled and you have 9vdc bias applied to filter switching diodes as you proceed to next filters. Service manual instructions could be better. I started revising and never finished the project.
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>
> > > I use a micro grabber test lead to get on emitter of Q35. You may have to gently move L21, C114, and R45 to get test lead on it.
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> > >
>
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>
> > > Terry K9TW

>
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> > >
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>
> > > --- In TS-520_820_530_830@yahoogroups.com , "vierugo" <vierugo@> wrote:
>
>
>
> > > >
>
>
>
> > > > Hi to all
>
>
>
> > > > During calibration bpf-a for ts-830 , step 10, page 35, service manual,
>
>
>
> > > > i was taken off the sweep generator from the one who had lent me;
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>
> > > > (he informed me that he sold it for discontinued business !)
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>
> > > >
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>
>
> > > > at this point I'm stuck and the only things available are a signal generator up to 30/35 MHz and an oscilloscope to 40 Mhz
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>
> > > > can anyone suggest a procedure to try to end the calibration with alternative method ?
>
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> > > >
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>
>
> > > > now , the display of VFO, is on when frequencies are from 7.3 to 7.5 MHz, about ; outside of these frequencies

the display off!
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>
> > > > (i not attempted for others bands)
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>
> > > > the components touched are T13,T14,T15
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> > > > >
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> > > > Ugo
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44385. RE: Meter problem with TS-520 se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 17:56:15 UTC
From: <wagstw46@...>
Topic: 44382 Message: 44385

Does the S-meter work normally in RX mode with off air signals and/or Marker signal?

The S-meter is a volt meter that monitors the AGC bus in RX mode and the ALC bus in TX mode. This bus is set to approx 3.3vdc and fed from the RF-1 voltage on the AVR board. Any time S-meter goes up scale it is telling you the AGC bus is going lower in voltage from its 3.3vdc reference level. Any time it goes down scale it is telling you the bus voltage is going higher than 3.3vdc. This is very rare. RF-1 is derived from the 9vdc regulated on the AVR board. Never seen them go higher in voltage under key down. If you have DMM or VTVM I would monitor RF-1 at AVR board or at RF board and see what it does when you flip to send. If it goes up then measure 9vdc when you key rig.

Can test Driver stage and ALC indication by turning off the SG switch on rear of rig. Then with heater on , meter in ALC position, Car pot at approx 1200, then key rig and peak the Drive control. If meter pegs full scale right just turn down the Car level pot to get indication off the peg. Try this on all bands. If no ALC indication in Tune try same test in CW mode on all bands. There should be no difference in ALC indication in Tune or CW mode for a given setting of the Car Level Pot.

As I said for ALC indication to peg hard down scale when you key the rig the ALC bus would have to be going higher in voltage from its 3.3vdc level set by RF-1.

I have never seen this. Maybe someone else has experienced it and can share the cause and fix.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all I have just been given a TS-520se which had been in someones garage for several years. I took the covers off and gave it a good visual check and re seated the tubes and then connected it to a variac and gradually bought it up to full ac over a couple of days. Next was to connect it to a dummy load and try to tune it and here we met the first problem. having checked that that plate idle was correct which it was I tried to peak the drive in tune mode and the meter pegged backwards. In other words no reading, so I switched to cw and turned the carrier down to limit output and the same thing happened. The next step was to connect to a well tuned antenna and peak the drive in receive and then dip the plate very quickly in cw as it did not like the tune mode. all settings were exactly as manual. and it gave a good 100w out on 20m band. At this stage I quit until I could get Ideas from here. My technical experience is limited so I don't want to delve too far without some ideas first and being in the uk so far I have found no one local who is well up on hybrids. 7s de Mike m0mcy (recently passed) formerly 2e0mcy

44386. Re: [TS-520_820_530_830] De-Oxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 18:39:42 UTC
From: Craig Roberts
Topic: 44383 Message: 44386

After using the standard DeoxIT D5 spray on a TS-530S band switch and spending more time cleaning up the overspray than I spent cleaning the contacts, I switched to a more precise and electrically efficient method of application by employing the contents of a CAIG DeOxIT Liquid 25mL bottle with Needle Applicator.

The DeoxIT in the bottles is even more expensive than the sprays, but since it's 100% product, just a drop on each contact works wonderfully. I used it on my TS-830S's band switch, thus reviving the radio from working marginally on one band to operating perfectly on all.

73,

Craig
W3CRR

>

44387. TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 17:47:26 UTC
From: <paw_paw44036@...>
Topic: 20 Message: 44387

Just want to thank Terry K9TW for all the help he was in helping get my rig running again.
Thank You.
Bill WD8OSJ

44388. Re: [TS-520_820_530_830] De-Oxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 21:28:42 UTC
From: Dave & Loraine
Topic: 44383 Message: 44388

Hi Mick
DeoxitD5
73 Dave f4eyk

44389. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 21:18:41 UTC
From: vierugo
Topic: 44331 Message: 44389

Hi terry
sorry for delay but when i post a message has a delay cause is too short time in this news group and from post and real view in site , has a delay

thanks for understanding my situation: I am a ham radio and I thought that existed between ham radio operators a minimum of fairness ....
now it is gone and it is no use crying over spilled milk ....!

Regarding the step 9:

"OK ... just wanted to make sure you had completed Step 9. If you have correct VCO frequencies at the bottom, middle and high end of the VFO on each band and most importantly you have to close 1.0rf volts rms on all bands at TP-3 on the RF board then You Should Have good RX and TX mixer action ..... "

the freq are ok, tensions were only slightly different, but are fine now!
the problem is the voltage 1.0 Volt: in some band ok but I have some values more than 3 volts and 28 MHz I've 400/500 mV: since the manual was written 1.0. V + [+2 dB, -1 dB] believed to be in the correct range.

Regarding

"Let us know how you make out using the regular rf signal generator. Sounds like you have the ability to make a sweep generator. There may be a DDS kit available?
"
the idea is a mechanization suggested at the beginning of your process:
I have a RF generator of Mial, 1950/60 with 1 valves, as the mod 145 but has the chance to calibrate even the MF to 455 (the owner is my father's ham 80 years ....:-), but with a stability of frequency incredible;
The valve 6sc7 was almost exausted but in the end I found one and I arrive tomorrow so between Sat & Sun I should be able to try everything

his is an attempt I wanted to do:

vary with arduino via D / A voltage on a varicap in parallel to the variable capacitor of Mial, store the numbers corresponding to the values min and max steps of 1/20; (1/20 is an example : can be use 1/50 or 1/100)
(the main capacitor of rf generator must be placed with varicap ready at start of 5000 Khz - f(varicap, 1/20)
at this point entering a program loop that:
-sets the voltage of the i-th D / A in varicap thus varies the fq of Gen. RF (Fq-initial + Dv) (depending on value produced by D/A of Arduino)
-read for a certain number of times the value read by an other A / D, always connected to arduino in such a way as to have the voltage value by E of Q35 for this i-th step
then store the pair and open a socket to a server application in pc , in my case written in python, which reads the values sent and stores them in a vector;

once the loop the program on arduino freezes for a few moments while the server program reads the values of vector and calls gnuplot to draw the graph with the correspondence:
x fq to step 1/20

y values in mV in E Q35

Okay, maybe it 'a stupid idea but maybe it could work
dds i do not know them very well and I have no problems with microcontrollers such as Arduino or various picxxxxx and languages like python .ecc.....

What do you think?

Ah ... I forgot: J1 must be removed from pll board and the bridge with D27 <---> R44 I have to do, however, also using an external rf right?

Ugo

44390. RE: TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 23:11:59 UTC
From: <wagstw46@...>
Topic: 20 Message: 44390

Bill:

I appreciate your comment and enjoy helping when I can.

You were a pretty knowledgeable patient which really helps!

With these old treasures it will always be something and great that we all found this place to help each other.

73s
Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Just want to thank Terry K9TW for all the help he was in helping get my rig running again. Thank You.
Bill WD8OSJ

44391. Re: [TS-520_820_530_830] Vacuum tube theory videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-04 23:53:49 UTC
From: Alan Barber
Topic: 44375 Message: 44391

If you can post these videos on you tube it would save you a lot of time sending files to individuals.

Earl

KABGI

From: W5RKL <w5rkl@...>
To: Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, September 3, 2013 3:09 PM
Subject: [TS-520_820_530_830] Vacuum tube theory videos

I made a couple of short videos showing what happens to the Grid, Cathode, and Screen voltage of a simple amplifier circuit (IF amp in this case) when grid voltage changes by the application of AGC voltage based on the strength of a receive signal. The videos are of the first IF stage, V3, in my Heathkit SB-100. Although the SB-100 is NOT an Kenwood hybrid, the idea behind the videos is to show basic vacuum tube concepts. The same thing applies to your hybrids final amplifier or driver tubes. As the grid voltage varies so does the gain of the tube(s) as shown in the videos. You can perform these simple test yourself but you will need a VTVM or two, the 1Meg probes for each VTVM, and take the time to experiment. If you are studying vacuum tube theory, experiments such as this can easily make what you read/studied, "make sense"!

There are 2 videos, one shows the variations in cathode voltage along with grid voltage (AGC voltage) and the other shows the variations in grid and screen voltage.
\
Both videos begin with the tube operating at maximum gain. As the signal is applied, AGC voltage is produced that is applied to the grid of the tube resulting in a "reduction" in the tube's gain. When the gain is reduced the grid voltage increases (combination of fixed operating bias and AGC voltage), the Cathode voltage decreases due to reduced electron flow in the tube, and the Screen voltage increases due to a reduced voltage drop in the screen circuit. The opposite occurs when the gain is "increased" caused by the reduction in the strength of the receive signal.

If you all remember the many times we have said the importance of measuring voltages, this is a clear example of what we are talking about!

If you are interested in seeing the videos drop me a private email and I'll send them to you. Each video is "10meg" so your Internet service provider/email server must allow you to receive files larger than 10meg.

I hope to have them uploaded to the Files section soon.

The videos can be viewed using Windows Media Player, included with all versions of Windows.

I'm working on another video to show what happens when the a tube that shares the AGC buss with another tube, turns Positive due to excessive gas. It's easy to "simulate" a gassy tube by using a 1.5VDC AA battery and applying that voltage to the grid of one tube we'll call tube "A" while monitor the grid, cathode, and screen voltage of the other tube we'll call tube "B". What do you think will happen to tube "B's" grid voltage? Also what happens to the output signal of both tube "A" and tube "B"?

73
Mike W5RKL

[Non-text portions of this message have been removed]

44392. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 00:40:31 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44392

Ugo:

1.0 rf volts +3dB and -2db tolerance means a high of 1.412 rms volts(4v P-P using O-scope) and a low of 0.794 rms volts (2.24v P-P).

Should never see 3 rms volts VCO signal level at TP-3. 400mv to 500mv is too low for good RX and TX mixer action. 3.0 volts P-P is OK.

I have two TS-830s and my VCO voltage usually ranges from a low of approx 890mv rms @160 meters to a high of approx 1.42 rms volts @ 10 meters.

I cannot spell Arduino or Picaxe let alone program using a Python or an Anaconda!

I am still trying to figure out how to connect the agitator gear box from old washing machine to my RF sig gen frequency air variable capacitor shaft.... I think they call it a Wobbulator?

I think you are asking about moving on to Step 11. Yes you must unplug Conn 1 so that the bandswitch does not bias on any of the matrix diodes. You need to be able to bias on the BPF you want to sweep and not let the bandswitch configure the filters.

You do that by unplugging Conn 1 and using D27 jumper to apply +9vdc to BPF-B switching diodes D42 and D48.

You also jumper from D50 to reverse bias switching diodes D50 and D51 to make sure no test signal back feeds BPF-A or leaks around Mixer Q36.

You then inject 14.100 mhz rf @ 0dBm or 224mv at R111 at Gate 1 of Mixer Q36. Step calls for a 15pf cap but it is not critical and I have used a 50pf cap.

You measure the RF output voltage and frequency at emitter of Q35 same as you did for Step 10. With 14.100mhz @ 224mv applied from your RF sig gen you should read something like 60mv and 24.100mhz . You record 60mv on your data sheet for 14.100mhz and now start stepping up in no more than 100khz steps and record the MV output. As you get nearer to 14.600mhz start using smaller steps around 50khz and take more rf voltage data points so you can clearly see the peak that should occur approx at 14.580mhz which will be 24.580mhz FC of the filter. Should see something close to 175mv signal level at emitter of Q35. I would continue stepping up in frequency and recording MV output until you get to approx 15.600mhz.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi terry
sorry for delay but when i post a message has a delay cause is too short time in this news group and from post and real view in site , has a delay

thanks for understanding my situation: I am a ham radio and I thought that existed between ham radio operators a minimum of fairness ....
now it is gone and it is no use crying over spilled milk ....!

Regarding the step 9:

"OK ... just wanted to make sure you had completed Step 9. If you have correct VCO frequencies at the bottom, middle and high end of the VFO on each band and most importantly you have to close 1.0rf volts rms on all bands at TP-3 on the RF board then You Should Have good RX and TX mixer action ..... "

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"Let us know how you make out using the regular rf signal generator. Sounds like you have the ability to make a sweep generator. There may be a DDS kit available?
"
the idea is a mechanization suggested at the beginning of your process:
I have a RF generator of Mial, 1950/60 with 1 valves, as the mod 145 but has the chance to calibrate even the MF to 455 (the owner is my father's ham 80 years ....:-), but with a stability of frequency incredible;
The valve 6sc7 was almost exausted but in the end I found one and I arrive tomorrow so between Sat & Sun I should be able to try everything

his is an attempt I wanted to do:

vary with arduino via D / A voltage on a varicap in parallel to the variable capacitor of Mial, store the numbers corresponding to the values min and max steps of 1/20; (1/20 is an example : can be use 1/50 or 1/100)
(the main capacitor of rf generator must be placed with varicap ready at start of 5000 Khz - f(varicap, 1/20)
at this point entering a program loop that:
-sets the voltage of the i-th D / A in varicap thus varies the fq of Gen. RF (Fq-initial + Dv) (depending on value produced by D/A of Arduino)
-read for a certain number of times the value read by an other A / D, always connected to arduino in such a way as to have the voltage value by E of Q35 for this i-th step
then store the pair and open a socket to a server application in pc , in my case written in python, which reads the values sent and stores them in a vector;

once the loop the program on arduino freezes for a few moments while the server program reads the values of vector and calls gnuplot to draw the graph with the correspondence:
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y values in mV in E Q35

Okay, maybe it 'a stupid idea but maybe it could work
dds i do not know them very well and I have no problems with microcontrollers such as Arduino or various picxxxxx and languages like python .ecc.....

What do you think?

Ah ... I forgot: J1 must be removed from pll board and the bridge with D27 <---> R44 I have to do, however, also using an external rf right?

Ugo

44393. Re: [TS-520_820_530_830] De-Oxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 00:46:10 UTC
From: Don Cunningham
Topic: 44383 Message: 44393

Mick,

Each person will have a different answer, I'm afraid. I prefer the 100% solution, as I feel that DeOxit D5 has too much "carrier" or solvent and attracts too much dust. I ONLY use a small drop (or a bit on a toothpick) to clean contacts, and others splash it on too, so each has his own methods of use. I buy the applicator with a "needle" type applicator so I can get a small amount. This stuff is expensive, but the small bottle of 100% will last a long time.
Just an opinion,
Don, WB5HAK

On 9/4/2013 11:06 AM, ponsford_michael wrote:
>
> Hello to the group
>
> I have read many times in various postings here about using De-Oxit
> for switch contact cleaning. There appears to be several different
> types/grades available, and I am seeking advice please as to which is
> the correct one to use on the noisy bandswitch in my TS-530S.
>
> Advice appreciated.
>
> Many thanks
>
> 73
>
> Mick - M0GWD
> Portsmouth, UK
>
>

44394. RE: [TS-520_820_530_830] DeOxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 02:33:51 UTC
From: Brad Allen
Topic: 44383 Message: 44394

It's a known fact that too much of a good thing is not always best. Anytime I work with deoxit and I have a can of spray as well as the needle applicator, you don't need a lot of it. Spray some in a spall spray can cap and use a small brush or even a lint free cloth to dab a bit and apply. I found it at Radio shack. You should never have to spray that much where you spend hours cleaning overspray. Heck, get contact cleaner to clean up the over spray and the contacts and apply minute amounts to the contacts. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Don Cunningham
Sent: Wednesday, September 04, 2013 8:46 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] De-Oxit - Which type please?

Mick,

Each person will have a different answer, I'm afraid. I prefer the 100% solution, as I feel that DeOxit D5 has too much "carrier" or solvent and attracts too much dust. I ONLY use a small drop (or a bit on a toothpick) to clean contacts, and others splash it on too, so each has his own methods of use. I buy the applicator with a "needle" type applicator so I can get a small amount. This stuff is expensive, but the small bottle of 100% will last a long time.
Just an opinion,
Don, WB5HAK

On 9/4/2013 11:06 AM, ponsford_michael wrote:

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I have read many times in various postings here about using De-Oxit for switch contact cleaning. There appears to be several different types/grades available, and I am seeking advice please as to which is the correct one to use on the noisy bandswitch in my TS-530S.

Advice appreciated.

Many thanks

73

Mick - M0GWD
Portsmouth, UK

44395. Re: [TS-520_820_530_830] DeOxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 05:49:16 UTC
From: Mick
Topic: 44383 Message: 44395

Hello to Brad and all others who have replied. Good morning from England.
The advice is sound thanks and I will try and track down the bottle
container with a brush / needle applicator, rather than the spray can.

Thank you everyone for your advice. Much appreciated.

73

Mick
M0GWD

On 05/09/2013 03:33, Brad Allen wrote:
>
> It's a known fact that too much of a good thing is not always best.
> Anytime I work with deoxit and I have a can of spray as well as the
> needle applicator, you don't need a lot of it. Spray some in a spall
> spray can cap and use a small brush or even a lint free cloth to dab a
> bit and apply. I found it at Radio shack. You should never have to
> spray that much where you spend hours cleaning overspray. Heck, get
> contact cleaner to clean up the over spray and the contacts and apply
> minute amounts to the contacts. Brad KB2CHY
>
> ---
>
> *From:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Don Cunningham
> *Sent:* Wednesday, September 04, 2013 8:46 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> *Subject:* Re: [TS-520_820_530_830] De-Oxit - Which type please?
>
> Mick,
>
> Each person will have a different answer, I'm afraid. I prefer the
> 100% solution, as I feel that DeOxit D5 has too much "carrier" or
> solvent and attracts too much dust. I ONLY use a small drop (or a bit
> on a toothpick) to clean contacts, and others splash it on too, so
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> but the small bottle of 100% will last a long time.
> Just an opinion,
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>> I have read many times in various postings here about using De-Oxit
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>> Advice appreciated.
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>> Portsmouth, UK
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>

44396. Re: [TS-520_820_530_830] DeOxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 14:55:35 UTC
From: Mike
Topic: 44383 Message: 44396

If you use the spray can, don't press hard on the value button, press "gently". I use DeoXit D5 and F5 spray cancleaner/lubricant and press "gently" on the value button, limiting the amount of cleaner/lubricant being applied to the area being cleaned.

Also do you follow your cleaning process using generous amounts of compressed air or canned air to remove the cleaner residue on the component, surrounding components, wiring, and PC boards being cleaned? If not then you should be doing that.

I've been using DeoXit D5 and F5 cleaner/lubricant for years and never experienced any damage to components, wiring, and PC boards that many people who use these cleaners/lubricant seem to speak of. Every time I clean a switch, pot, tube socket (vacuum tube gear) or connection/connector on a PC board, I immediately follow the cleaning process by using generous amounts of canned air (don't have a air compressor) to remove any/all cleaner residue. Using this procedure I have never sustained any damage to any component, switch, tube socket, connector, PC board or pot using DeoXit D5 and/or F5 contact cleaner/lubricant.

Mike W5RKL

On 9/5/2013 12:49 AM, Mick wrote:
>
> Hello to Brad and all others who have replied. Good morning from England.
> The advice is sound thanks and I will try and track down the bottle
> container with a brush / needle applicator, rather than the spray can.
>
> Thank you everyone for your advice. Much appreciated.
>
> 73
>
> Mick
> M0GWD
>
>
> On 05/09/2013 03:33, Brad Allen wrote:
>>
>> It's a known fact that too much of a good thing is not always best.
>> Anytime I work with deoxit and I have a can of spray as well as the
>> needle applicator, you don't need a lot of it. Spray some in a spall
>> spray can cap and use a small brush or even a lint free cloth to dab
>> a bit and apply. I found it at Radio shack. You should never have to
>> spray that much where you spend hours cleaning overspray. Heck, get
>> contact cleaner to clean up the over spray and the contacts and apply

>> minute amounts to the contacts. Brad KB2CHY
>>
>> ---
>>
>> *From:*TS-520_820_530_830@yahoogroups.com
>> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Don Cunningham
>> *Sent:* Wednesday, September 04, 2013 8:46 PM
>> *To:* TS-520_820_530_830@yahoogroups.com
>> *Subject:* Re: [TS-520_820_530_830] De-Oxit - Which type please?
>>
>> Mick,
>>
>> Each person will have a different answer, I'm afraid. I prefer the
>> 100% solution, as I feel that DeOxit D5 has too much "carrier" or
>> solvent and attracts too much dust. I ONLY use a small drop (or a
>> bit on a toothpick) to clean contacts, and others splash it on too,
>> so each has his own methods of use. I buy the applicator with a
>> "needle" type applicator so I can get a small amount. This stuff is
>> expensive, but the small bottle of 100% will last a long time.
>> Just an opinion,
>> Don, WB5HAK
>>
>> On 9/4/2013 11:06 AM, ponsford_michael wrote:
>>
>>> Hello to the group
>>>
>>> I have read many times in various postings here about using De-Oxit
>>> for switch contact cleaning. There appears to be several different
>>> types/grades available, and I am seeking advice please as to which
>>> is the correct one to use on the noisy bandswitch in my TS-530S.
>>>
>>> Advice appreciated.
>>>
>>> Many thanks
>>>
>>> 73
>>>
>>> Mick - M0GWD
>>> Portsmouth, UK
>>>
>
>

44397. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 09:00:03 UTC
From: vierugo
Topic: 44331 Message: 44397

Hi Terry

regards :

"
....
1.0 rf volts +3dB and -2db tolerance means a high of 1.412 rms volts(4v P-P using O-scope) and a low of 0.794 rms volts (2.24v P-P).
Should never see 3 rms volts VCO signal level at TP-3. 400mv to 500mv is too low for good RX and TX mixer action. 3.0 volts P-P is OK.
I have two TS-830s and my VCO voltage usually ranges from a low of approx 890mv rms @160 meters to a high of approx 1.42 rms volts @ 10 meters.
....
"

this is a problem for me because my levels are not in range
[2.24 Vpp , 4.0 Vpp]
i repeat step 9 and recheck !

".............
I cannot spell Arduino or Picaxe let alone program using a Python or an Anaconda!

:-))

"
I am still trying to figure out how to connect the agitator gear box from old washing machine to my RF sig gen frequency air variable capacitor shaft.... I think they call it a Wobbulator?
............."

Do not think that Python is difficult: if I can make the settings of the bpf-a at least to an acceptable level want to try to realize what I have said
The wobbulator remember me a piano Yamaha with a servo-command for play the music without pianist ...no no .... my initial idea is join then varicap in parallel to air capacitor of old rf generator , with dc block , for light modification of capacity in range required by step 10 11 12

".............
I think you are asking about moving on to Step 11.
....
"

No , i am locked at step 10 until this weekend and the question relate
unplugging J1 is relate step-10 with bridge with wire from d27 to r44 ;

"
....

Yes you must unplug Conn 1 so that the bandswitch does not bias on any of the matrix diodes. You need to be able to bias on the BPF you want to sweep and not let the bandswitch configure the filters.
You do that by unplugging Conn 1 and using D27 jumper to apply +9vdc to BPF-B switching diodes D42 and D48.
You also jumper from D50 to reverse bias switching diodes D50 and D51 to make sure no test signal back feeds BPF-A or leaks around Mixer Q36.
You then inject 14.100 mhz rf @ 0dBm or 224mv at R111 at Gate 1 of Mixer Q36. Step calls for a 15pf cap but it is not critical and I have used a 50pf cap.
You measure the RF output voltage and frequency at emitter of Q35 same as you did for Step 10. With 14.100mhz @ 224mv applied from your RF sig gen you should read something like 60mv and 24.100mhz . You record 60mv on your data sheet for 14.100mhz and now start stepping up in no more than 100khz steps and record the MV output. As you get nearer to 14.600mhz start using smaller steps around 50khz and take more rf voltage data points so you can clearly see the peak that should occur approx at 14.580mhz which will be 24.580mhz FC of the filter. Should see something close to 175mv signal level at emitter of Q35. I would continue stepping up in frequency and recording MV output until you get to approx 15.600mhz.
....
"

Ok
thanks for all the suggestions you have given me: I have enough material to investigate , work and "arguing" with my wife
'too time to this radio ......"

Ciao
Ugo

44398. TS-520 Birdies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 16:42:22 UTC
From: <wagstw46@...>
Topic: 41008 Message: 44398

Off list question about TS-520 "birdies".

TS-520 or TS-520S it is common to have two "birdies" that are more prominent than others. One at approx 3.740mhz and one at 21.200mhz.

Can recognize a "birdie" as it is internally generated and will most likely not be able to peak it with the Drive control because it is originating at the 1st Mixer on RF board downstream of the Ant Coil board. It will also typically have a faster tuning rate as you vary the VFO.

The birdie at 21.200 will most likely have no indication on the S-meter and will not be heard with antenna connected and normal background levels. The 3.740mhz one is the real problem and Kenwood made two "fixes" to help suppress this birdie.

The source of the 3.740mhz birdie is the 1st RX Mixer on RF board where you mix 12.395mhz with the incoming rf off air signal. Output from the Mixer is the Receiver Intermediate Frequency or RIF signal. In this case 12.395mhz Het Osc is the LO and 3.740mhz is the rf input signal to the mixer. Mixer output is sum and difference and other less significant. 12.395-3.740 = 8.655mhz RIF. There is a parallel resonant tank circuit at output of the RX mixer tuned to the new RIF frequency range that should block the offending signal but is not entirely effective in doing so. I think where the problem comes in is the Het Osc LO signal level is high and is present at a significant level in the output of the dual gate mosfet mixer along with the needed new 8.655 RIF. There is a diode switch D2 between the Drain of the Mixer and the Tank circuit and my guess is this is where the mixing of the Het Osc and RIF signal is occurring, but I am not sure.

This results in a pretty strong birdie at 3.740mhz. (12.395 - 8.655 = 3.740 mhz). This can result in a S3 to S4 indication and loud tone in speaker. Usually if you switch antenna switch off ground or dummy load positions the birdie cannot be heard or will be at a low audible level and wont compromise your ability to copy signals at or near 3.740Mhz.

In the TS-520 Kenwood engineers placed a series resonant trap at output of 1st RX Mixer. It is L2 and C15 on the RF board at the Drain of mixer Q4. You adjust L2 for a minimum indication on the S meter at 3.740. You will not be able to reduce the level to S0. Usually you can get it down to around S1 to S2. Typically it requires adjusting the slug to the top of the former (least inductance).

On the TS-520S Kenwood moved this L2 tuned trap from the Rx mixer on the RF board to the IF board at the output of the BPF. It is renamed coil T13 and cap C62. The trap is a little more effective at this new location, but still typically cannot complete null out the 3.740 mhz signal. May get S-meter down to S1 or so,but can still hear the tone in the speaker as you tune across it. Again with antenna on and strong signals on 80 meters most owners do not concern themselves with this birdie. Some even report never hearing it as they never have antenna removed or grounded on the rig or do not operate around 3.740mhz. .

If you want to completely null it on your TS-520 (zero on S-meter and no hint of tone in speaker) you can make a 12.395 mhz series resonant trap (miniature adjustable inductors and

caps are available from Surplus of Nebraska) or do like I did and harvest a L2/C15 from a bad TS-520 RF board.

Tack solder the cap and coil in series and then tack them from TP-2 terminal post on the IF board to chassis ground. Preset the core to near top of former or maybe 1 turn out of the top. Tune to 3.740Mhz and alternately tune the original L2 on the RF board and the new L2 on the IF board and you should be able to completely null it.

Addition of the new trap at the IF board will not effect receiver operation.

I have confirmed there is no effect on RX by checking the AGC threshold on 80 meters around at low end of the band before and after the addition of a 2nd series resonant 12.395 mhz trap.

You should be able to add the same trap to the TS-520S back at the RF board if needed , but I have not tried that.

Terry K9TW

44399. TS-530S vs. TS-830S CW filter behavior

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 18:23:30 UTC
From: Craig Roberts
Topic: 41008 Message: 44399

Hiya gurus,

I posed this question the other day, but have decided to rephrase it with some additional -- possibly useful -- information:

I have equipped both my TS-830S and TS-530S with Kenwood/Trio 500 Hz CW filters.

The TS-830S is loaded with filters for both IFs. It behaves superbly.

The TS-530S is loaded with the 500 Hz CW filter and the 1.8 KHz narrow SSB filter jumpered so that the "normal" CW position is now 1.8 KHz and the "narrow" pushbutton yields 500 Hz CW. I can also, of course, select between "normal" 2.4 KHz SSB and "narrow" 1.8 KHz SSB. Very slick -- just like my really cool ITT Mackay Marine 3031-A shipboard operator wannabe receiver.

Problem (maybe) is with the 530S:

In the narrow 500 Hz CW position, signals are dramatically attenuated and the passband sounds much more restricted than 500 Hz. It sounds more like 250 Hz or less. I mean, it's nice having essentially no background noise on the signals, but weak signals are nearly if not completely lost. By contrast, the 500 Hz CW position on the dual-IF 830S sounds wider and is not attenuated nearly as much.

Is this phenomenon somehow related to single vs. dual conversion (huh?) or do I have a bum CW filter in the 530S? I have checked and re-checked installation and jumpering.

Thanks and 73,

Craig
W3CRR

44400. 530/830 digital mode how-to

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 19:06:49 UTC
From: Craig Roberts
Topic: 41008 Message: 44400

For once, I'll pass along some info that might be useful to someone else.

Every so often a question about running digital modes and/or restricting our radios' power output will be posed. This addresses both.

I am running digital modes on my 830S (and 530S) via my desktop computer and a SignaLink USB interface with pleasing results (after sufficient, frequency stabilizing warmup).

The SignaLink's output is connected directly to the radio's mic jack. The received signals are routed from the very useful "line output" jack on my Kenwood SP-230 speaker.into the SignaLink's back panel "speaker" jack. This avoids muting the receiver as would occur if the radio's speaker or headphone jack was employed. Audio can be tapped from the radio's accessory DIN jack to avoid reeiver audio muting, as well.

I tune the 830's transmitter to full output as usual, then limit the radios' power output to about 40 watts by regulating the "transmit" pot on the SignaLink interface. The setup works very neatly and obviates the "do I Iimit output power with mic gain or drive or load control?" question.

Other interfaces would work just as well, naturally.

I run PSK-31 most often with RTTY, Hellschreiber and SSTV following. "FLdigi" freeware accomodates them all and more. FLdigi also incorporates a CW decoder which comes in handy at 2 a.m. when I'm too fagged out to copy anything past 20 wpm without nodding off.

73,

Craig
W3CRR

44401. Re: [TS-520_820_530_830] DeOxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 19:22:28 UTC
From: Mick
Topic: 44383 Message: 44401

Hello Mike

Thanks for the additional advice reference canned compressed air. I
have some and will use it as you suggest.
Great forum this - so much information and so many people wishing to
share it.

Thanks again Mike

Mick
M0GWD

On 05/09/2013 15:55, Mike wrote:
>
> If you use the spray can, don't press hard on the value button, press
> "gently". I use DeoXit D5 and F5 spray cancleaner/lubricant and press
> "gently" on the value button, limiting the amount of cleaner/lubricant
> being applied to the area being cleaned.
>
> Also do you follow your cleaning process using generous amounts of
> compressed air or canned air to remove the cleaner residue on the
> component, surrounding components, wiring, and PC boards being
> cleaned? If not then you should be doing that.
>
> I've been using DeoXit D5 and F5 cleaner/lubricant for years and never
> experienced any damage to components, wiring, and PC boards that many
> people who use these cleaners/lubricant seem to speak of. Every time I
> clean a switch, pot, tube socket (vacuum tube gear) or
> connection/connector on a PC board, I immediately follow the cleaning
> process by using generous amounts of canned air (don't have a air
> compressor) to remove any/all cleaner residue. Using this procedure I
> have never sustained any damage to any component, switch, tube socket,
> connector, PC board or pot using DeoXit D5 and/or F5 contact
> cleaner/lubricant.
>
> Mike W5RKL
>
>
>
>
> On 9/5/2013 12:49 AM, Mick wrote:
>>
>> Hello to Brad and all others who have replied. Good morning from
>> England.
>> The advice is sound thanks and I will try and track down the bottle
>> container with a brush / needle applicator, rather than the spray can.

>>
>> Thank you everyone for your advice. Much appreciated.
>>
>> 73
>>
>> Mick
>> M0GWD
>>
>>
>> On 05/09/2013 03:33, Brad Allen wrote:
>>>
>>> It's a known fact that too much of a good thing is not always best.
>>> Anytime I work with deoxit and I have a can of spray as well as the
>>> needle applicator, you don't need a lot of it. Spray some in a spall
>>> spray can cap and use a small brush or even a lint free cloth to dab
>>> a bit and apply. I found it at Radio shack. You should never have to
>>> spray that much where you spend hours cleaning overspray. Heck, get
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>>> ---
>>>
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>>> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Don
>>> Cunningham
>>> *Sent:* Wednesday, September 04, 2013 8:46 PM
>>> *To:* TS-520_820_530_830@yahoogroups.com
>>> *Subject:* Re: [TS-520_820_530_830] De-Oxit - Which type please?
>>>
>>> Mick,
>>>
>>> Each person will have a different answer, I'm afraid. I prefer the
>>> 100% solution, as I feel that DeOxit D5 has too much "carrier" or
>>> solvent and attracts too much dust. I ONLY use a small drop (or a
>>> bit on a toothpick) to clean contacts, and others splash it on too,
>>> so each has his own methods of use. I buy the applicator with a
>>> "needle" type applicator so I can get a small amount. This stuff is
>>> expensive, but the small bottle of 100% will last a long time.
>>> Just an opinion,
>>> Don, WB5HAK
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>>> On 9/4/2013 11:06 AM, ponsford_michael wrote:
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>>>> Hello to the group
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>>>> I have read many times in various postings here about using De-Oxit
>>>> for switch contact cleaning. There appears to be several different
>>>> types/grades available, and I am seeking advice please as to which
>>>> is the correct one to use on the noisy bandswitch in my TS-530S.
>>>>

>>>> Advice appreciated.
>>>>
>>>> Many thanks
>>>>
>>>> 73
>>>>
>>>> Mick - M0GWD
>>>> Portsmouth, UK
>>>>
>>
>
>

44402. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 20:40:40 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44402

Ugo:

Just to be 100% certain.

Are you confusing the DC voltages at TP-1 that you measure with a DMM with the VCO RF output voltage levels at RF board TP-3? I doubt it but needed to ask.

You measure and adjust the 6 DC voltages first per the table. Then you measure the VCO RF voltage output level. Then you swing the VFO from end to end travel on each band and make sure the Digital display does not blank out.

If you are measuring the VCO RF output level with an O-scope what is the bandwidth of that scope? You need to be able to measure up to approx 38mhz reasonably accurate.

A 100mhz scope will read approx 3% low at 30mhz. A 20Mhz BW scope (typical of many home hobbyist) would read approx 3% low at 7mhz and would read approx 29% low at 20mhz (-3dB or 70.7%). A 20mhz scope is not very good for Kenwood RF voltage measurements unless you understand and take into account the bandwidth voltage derating.

Scope makers will tell you as general rule of thumb to use a scope that has 3 to 5 times the bandwidth of the max freq you intend to measure. For our Kenwood work max frequency is around 35 to 40 mhz so a 100mhz scope works pretty well.

If people dont understand the effect of scope BW they can get confused and think there is a problem with the radio or the measuring configuration and chase their tale trying to resolve it.

If you dont have decent scope might be better off with RF probe/VTVM to measure rf voltage levels.

Terry K9TW.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry

regards :

"
....
1.0 rf volts +3dB and -2db tolerance means a high of 1.412 rms volts(4v P-P using O-scope) and a low of 0.794 rms volts (2.24v P-P).
Should never see 3 rms volts VCO signal level at TP-3. 400mv to 500mv is too low for good RX and TX mixer action. 3.0 volts P-P is OK.
I have two TS-830s and my VCO voltage usually ranges from a low of approx 890mv rms @160 meters to a high of approx 1.42 rms volts @ 10 meters.

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this is a problem for me because my levels are not in range
[2.24 Vpp , 4.0 Vpp]
i repeat step 9 and recheck !

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I cannot spell Arduino or Picaxe let alone program using a Python or an Anaconda!

:-))

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I am still trying to figure out how to connect the agitator gear box from old washing machine to my RF sig gen frequency air variable capacitor shaft.... I think they call it a Wobbulator?
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Do not think that Python is difficult: if I can make the settings of the bpf-a at least to an acceptable level want to try to realize what I have said
The wobbulator remember me a piano Yamaha with a servo-command for play the music without pianist ...no no .... my initial idea is join then varicap in parallel to air capacitor of old rf generator , with dc block , for light modification of capacity in range required by step 10 11 12

".....
I think you are asking about moving on to Step 11.
.....
"

No , i am locked at step 10 until this weekend and the question relate
unplugging J1 is relate step-10 with bridge with wire from d27 to r44 ;

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.....
Yes you must unplug Conn 1 so that the bandswitch does not bias on any of the matrix diodes. You need to be able to bias on the BPF you want to sweep and not let the bandswitch configure the filters.
You do that by unplugging Conn 1 and using D27 jumper to apply +9vdc to BPF-B switching diodes D42 and D48.
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You then inject 14.100 mhz rf @ 0dBm or 224mv at R111 at Gate 1 of Mixer Q36. Step calls for a 15pf cap but it is not critical and I have used a 50pf cap.
You measure the RF output voltage and frequency at emitter of Q35 same as you did for Step 10. With 14.100mhz @ 224mv applied from your RF sig gen you should read something like 60mv and 24.100mhz . You record 60mv on your data sheet for 14.100mhz and now start stepping up in no more than 100khz steps and record the MV output. As you get nearer to 14.600mhz start using smaller steps around 50khz and take more rf voltage data points so you can clearly see the peak that should occur approx at 14.580mhz which will be 24.580mhz FC of the filter. Should see something close to 175mv signal level at emitter of Q35. I would continue stepping up in frequency and recording MV output until you get to approx

15.600mhz.
....
"

Ok
thanks for all the suggestions you have given me: I have enough material to investigate , work and "arguing" with my wife
'too time to this radio ......"

Ciao
Ugo

44403. Re: [TS-520_820_530_830] 530/830 digital mode how-to

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 21:06:55 UTC
From: Mike
Topic: 41008 Message: 44403

The SignalLink "Transmit" pot does the same thing that "lowering" the MIC gain does except it does it on the SignalLink interface. MFJ and other sound card interfaces do the same thing except most of them have the adjustable "Transmit" pot internal, not on the front panel of the sound card interface.

PSK and other sound card modes use "audio" signals for both transmit and receive. The computer software converts the keys pressed into "mark" and "space" audio tones that are fed from the sound cardoutput through the sound card interface and quite often to the MIC socket connection. The "reverse" occurs in receive, the PSK tones are fed from the receiveaudio output to the sound card interface, from the sound card interface to the sound card's input, where the "mark" and "space" tones are converted into "ASCII" letters, numbers, and "cute" faces (when the software sees the "lol" sequence is found as part of the decoded data).

The sound card interface typically has 2 methods of keying the transmitter

1. VOX
2. PTT

Vox doesn't require any wiring to the microphone socket's PTT terminal and ground. All that's required is the transceiver's VOX is turned ON and adjusted properly.

PTT, on the other hand, requires a serial cable, typically a "straight through" serial cable, that has RTS and DTR pins avalable. The PSK or other digital software activates the desiredserial control signal and the interface is configured to use the desired/selected control signal for PTT. Only one is used/selected for PTT, not both as many hams tend to believe. The same thing applies to USB to RS-232 adapters.

Sound card interfaces are very easy and inexpensive to build. I made an RS-232 to TTL/CMOS andTTL/CMOS to RS-232 CAT interfaceas part of the complete Sound Card interface.

The serial interface segment used a simple MAX232 16 pin DIP chip. The MAX232 chip cost about 89 cents at Mouser.

All you need to build the CAD interface, using the MAX232chip, is the MAX232 data sheet (see the link below).

http://www.mouser.com/ds/2/256/MAX220-MAX249-67423.pdf

The data sheet shows you how to build a simpleTTL/CMOS to RS-232/RS-232 to TTL/CMOS circuit. The MAX232 comes in a 16 pin "Dip" chip or SMD chip. You also can design and have made, a PC board using ExpressPCB CAD

software. I use this software a lot to make PC boards for my projects. My most recent project where I used ExpressPCB CAD software was to have a dual power supply PC board made for my Heathkit HG-10B and VF-1 VFOs.

Power for the MAX232 chip was obtaed from the 13.6VDC DIN socket and ground on the rear of the FT-857D. I added a 7805 "5 volt" regulator and bypassed the regulator's inputand output with .01ufd caps. I was able to control the FT-857D at the transceiver's highest serial speed which I think was 38.4K.

The sound card portion of the interface used inexpensive 1:1 Radio Shack audio transformers. Inter-connecting cables were cheap stereo/DVD/VCR shielded cables with RCA plug on one end and 3.5mm plug on the other.

I don't operate digital modes anymore so I disassembled the interface, used the cabinet for adifferent project. But, as you can see, you can build your own sound card interface for most any transceiver plus learn something in the process.

73
Mike W5KRL

On 9/5/2013 2:06 PM, Craig Roberts wrote:
>
> For once, I'll pass along some info that might be useful to someone else.
>
> Every so often a question about running digital modes and/or restricting
> our radios' power output will be posed. This addresses both.
>
> I am running digital modes on my 830S (and 530S) via my desktop computer
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> fagged out to copy anything past 20 wpm without nodding off.
>
> 73,
>
> Craig
> W3CRR
>
>

44404. Re: [TS-520_820_530_830] 530/830 digital mode how-to

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 21:08:39 UTC
From: Mike
Topic: 41008 Message: 44404

I forgot to mention, the MAX232 is "self clocking", no crystal required.

73
Mike W5RKL

On 9/5/2013 4:06 PM, Mike wrote:
> The SignalLink "Transmit" pot does the same thing that "lowering" the
> MIC gain does except it does it on the SignalLink interface. MFJ and
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>
> The serial interface segment used a simple MAX232 16 pin DIP chip. The
> MAX232 chip cost about 89 cents at Mouser.

>
> All you need to build the CAD interface, using the MAX232chip, is the
> MAX232 data sheet (see the link below).
>
> http://www.mouser.com/ds/2/256/MAX220-MAX249-67423.pdf
>
> The data sheet shows you how to build a simpleTTL/CMOS to
> RS-232/RS-232 to TTL/CMOS circuit. The MAX232 comes in a 16 pin "Dip"
> chip or SMD chip. You also can design and have made, a PC board using
> ExpressPCB CAD software. I use this software a lot to make PC boards
> for my projects. My most recent project where I used ExpressPCB CAD
> software was to have a dual power supply PC board made for my Heathkit
> HG-10B and VF-1 VFOs.
>
> Power for the MAX232 chip was obtaed from the 13.6VDC DIN socket and
> ground on the rear of the FT-857D. I added a 7805 "5 volt" regulator
> and bypassed the regulator's inputand output with .01ufd caps. I was
> able to control the FT-857D at the transceiver's highest serial speed
> which I think was 38.4K.
>
> The sound card portion of the interface used inexpensive 1:1 Radio
> Shack audio transformers. Inter-connecting cables were cheap
> stereo/DVD/VCR shielded cables with RCA plug on one end and 3.5mm plug
> on the other.
>
> I don't operate digital modes anymore so I disassembled the interface,
> used the cabinet for adifferent project. But, as you can see, you can
> build your own sound card interface for most any transceiver plus
> learn something in the process.
>
> 73
> Mike W5KRL
>
>
>
>
> On 9/5/2013 2:06 PM, Craig Roberts wrote:
>>
>> For once, I'll pass along some info that might be useful to someone else.
>>
>> Every so often a question about running digital modes and/or restricting
>> our radios' power output will be posed. This addresses both.
>>
>> I am running digital modes on my 830S (and 530S) via my desktop computer
>> and a SignaLink USB interface with pleasing results (after sufficient,
>> frequency stabilizing warmup).
>>
>> The SignaLink's output is connected directly to the radio's mic jack.
>> The received signals are routed from the very useful "line output" jack
>> on my Kenwood SP-230 speaker.into the SignaLink's back panel "speaker"

>> jack. This avoids muting the receiver as would occur if the radio's
>> speaker or headphone jack was employed. Audio can be tapped from the
>> radio's accessory DIN jack to avoid reeiver audio muting, as well.
>>
>> I tune the 830's transmitter to full output as usual, then limit the
>> radios' power output to about 40 watts by regulating the "transmit" pot
>> on the SignaLink interface. The setup works very neatly and obviates the
>> "do I Iimit output power with mic gain or drive or load control?"
>> question.
>>
>> Other interfaces would work just as well, naturally.
>>
>> I run PSK-31 most often with RTTY, Hellschreiber and SSTV following.
>> "FLdigi" freeware accomodates them all and more. FLdigi also
>> incorporates a CW decoder which comes in handy at 2 a.m. when I'm too
>> fagged out to copy anything past 20 wpm without nodding off.
>>
>> 73,
>>
>> Craig
>> W3CRR
>>
>>
>

44405. Re: [TS-520_820_530_830] TS-530S vs. TS-830S CW filter behavior

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 21:35:49 UTC
From: Ian Joesph Parkinosn
Topic: 41008 Message: 44405

Hi, I have the R820 rx, the signal drops off alarmingly. I got an icom 7410 selectivity goes down to 50 Hz with dsp filtering, plus a good notch filter. Wish I had gone over to this new stuff years ago. 73 de ian g3yrq

---

On Thu, Sep 5, 2013 19:23 BST Craig Roberts wrote:

>Hiya gurus,
>
>I posed this question the other day, but have decided to rephrase it with some additional -- possibly useful -- information:
>
>I have equipped both my TS-830S and TS-530S with Kenwood/Trio 500 Hz CW filters.
>
>The TS-830S is loaded with filters for both IFs. It behaves superbly.
>
>The TS-530S is loaded with the 500 Hz CW filter and the 1.8 KHz narrow SSB filter jumpered so that the "normal" CW position is now 1.8 KHz and the "narrow" pushbutton yields 500 Hz CW. I can also, of course, select between "normal" 2.4 KHz SSB and "narrow" 1.8 KHz SSB. Very slick -- just like my really cool ITT Mackay Marine 3031-A shipboard operator wannabe receiver.
>
>Problem (maybe) is with the 530S:
>
>In the narrow 500 Hz CW position, signals are dramatically attenuated and the passband sounds much more restricted than 500 Hz. It sounds more like 250 Hz or less. I mean, it's nice having essentially no background noise on the signals, but weak signals are nearly if not completely lost. By contrast, the 500 Hz CW position on the dual-IF 830S sounds wider and is not attenuated nearly as much.
>
>Is this phenomenon somehow related to single vs. dual conversion (huh?) or do I have a bum CW filter in the 530S? I have checked and re-checked installation and jumpering.
>
>Thanks and 73,
>
>Craig
>W3CRR
>
>

44406. Re: [TS-520_820_530_830] TS-530S vs. TS-830S CW filter behavior

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 23:11:05 UTC
From: John Davidson
Topic: 41008 Message: 44406

Not exactly the same rig but my TS520 got the kenwood 400 Hz filter installed by me as soon as I could get the optional filter shipped. and the TS440s came from previous owner with the 500 Hz optional filter in it. Both reduced signals by only about 1 S unit.

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 5, 2013 2:23 PM
Subject: [TS-520_820_530_830] TS-530S vs. TS-830S CW filter behavior

Hiya gurus,

I posed this question the other day, but have decided to rephrase it with some additional -- possibly useful -- information:

I have equipped both my TS-830S and TS-530S with Kenwood/Trio 500 Hz CW filters.

The TS-830S is loaded with filters for both IFs. It behaves superbly.

The TS-530S is loaded with the 500 Hz CW filter and the 1.8 KHz narrow SSB filter jumpered so that the "normal" CW position is now 1.8 KHz and the "narrow" pushbutton yields 500 Hz CW. I can also, of course, select between "normal" 2.4 KHz SSB and "narrow" 1.8 KHz SSB. Very slick -- just like my really cool ITT Mackay Marine 3031-A shipboard operator wannabe receiver.

Problem (maybe) is with the 530S:

In the narrow 500 Hz CW position, signals are dramatically attenuated and the passband sounds much more restricted than 500 Hz. It sounds more like 250 Hz or less. I mean, it's nice having essentially no background noise on the signals, but weak signals are nearly if not completely lost. By contrast, the 500 Hz CW position on the dual-IF 830S sounds wider and is not attenuated nearly as much.

Is this phenomenon somehow related to single vs. dual conversion (huh?) or do I have a bum CW filter in the 530S? I have checked and re-checked installation and jumpering.

Thanks and 73,

Craig
W3CRR

44407. Re: [TS-520_820_530_830] TS-520 Birdies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 23:14:11 UTC
From: John Davidson
Topic: 41008 Message: 44407

That 3740 birdie was a problem in the early days when that freq was part of the novice band. Today it is not a problem.

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 5, 2013 12:42 PM
Subject: [TS-520_820_530_830] TS-520 Birdies

Off list question about TS-520 "birdies".

TS-520 or TS-520S it is common to have two "birdies" that are more prominent than others. One at approx 3.740mhz and one at 21.200mhz.

Can recognize a "birdie" as it is internally generated and will most likely not be able to peak it with the Drive control because it is originating at the 1st Mixer on RF board downstream of the Ant Coil board. It will also typically have a faster tuning rate as you vary the VFO.

The birdie at 21.200 will most likely have no indication on the S-meter and will not be heard with antenna connected and normal background levels. The 3.740mhz one is the real problem and Kenwood made two "fixes" to help suppress this birdie.

The source of the 3.740mhz birdie is the 1st RX Mixer on RF board where you mix 12.395mhz with the incoming rf off air signal. Output from the Mixer is the Receiver Intermediate Frequency or RIF signal. In this case 12.395mhz Het Osc is the LO and 3.740mhz is the rf input signal to the mixer. Mixer output is sum and difference and other less significant. 12.395-3.740 = 8.655mhz RIF. There is a parallel resonant tank circuit at output of the RX mixer tuned to the new RIF frequency range that should block the offending signal but is not entirely effective in doing so. I think where the problem comes in is the Het Osc LO signal level is high and is present at a significant level in the output of the dual gate mosfet mixer along with the needed new 8.655 RIF. There is a diode switch D2 between the Drain of the Mixer and the Tank circuit and my guess is this is where the mixing of the Het Osc and RIF signal is occurring, but I am not sure.

This results in a pretty strong birdie at 3.740mhz. (12.395 - 8.655 = 3.740 mhz). This can result in a S3 to S4 indication and loud tone in speaker. Usually if you switch antenna switch off ground or dummy load positions the birdie cannot be heard or will be at a low audible level and wont compromise your ability to copy signals at or near 3.740Mhz.

In the TS-520 Kenwood engineers placed a series resonant trap at output of 1st RX Mixer. It is L2 and C15 on the RF board at the Drain of mixer Q4. You adjust L2 for a minimum indication on the S meter at 3.740. You will not be able to reduce the level to S0. Usually you can get it down to around S1 to S2. Typically it requires adjusting the slug to the top of the former (least inductance).

On the TS-520S Kenwood moved this L2 tuned trap from the Rx mixer on the RF board to the IF board at the output of the BPF. It is renamed coil T13 and cap C62. The trap is a little more effective at this new location, but still typically cannot complete null out the 3.740 mhz signal. May get S-meter down to S1 or so,but can still hear the tone in the speaker as you tune across it. Again with antenna on and strong signals on 80 meters most owners do not concern themselves with this birdie. Some even report never hearing it as they never have antenna removed or grounded on the rig or do not operate around 3.740mhz. .

If you want to completely null it on your TS-520 (zero on S-meter and no hint of tone in speaker) you can make a 12.395 mhz series resonant trap (miniature adjustable inductors and caps are available from Surplus of Nebraska) or do like I did and harvest a L2/C15 from a bad TS-520 RF board.

Tack solder the cap and coil in series and then tack them from TP-2 terminal post on the IF board to chassis ground. Preset the core to near top of former or maybe 1 turn out of the top. Tune to 3.740Mhz and alternately tune the original L2 on the RF board and the new L2 on the IF board and you should be able to completely null it.

Addition of the new trap at the IF board will not effect receiver operation.

I have confirmed there is no effect on RX by checking the AGC threshold on 80 meters around at low end of the band before and after the addition of a 2nd series resonant 12.395 mhz trap.

You should be able to add the same trap to the TS-520S back at the RF board if needed , but I have not tried that.

Terry K9TW

44408. RE: [TS-520_820_530_830] DeOxit - Which type please?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-05 23:25:36 UTC
From: M. J. Synowiec
Topic: 44383 Message: 44408

Hello to all & I hope this finds you well.

One alternative is to buy the D-5 Aerosol and if you have a gal in your life who uses nail polish and likely has an old, empty, or nearly so, or no longer valid color nail polish bottle you can dump the stuff inside and use acetone or finger-nail polish remover to clean the bottle & brush. Then by applying light pressure on the valve button you can fill the bottle w/ a small amount of D5 and use the brush or a needle applicator to introduce the product into the easy to reach places. In fact; when de-oxit was first marketed this is how it came. The original product was Super Cramolin amd came in two types, a red and a blue. The stuff was supplied in nail polish bottles and included in the kit were various applicators in a plastic case. Worked really well in broadcast equipment and made us happy campers. The advantage to this approach is you still have the aerosol and guide tube in the event you find a particularly hard to reach spot, and you
only are buying one product. I hope this helps.

Keep your paddles wet & your socks dry,

Mike K8SYN

44409. Re: [TS-520_820_530_830] TS-530S vs. TS-830S CW filter behavior

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 01:16:31 UTC
From: Don Allen
Topic: 41008 Message: 44409

A DSP filter is a totally different animal than a narrow crystal lattice filter. For example,, a 500Hz 8-pole crystal lattice filter used for CW will have significantly more Insertion Loss than a 2.4kHz 8-pole crystal lattice filter used for SSB. The Insertion Loss differential can be seen on the S-meter, even with a calibrator signal.

73
Don W9CW

On 9/5/2013 4:35 PM, Ian Joesph Parkinosn wrote:
>
>
>
> Hi, I have the R820 rx, the signal drops off alarmingly. I got an icom
> 7410 selectivity goes down to 50 Hz with dsp filtering, plus a good
> notch filter. Wish I had gone over to this new stuff years ago. 73 de
> ian g3yrq
>

> ------------------------------
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> >Hiya gurus,
> >
> >I posed this question the other day, but have decided to rephrase it
> with some additional -- possibly useful -- information:
> >
> >I have equipped both my TS-830S and TS-530S with Kenwood/Trio 500 Hz
> CW filters.
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> >The TS-830S is loaded with filters for both IFs. It behaves superbly.
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> >The TS-530S is loaded with the 500 Hz CW filter and the 1.8 KHz
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> KHz and the "narrow" pushbutton yields 500 Hz CW. I can also, of
> course, select between "normal" 2.4 KHz SSB and "narrow" 1.8 KHz SSB.
> Very slick -- just like my really cool ITT Mackay Marine 3031-A
> shipboard operator wannabe receiver.
> >
> >Problem (maybe) is with the 530S:
> >
> >In the narrow 500 Hz CW position, signals are dramatically attenuated
> and the passband sounds much more restricted than 500 Hz. It sounds
> more like 250 Hz or less. I mean, it's nice having essentially no
> background noise on the signals, but weak signals are nearly if not
> completely lost. By contrast, the 500 Hz CW position on the dual-IF

> 830S sounds wider and is not attenuated nearly as much.
> >
> >Is this phenomenon somehow related to single vs. dual conversion
> (huh?) or do I have a bum CW filter in the 530S? I have checked and
> re-checked installation and jumpering.
> >
> >Thanks and 73,
> >
> >Craig
> >W3CRR
> >
> >
>
>

44410. TS-830s For Sale/Trade

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 01:26:46 UTC
From: Luther Phillips
Topic: 44410 Message: 44410

Hello, I have a nice TS-830s "Gold Label" transceiver I would like to sell or trade for an all-solid state HF transceiver- looking for something easier to use on digital modes at QRP levels. Asking $400 + shipping for the 830s, to US only. Please contact me off-list for details if interested. Email is callsign at chartertn dot net. Thanks for the bandwidth.
73,
Luther N4UW

44411. RE: Re: [TS-520_820_530_830] TS-520 Birdies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 12:35:30 UTC
From: <wagstw46@...>
Topic: 41008 Message: 44411

The individual TS520 owner will decide if it is a problem or not.

I dont want to tune any of my Kenwood Hybrid radio VFOs thru the 0 to 500 tuning range and find a standing S8 or S9 carrier at any point on any band.

That is exactly what you will find at 3740 on a TS520 if someone has fooled around with the wave trap coil L2. Each owner will decide if that is a problem for them or not.

An inquisitive owner (like the one who asked me about this) would be interested in knowing what causes this birdie and if there is anything he can do to reduce its level or eliminate it. My response was directed to those owners.

I could have summarily dismissed him by telling him it is "not a problem" and not to concern himself about it. That is the response of an old school psuedo guru who has no idea why it is there and will decide what a new person needs to know. I grew up in a system where the master employed the "KIP" principle (knowledge is power) and they decided what you needed to know. Often sending you for a tool they didnt really need while they made the secret adjustment. As I grew older and wiser I discovered most of them were not so smart and very protective of of their positions. Often they had good hand skills, but really had no fundamental understanding of how and why it worked.

I decided long ago I wanted everyone who worked for me to be smarter and better and to advance beyond my station and I would be proud to have had some small part in their education by freely sharing what I had learned.

As I explained for the inquisitive TS520 owners interested in learning how their radios work the 3740 birdie can be reduced from S8/S9 level to approx S3/S4 level by proper adjustment of L2 on RF board and can be eliminated by adding a 12.395mhz trap at the IF board as the TS520S employs.

I also stated that with the antenna connected the S3/S4 birdie is usually masked by the background and there should be no problem with signal copy on and around 3740.

"Usually if you switch antenna switch off ground or dummy load positions the birdie cannot be heard or will be at a low audible level and wont compromise your ability to copy signals at or near 3.740Mhz. "

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

That 3740 birdie was a problem in the early days when that freq was part of the novice band. Today it is not a problem.

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 5, 2013 12:42 PM
Subject: [TS-520_820_530_830] TS-520 Birdies

Off list question about TS-520 "birdies".

TS-520 or TS-520S it is common to have two "birdies" that are more prominent than others. One at approx 3.740mhz and one at 21.200mhz.

Can recognize a "birdie" as it is internally generated and will most likely not be able to peak it with the Drive control because it is originating at the 1st Mixer on RF board downstream of the Ant Coil board. It will also typically have a faster tuning rate as you vary the VFO.

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The source of the 3.740mhz birdie is the 1st RX Mixer on RF board where you mix 12.395mhz with the incoming rf off air signal. Output from the Mixer is the Receiver Intermediate Frequency or RIF signal. In this case 12.395mhz Het Osc is the LO and 3.740mhz is the rf input signal to the mixer. Mixer output is sum and difference and other less significant. 12.395-3.740 = 8.655mhz RIF. There is a parallel resonant tank circuit at output of the RX mixer tuned to the new RIF frequency range that should block the offending signal but is not entirely effective in doing so. I think where the problem comes in is the Het Osc LO signal level is high and is present at a significant level in the output of the dual gate mosfet mixer along with the needed new 8.655 RIF. There is a diode switch D2 between the Drain of the Mixer and the Tank circuit and my guess is this is where the mixing of the Het Osc and RIF signal is occurring, but I am not sure.

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If you want to completely null it on your TS-520 (zero on S-meter and no hint of tone in speaker) you can make a 12.395 mhz series resonant trap (miniature adjustable inductors and caps are available from Surplus of Nebraska) or do like I did and harvest a L2/C15 from a bad TS-520 RF board.

Tack solder the cap and coil in series and then tack them from TP-2 terminal post on the IF board to chassis ground. Preset the core to near top of former or maybe 1 turn out of the top. Tune to 3.740Mhz and alternately tune the original L2 on the RF board and the new L2

on the IF board and you should be able to completely null it.

Addition of the new trap at the IF board will not effect receiver operation.

I have confirmed there is no effect on RX by checking the AGC threshold on 80 meters around at low end of the band before and after the addition of a 2nd series resonant 12.395 mhz trap.

You should be able to add the same trap to the TS-520S back at the RF board if needed , but I have not tried that.

Terry K9TW

44412. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 10:04:21 UTC
From: vierugo
Topic: 44331 Message: 44412

Hi Terry

The 12 voltage at step 9 appear normal , i hope
but the Voltage at TP3 (RF Board) is dropped as i report :

```
--------VFO-----------
Band ! 0 250 500 ! TP-3 Volt-pp
=====!=========================================
1.5 ! .. 3.99 5.62 ! 2.3
3.5 ! 2.94 3.76 4.67 ! 2.2
7 ! 6.2 4.78 3.08 ! 1.2
10 ! 5.76 5.03 4.13 ! 0.6
14 ! 3.7 4.5 5.73 ! 0.4
18 ! 6.2 5.07 3.77 ! 0.5
21 ! 2.4 3.5 4.58 ! 0.5
24 ! 2.7 3.57 4.24 ! 0.2
28 ! 6.12 5.83 5.53 ! 0.2
! 5.53 5.19 4.82 ! 0.2
29 ! 4.82 4.36 3.84 ! 0.2
! 3.84 3.23 2.55 ! 0.2
```

The values are found with a professional oscilloscope two track 100 Mhz , thus the Oscilloscope is OK

The Value i found for step 6 ok are DC but the rf voltage
at tp3 are found with this oscilloscope and are expressed as Vpp (i check even the trigger level if values are x1 or x10 or other but nothing) ; also for first 8 steps all values are correct.

the only strange thing is that the tp-3 in the RF board is not an anchor point but a component never seen, it looks like a resistance but did not color it seems to be black and I took the part of the top folder: this evening I will try to see if it is actually a jumper from the side trying pll board,d40 to redo the measures even though I think it's the same thing

other strange thing: why the voltages that I have on TP-3 are decreasing from 1.5 to 28 and those that have you going to grow?

there is something wrong and should not be a small thing!

Ciao
Ugo

44413. Not a HYBRID, but need advice. TS-660.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 18:34:55 UTC
From: Wes Will
Topic: 41008 Message: 44413

If possible, for to keep from annoying anyone, reply to my email if you wish, rather than to this list?

Kenwood TS-660, might be able to get one for probably under $200, but it's in need of work at the outset.

There seems to be a problem with one or more of the VCO inputs to the first mixer. That's the horseback opinion of the current owner, who says he is going nearly blind, due to age, and can't fix it himself. So he says anyway, and after talking to the gentleman I tend to believe him.

So. Are 660's reasonably repairable? I have found the manual sites, with the usual schematics and tech notes and all that. There's even another Yahoo group, I think, that specializes in these rigs. (I know for sure there's one for the TS-440/SAT.)

Given that I'm not even remotely afraid of getting 'under the hood,' and that I have at least a good start on the required instruments, is there a decent probability that this can be fixed? I know ZERO about these rigs, so if you have an opinion of them I'd love to hear it. Is losing the VCO an Achille's Heel for this model, indicative of MUCH worse coming soon, perhaps?

For information's sake, I'm considering getting this because the TS-520 doesn't cover 6, 12, or 15 meters, mostly. If there is a better model, preferably Kenwood - but not necessarily, that you would recommend for the 15- through 6- meter bands (and up, 70 MHz would be nice to try on, I think) I would like also to hear about it.

License I have. Some bit of knowledge I have and am rapidly gaining more from this list.

Heck, even ANTENNAS I can have and am getting together most rapidly.

But radios, and knowledge of the various good and bad ones out there, I have NOT. Advice and recommendations would be appreciated. (No the local club is useless for this, they're transients mostly, college students at the University from which I am retired. It's almost entirely VHF and UHF around here. And most of the Hams who worked HF which I have known in the past, have, well, passed - S.K. Svyazy Konets. Silent Keys.)

Do note, however, that PRICE IS AN OBJECT. If I can fix something and save a considerable pile of wonga in the doing, that makes up quite a bit for starting with yet another broken-from-the-start radio. Getting a reasonable price on one that's -working- would be even better....

(There are health reasons in here as well, I've got a limited window of mobility left to work in before the witch-doctors lock me up tight to a chair. I'm trying to get set up before that happens.)

Thanks in advance. Off-list would be fine, so it doesn't bother anyone here, please.

--
Wes Will
N9KDY

44414. Re: [TS-520_820_530_830] Not a HYBRID, but need advice. TS-660.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 19:27:41 UTC
From: Craig Roberts
Topic: 41008 Message: 44414

Come on, Will... You know the drill, hybrid or not:

If you are not an experienced and well qualified technician:

1) Remove all circuit boards.
2) Using your Hakko 808 desoldering tool and companion FX-951 soldering station, resolder every connection in the radio.
3) Clean each switch contact, potentiometer, cable header and socket carefully and sparingly with DeoxIT. Avoid any drips, overruns or oversprays.
4) Rebuild the band switch employing either the "soldered jumper" or "conductive ink" method (your choice).
5) Reassemble the radio.
6) Tighten every fastener in the transceiver (do not overtighten).

If the radio is still fully or partially inoperative:

1a) Take precise voltage and resistance measurements at the junctions of each pair of components in the transceiver employing your VTVM, DVM, frequency counter, sweep generator and/or scope as appropriate and record the readings.
2a) Post the results on this forum and await responses.

The responses will vary in diagnosis (and opinion) but, among them, will narrow the problem down to no more than 63 suspected components.

1b) Order all parts mentioned from Mouser.
2b) Employing the tools listed in step 1 above, replace said components.
3b) Repeat steps 3 through 6 above.

If radio is still fully or partially inoperative:

1d) Remove cabinet and immerse transceiver chassis in mild solution of ordinary dish soap and distilled water for four hours.
2d) Rinse radio thoroughly with warm, distilled water.
3d) Blow dry chassis thoroughly with two-stage air compressor (65 - 75 psi). Make sure air stream is clean and dry.
4d) Expose chassis to direct sunlight no fewer than 148 hours at a temperature between 24 and 33 degrees Celsius.
5d) Install chassis in cabinet.

If radio is still fully or partially inoperative:

1e) Double box and ship transceiver to Terry, Ken, Jim or Old Ham Dave. Avoid packing with those pesky, static-ridden Styrofoam (TM) "peanuts". They are extremely annoying and could cause the repair tech to charge an additional $100 "handling fee." This would be fully justified.

Your radio will be returned in working order within 21 days after replacement of "R131" and "D23", neither of which will have been mentioned by forum posters.

Good luck & 73,

Craig
W3CRR

44415. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-06 21:15:22 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44415

Hi Ugo

Yes these test points look like a small resistor. They are found with one end terminated on the board and the free end coiled to allow connecting a mini-grabber test lead. At TP-3 it is placed in series and has very low resistance maybe around 0.10 ohms and half of that is due to the resistance of the DMM test lead and clips.

It is good to measure VCO signal level at TP-3 because it tells you that the coax cable and connectors are good from the PLL board to the RF board. Approx 1.0 rms or 2.828 P-P VCO level is needed at RX and TX Mixers for good RX and TX performance. I have seen bad connections at the coax connectors at each end and one time the cable pulled off the connector.

Good idea to measure levels at D40 on PLL. If you have good readings at D40 then need to pull coax jumper off and re-seat it at each end.

I dont think the coax cable is the problem as you do have voltage at one end of VFO tuning range.

I looked at my notes and I see that the level at 0, 250, and 500 does not very much from Zero to 500. No more than 50 mv and usually less than this in the 10 to 15 mv range.

My lowest voltage levels were on 1.5mhz at approx 870mv rms or 2.46v P-P. On 20 meters approx 945mv or 2.67v P-P. On all other bands approx 1200 mv to 1300 mv or approx 3.5v P-P from zero to 500 VFO tuning range.
Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry

The 12 voltage at step 9 appear normal , i hope
but the Voltage at TP3 (RF Board) is dropped as i report :
--------VFO-----------
Band ! 0 250 500 ! TP-3 Volt-pp
=====!==
1.5 ! .. 3.99 5.62 ! 2.3
3.5 ! 2.94 3.76 4.67 ! 2.2
7 ! 6.2 4.78 3.08 ! 1.2
10 ! 5.76 5.03 4.13 ! 0.6
14 ! 3.7 4.5 5.73 ! 0.4
18 ! 6.2 5.07 3.77 ! 0.5
21 ! 2.4 3.5 4.58 ! 0.5
24 ! 2.7 3.57 4.24 ! 0.2
28 ! 6.12 5.83 5.53 ! 0.2
! 5.53 5.19 4.82 ! 0.2
29 ! 4.82 4.36 3.84 ! 0.2

! 3.84 3.23 2.55 ! 0.2

The values are found with a professional oscilloscope two track 100 Mhz , thus the Oscilloscope is OK

The Value i found for step 6 ok are DC but the rf voltage
at tp3 are found with this oscilloscope and are expressed as Vpp (i check even the trigger level if values are x1 or x10 or other but nothing) ; also for first 8 steps all values are correct.

the only strange thing is that the tp-3 in the RF board is not an anchor point but a component never seen, it looks like a resistance but did not color it seems to be black and I took the part of the top folder: this evening I will try to see if it is actually a jumper from the side trying pll board,d40 to redo the measures even though I think it's the same thing

other strange thing: why the voltages that I have on TP-3 are decreasing from 1.5 to 28 and those that have you going to grow?

there is something wrong and should not be a small thing!

Ciao
Ugo

44416. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-07 14:07:51 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44416

Ugo:

Lets talk about 20 meters (14mhz). Here is what I understand you found at Step 9. Let me know if this is correct.

DC voltages measured at TP-1 on PLL Board.

Frequencies measured at D40 on PLL board or at TP-3

VFO 0 = 3.70vdc @ 22.83mhz

VFO 250 = 4.50vdc @ 23.08mhz

VFO 500 = 5.73vdc @ 23.33mhz.

VCO output at TP-3 on RF board = 0.40 p-p at VFO 0-250-500 positions

Also, are you reporting you have approx 1.0 to 2.0 p-p rf volts at TP-3 on 1.5, 3.5 and 7.0 mhz. All other bands have 0 rf volts output at TP-3.

If you had a bad cable or connectors or solder connections you should not have any VCO output at TP-3 on some bands and not on others.

Let me know if what I have stated here is correct.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry

The 12 voltage at step 9 appear normal , i hope
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other strange thing: why the voltages that I have on TP-3 are decreasing from 1.5 to 28 and those that have you going to grow?

there is something wrong and should not be a small thing!

Ciao
Ugo

44417. Anyone have pics of TS-520SE innards? Rectifier board in particular?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-08 05:28:58 UTC
From: Wes Will
Topic: 44331 Message: 44417

First off, I love this group, the people, and the knowledge that gets passed around by them. The forum is a fantastic resource.

But.....

The Yahoo host and the methods they use for storing information are enough to drive a man mad.

Here is why (partly):

I've just been looking for pictures of the inside of a 520SE, around the rectifier board of course. Found a couple that look like they might be just what I need.

Except, seeing as they're on this Yahoo thing, they're not available as photos to enlarge so I can see the detail and colours I need and find out if they are what I need.

(They're some sort of crazy slide show, meant to "help" the gormless I guess, but which instead drives me absolutely bug-snot crazy trying to manipulate it to see the colours of the wires at each wire-wrap point. I guess I have too much gorm...

If it was just a photo file, it would be simple. Seeing as it's not, it is far from simple (and most annoying).

Can't seem to find a way to get them out as photos inside Yahoo's excessively "helpful" facilities, so I guess I'll look for an add-on utility for Firefox, to maybe get something useful out.)

And while I'm looking for a way around, here's a quick question. Does someone with a 520SE have the time (and a camera) to snap a shot of the rectifier board?

The one I have has white-with-coloured-stripe wires.

The replacement board has only solid-coloured wires.

My original photos from before any of this started seem to be missing. I believe my wife "borrowed" the memory device I had them on, and wiped it to make room for files from her school. (She's an elementary school teacher, and rather un-technical to say the least. Fantastic school teacher, but fights with technology more complex than a pencil sharpener.)

The few that are the same (solid colours, six of them red, in two gauges...), I have traced back in the chassis and on the schematic, and those are connected. The transformer wires are all connected, those were easy enough. But the others, they don't match with the replacement

board. I've gotten some of them straight, the two green ones gave me some fun, but I traced them back to the proper points.

I do NOT want to get this wrong. So, can someone send me, or post a URL for a picture of, this particular part of the chassis? WITH the bi-coloured wires, please?

In particular, the wires coloured white with a:

grey stripe;
red stripe;
blue stripe;
yellow stripe;
green stripe;
violet stripe;
grey stripe (yes, there are two of them, on opposite sides of the board).

I really don't want to trace them all back if I don't have to. I will, of course, but I'd rather cheat with a photo, if I could. Those seven connections are what stand between me and a probably-working radio. And I DO NOT want to screw this up. (That un-technical wife is still upset about my buying a radio that turned out to be busted....)

So, anybody got a link to a photo?

--
Wes Will
N9KDY

44418. RE: RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-08 12:02:11 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44418

Ugo:

Two more clarifying questions:

1. Is Conn 1 plugged in while taking the Step 9 voltages?

2. Is the Digital Display blanked (off) for the bands where you have no VCO output voltage at TP-3?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ugo:

Lets talk about 20 meters (14mhz). Here is what I understand you found at Step 9. Let me know if this is correct.

DC voltages measured at TP-1 on PLL Board.

Frequencies measured at D40 on PLL board or at TP-3

VFO 0 = 3.70vdc @ 22.83mhz

VFO 250 = 4.50vdc @ 23.08mhz

VFO 500 = 5.73vdc @ 23.33mhz.

VCO output at TP-3 on RF board = 0.40 p-p at VFO 0-250-500 positions

Also, are you reporting you have approx 1.0 to 2.0 p-p rf volts at TP-3 on 1.5, 3.5 and 7.0 mhz. All other bands have 0 rf volts output at TP-3.

If you had a bad cable or connectors or solder connections you should not have any VCO output at TP-3 on some bands and not on others.

Let me know if what I have stated here is correct.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry

The 12 voltage at step 9 appear normal , i hope
but the Voltage at TP3 (RF Board) is dropped as i report :
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The values are found with a professional oscilloscope two track 100 Mhz , thus the Oscilloscope is OK

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other strange thing: why the voltages that I have on TP-3 are decreasing from 1.5 to 28 and those that have you going to grow?

there is something wrong and should not be a small thing!

Ciao
Ugo

44419. Re: [TS-520_820_530_830] Not a HYBRID, but need advice. TS-660.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-08 19:50:02 UTC
From: Craig Roberts
Topic: 41008 Message: 44419

Good day from the Nation's Capital,

It has been pointed out to me that my recent tongue-in-cheek response to Will's posting regarding TS-660 could have been taken seriously by some.

My message was meant purely as a joke and I should have made that clear at the time. But, you know we Beltway types -- we just can't keep our mouths shut when we oughta.

My sincere apologies.

73, all,

Craig
W3CRR

44420. Color Match for TS-520S Faceplate

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-08 23:43:36 UTC
From: <pyrrus2003@...>
Topic: 44420 Message: 44420

Can someone advise me of a matching paint for the olive green used on my 520S faceplate? If there is no commercial match, has anyone had the paint mixed and can give me the formula. I am about to undertake a cosmetic overhaul, and the edges of the faceplate are scarred and rubbed, and I'd like to match them properly.

John KD5ZGX

44421. Hello to the group!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-08 22:01:59 UTC
From: <ggutshal@...>
Topic: 44421 Message: 44421

Hello all! I'm new to the group and somewhat new to the world of ham radio... Well not all that new. I have been interested in ham since I was a kid, but they had Morse code requirements way back then and the CW always stymied me. Then I joined the military with the intention of picking back up with ham radio eventually. Well 30 odd years have passed and here I am. I recently took and passed both my Technician & General exams and have been issued a shiny new call sign. The local club had a swap meet the other day and I managed to find a rather nice TS-520D with an external speaker and a nice Sure desk mic for $100. I look forward to picking all of your brains as the days go by!

44422. RE: Color Match for TS-520S Faceplate

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 00:57:42 UTC
From: <ke5ftf@...>
Topic: 44420 Message: 44422

Hi John,
If you can't find a matching paint then I should have a near mint Face Plate for the 520S...
Sell them for $35 plus my mailing cost to you QTH...
Bob
ke5ftf
73s
****

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Can someone advise me of a matching paint for the olive green used on my 520S faceplate? If there is no commercial match, has anyone had the paint mixed and can give me the formula. I am about to undertake a cosmetic overhaul, and the edges of the faceplate are scarred and rubbed, and I'd like to match them properly.

John KD5ZGX

44423. RE: Hello to the group!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 00:59:10 UTC
From: <ke5ftf@...>
Topic: 44421 Message: 44423

Welcome, plenty of Good help here... :)

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hello all! I'm new to the group and somewhat new to the world of ham radio... Well not all that new. I have been interested in ham since I was a kid, but they had Morse code requirements way back then and the CW always stymied me. Then I joined the military with the intention of picking back up with ham radio eventually. Well 30 odd years have passed and here I am. I recently took and passed both my Technician & General exams and have been issued a shiny new call sign. The local club had a swap meet the other day and I managed to find a rather nice TS-520D with an external speaker and a nice Sure desk mic for $100. I look forward to picking all of your brains as the days go by!

44424. RE: Source problem???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 07:26:23 UTC
From: <wwill@...>
Topic: 44372 Message: 44424

I'd be mostly guessing, but from the voltage being way low on the grid, is it the grid resistor being open, or far out of tolerance (ten or more times the nominal value)??

Had to dig for the SB-100 schematic, and the block diagrams and such I could find on short notice. (I don't have an SB-100 of my own, no need for the manuals.) Don't know if there are not better ones available, but from the schematic, and a quick poke at this thing, I would at least be checking the grid resistor for correct value. I wouldn't be surprised to find it almost open, seeing as how the voltages are very low down the chain from there.

And I'm probably way off. But that's OK, it's just one way to learn.

Oh, and as a matter of course I also tend to check tubes for element shorts and gassy conditions when I have to open up any tube-bearing critters.

I have an old (How else?) Navy issue tube tester, still has the salt-water seals on the cover, that will do anything up to radar transmitting tubes of the smaller variety. Testing a tube is not a big hardship. Sometimes finding the correct settings for a new(er) tube on this old(er) tube tester, now that can be a challenge. But with the specifications of the tube I can usually figure it out or get close enough to get a reasonable guess as on almost any common tube still in use.

--
Wes Will
N9KDY

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Here's a problem for the inexperienced hams to solve. This is NOT a made
up problem, this problem actually occurred in my Heathkit SB-100. I know
this is not a Kenwood hybrid but it is a good problem to solve for those
studying vacuum tube theory.

Remember all those times you were told to take voltage measurements?
Well this is where all that comes "pays off"!!!

Symptom:
Receive audio is distorted
The S meter, after 3 to 4 minutes warm up, drifts below zero and remains
pegged hard against the meter peg
No signal, calibrator or strong receive signal brings the S meter above zero

Initial checks:
Meter zero pot is adjusted but no change, meter remains pegged below zero
Detuning the Preselector results in no change in the symptoms except the
audio level is lower
Adjusting the RF Gain control CCW causes the S meter to rise above zero
and when set fully CCW the meter pegs fully to the right.

Voltages were check for the receiver RF amp, receiver first mixer, first and second IF amplifiers. All 4 stages are directly or indirectly through resistors, connected to the same common receiver's AGC buss.

The following voltage measurements were taken and the results are as follows:

Receiver RF Amp and first receiver mixer's plate and screen voltages are good when compared to the manual's voltage chart
Receiver RF amp and first receiver mixer's grid voltages have decreased by .2VDC less than the voltage chart levels

First IF amplifier's plate and screen voltages were found to be significantly lower than the manual's voltage chart
First IF amplifier's grid voltage was found to be +1.5VDC

Second IF amplifier's plate and screen voltage were found to be lower than the manual's voltage chart
Second IF amplifier's grid voltage was +.8VDC

With all this information, what is the exact source of the problem?

Don't guess, use the information provided to solve the exact source of the problem then explain steps taken to fix all the problems.

Your choices are

1. Loss of operating bias to all 4 stages
2. First IF amp grid resistor had significantly increased in resistance value
3. RF gain control is very dirty resulting in improper operationg
4. Bias supply's filter capacitor has failed resulting in AC ripple on the bias buss
5. One of the tubes is gassy
6. Audio tube has a grid to screen short
7. Bad meter zero pot

73
Mike W5RKL

[Non-text portions of this message have been removed]

44425. Re: [TS-520_820_530_830] RE: Color Match for TS-520S Faceplate

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 12:04:10 UTC
From: John Boardman
Topic: 44420 Message: 44425

Please check on the 520S faceplate. Would $10.00 cover shipping for it and the 830S vfo knob? Please let me know.

John Boardman
KD5ZGX

From: "ke5ftf@..." <ke5ftf@...m>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 8, 2013 7:57 PM
Subject: [TS-520_820_530_830] RE: Color Match for TS-520S Faceplate

Hi John,
If you can't find a matching paint then I should have a near mint Face Plate for the 520S...
Sell them for $35 plus my mailing cost to you QTH...
Bob
ke5ftf
73s
****

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John KD5ZGX

44426. Re: [TS-520_820_530_830] RE: Source problem???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 15:07:24 UTC
From: W5RKL
Topic: 44372 Message: 44426

Hi Wes,

Your "guess" answer that the grid resistor had changed values significantly, even become opened, is wrong. I will give you credit that you would have checked the tubes for gas in your Navy tube tester. I have no experience nor do I know how your Navy tube tester can test a tube for gas.

The only correct answer is 5, gassy tube.

The positive voltage, +1.5VDC. on the first IF amp's grid resulted "infected" as I called, the second IF amp's grid so it became +.8VDC AND decreased the grid voltage by .2VDC in the RX RF amp and first mixer stages. The reason the other 3 stages were effected is answered in my statement that all 4 stages were connected to the same AGC buss. The AGC and operating bias buss are "the same" buss!! Therefore, any positive voltage applied to the AGC or bias buss will be applied to the grids of all 4 stages and any other stages connected to this buss!!!

You can simulate this problem using a 1.5VDC AA battery with the positive lead connected to the grid of V3 (first IF amp) and the negative lead connected to the chassis in an HW-100, HW-101, SB-100/101/102. I'm sure there are other vacuum tube receivers/transceivers you can duplicate this problem in but the ones I mentioned, I am well aware of. Oh, have I duplicated this problem, after fixing it with a non-gassy tube, in the SB-100 using a 1.5VDC AA battery voltage applied to the grid of the first IF amp? YES I DID and the results are exactly what I expected them to be, everything the original problem had.

Oh, sorry, all the other answers are simply wrong.

73
Mike W5RKL

On 9/9/2013 2:26 AM, wwill@... wrote:
>
> I'd be mostly guessing, but from the voltage being way low on the
> grid, is it the grid resistor being open, or far out of tolerance (ten
> or more times the nominal value)??
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> Had to dig for the SB-100 schematic, and the block diagrams and such I
> could find on short notice. (I don't have an SB-100 of my own, no need
> for the manuals.) Don't know if there are not better ones available,
> but from the schematic, and a quick poke at this thing, I would at
> least be checking the grid resistor for correct value. I wouldn't be
> surprised to find it almost open, seeing as how the voltages are very

> low down the chain from there.
>
> And I'm probably way off. But that's OK, it's just one way to learn.
>
> Oh, and as a matter of course I also tend to check tubes for element
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> still in use.
>
> --
>
> Wes Will
>
> N9KDY
>
>
>
>
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> <ts-520_820_530_830@yahoogroups.com> wrote:
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> up problem, this problem actually occurred in my Heathkit SB-100. I know
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> Well this is where all that comes "pays off"!!!
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> Receive audio is distorted
> The S meter, after 3 to 4 minutes warm up, drifts below zero and remains
> pegged hard against the meter peg
> No signal, calibrator or strong receive signal brings the S meter
> above zero
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> Initial checks:
> Meter zero pot is adjusted but no change, meter remains pegged below zero
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> Adjusting the RF Gain control CCW causes the S meter to rise above zero

> and when set fully CCW the meter pegs fully to the right.
>
> Voltages were check for the receiver RF amp, receiver first mixer, first
> and second IF amplifiers. All 4 stages are directly or indirectly
> through resistors, connected to the same common receiver's AGC buss.
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> follows:
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> good when compared to the manual's voltage chart
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>
> 73
> Mike W5RKL
>
>
>
> [Non-text portions of this message have been removed]
>

44427. Re: [TS-520_820_530_830] RE: Source problem???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 15:40:57 UTC
From: Wes Will
Topic: 44372 Message: 44427

On 09/09/2013 10:07 AM, W5RKL wrote:

> you would have checked the tubes for gas in your Navy tube tester. I
> have no experience nor do I know how your Navy tube tester can test a
> tube for gas.

Army, Navy, Marines, or Blue-Suit Air Force, they all show the same thing with a gassy tube. Grid current out of limits of course.

> 73
> Mike W5RKL

Likewise, Mike.

(And I knee the other three answers were bogus. Since there were problems in the grid current, it had to be either the resistor, or a bad tube. I just didn't follow it back well enough.)

--
Wes Will
N9KDY

44428. Re: [TS-520_820_530_830] RE: Hello to the group!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 15:50:52 UTC
From: John Davidson
Topic: 44421 Message: 44428

My TS 520 (no s) was a great CW rig once I installed the 400 Hz optional filter. There is hope for you to go CW !

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 8, 2013 8:59 PM
Subject: [TS-520_820_530_830] RE: Hello to the group!

Welcome, plenty of Good help here... :)

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hello all! I'm new to the group and somewhat new to the world of ham radio... Well not all that new. I have been interested in ham since I was a kid, but they had Morse code requirements way back then and the CW always stymied me. Then I joined the military with the intention of picking back up with ham radio eventually. Well 30 odd years have passed and here I am. I recently took and passed both my Technician & General exams and have been issued a shiny new call sign. The local club had a swap meet the other day and I managed to find a rather nice TS-520D with an external speaker and a nice Sure desk mic for $100. I look forward to picking all of your brains as the days go by!

44429. Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 15:48:05 UTC
From: <jweigh@...>
Topic: 44429 Message: 44429

I have found this diagram in the "files section" http://f1.grp.yahoofs.com/v1/1OctUrAC_aviYuKqxEOzF8YWGvA5NYaUx6IVu-dGQhSYn9uQwBPx5_4huNfkBpdn1jPIzZbGINak-MEcmlACq7su/KENWOOD%20TS-520S%20Power%20Connector%20Wiring.JPG

and need to know if what I'm looking at is the inside of the connector on the power cord or is it looking at the back of the radio or is it looking into the connector face into the female pins.
Sorry to have to ask such a simple question but my previous experience has been automotive connectors and they almost always give both female and male pin views (or component and connector).
Thanks for any clarification you can offer.
Jerry, K4GEW

44430. Re: [TS-520_820_530_830] Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 16:18:29 UTC
From: Mike
Topic: 44429 Message: 44430

Look on the plug's solder terminals, each terminal should be marked with
a number. You may need a magnifying glass but I suspect you will see
each terminal IS marked with a number!

73
Mike W5RKL

On 9/9/2013 10:48 AM, jweigh@... wrote:
>
> I have found this diagram in the "files section"
> http://f1.grp.yahoofs.com/v1/1OctUrAC_aviYuKqxEOzF8YWGvA5NYaUx6IVu-dGQhSYn9uQwBPx5_4huNfkBpdn1jPIzZbGINak-MEcmlACq7su/KENWOOD%20TS-520S%20Power%20Connector%20Wiring.JPG
>
> and need to know if what I'm looking at is the inside of the connector
> on the power cord or is it looking at the back of the radio or is it
> looking into the connector face into the female pins.
> Sorry to have to ask such a simple question but my previous experience
> has been automotive connectors and they almost always give both female
> and male pin views (or component and connector).
> Thanks for any clarification you can offer.
> Jerry, K4GEW
>
>

44431. Re: [TS-520_820_530_830] Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 16:53:39 UTC
From: Mike
Topic: 44429 Message: 44431

I meant to say you will see a number stamped on the plastic next to each
terminal on the solder terminal side of the plug. Match tho numberto the
schematic's wiring diagram and you should have no trouble wiring the plug.

73
Mike W5RKL

On 9/9/2013 11:18 AM, Mike wrote:
> Look on the plug's solder terminals, each terminal should be marked
> with a number. You may need a magnifying glass but I suspect you will
> see each terminal IS marked with a number!
>
> 73
> Mike W5RKL
>
> On 9/9/2013 10:48 AM, jweigh@... wrote:
>>
>> I have found this diagram in the "files section"
>> http://f1.grp.yahoofs.com/v1/1OctUrAC_aviYuKqxEOzF8YWGvA5NYaUx6IVu-dGQhSYn9uQwBPx5_4huN
fkBpdn1jPIzZbGINak-MEcmlACq7su/KENWOOD%20TS-520S%20Power%20Connector%20Wiring.JPG
>>
>> and need to know if what I'm looking at is the inside of the
>> connector on the power cord or is it looking at the back of the radio
>> or is it looking into the connector face into the female pins.
>> Sorry to have to ask such a simple question but my previous
>> experience has been automotive connectors and they almost always give
>> both female and male pin views (or component and connector).
>> Thanks for any clarification you can offer.
>> Jerry, K4GEW
>>
>>
>

44432. RE: Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 16:58:24 UTC
From: <jason.bogstie@...>
Topic: 44429 Message: 44432

You should be looking at the pins on the inside of the connector. I wired mine backwards on the first attempt, I didn't burn anything up, the cable just didn't work. I ended up having to wire it twice.

-Jason, K7BOG

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have found this diagram in the "files section" http://f1.grp.yahoofs.com/v1/1OctUrAC_aviYuKqxEOzF8YWGvA5NYaUx6IVu-dGQhSYn9uQwBPx5_4huNfkBpdn1jPIzZbGINak-MEcmlACq7su/KENWOOD%20TS-520S%20Power%20Connector%20Wiring.JPG

and need to know if what I'm looking at is the inside of the connector on the power cord or is it looking at the back of the radio or is it looking into the connector face into the female pins.
Sorry to have to ask such a simple question but my previous experience has been automotive connectors and they almost always give both female and male pin views (or component and connector).
Thanks for any clarification you can offer.
Jerry, K4GEW

44433. RE: Re: [TS-520_820_530_830] RE: Color Match for TS-520S Faceplate

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 18:52:49 UTC
From: <ke5ftf@...>
Topic: 44420 Message: 44433

Hi John,
I sent you a private email...
$10 OK on shipping for the 830S vfo Knob & 520S near mint Front Face...
Bob
****

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Please check on the 520S faceplate. Would $10.00 cover shipping for it and the 830S vfo knob? Please let me know.

John Boardman
KD5ZGX

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 8, 2013 7:57 PM
Subject: [TS-520_820_530_830] RE: Color Match for TS-520S Faceplate

Hi John,
If you can't find a matching paint then I should have a near mint Face Plate for the 520S...
Sell them for $35 plus my mailing cost to you QTH...
Bob
ke5ftf
73s
****

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Can someone advise me of a matching paint for the olive green used on my 520S faceplate? If there is no commercial match, has anyone had the paint mixed and can give me the formula. I am about to undertake a cosmetic overhaul, and the edges of the faceplate are scarred and rubbed, and I'd like to match them properly.

John KD5ZGX

44434. Re: [TS-520_820_530_830] RE: Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 21:09:10 UTC
From: Mike
Topic: 44429 Message: 44434

Jason, you are referring to the same side of the plug I am. The pins are soldered on one side ONLY and that is the side where the pin numbers are stamped next to the pins. All he has to do is look and he will see the pin numbers.If he looks on the side where the pins are the Longest then he is looking at the wrong side.

On 9/9/2013 11:58 AM, jason.bogstie@... wrote:
>
> You should be looking at the pins on the inside of the connector. I
> wired mine backwards on the first attempt, I didn't burn anything up,
> the cable just didn't work. I ended up having to wire it twice.
>
>
> -Jason, K7BOG
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I have found this diagram in the "files section"
> http://f1.grp.yahoofs.com/v1/1OctUrAC_aviYuKqxEOzF8YWGvA5NYaUx6IVu-dGQhSYn9uQwBPx5_4huNfkBpdn1jPIzZbGINak-MEcmlACq7su/KENWOOD%20TS-520S%20Power%20Connector%20Wiring.JPG
>
> and need to know if what I'm looking at is the inside of the connector
> on the power cord or is it looking at the back of the radio or is it
> looking into the connector face into the female pins.
> Sorry to have to ask such a simple question but my previous experience
> has been automotive connectors and they almost always give both female
> and male pin views (or component and connector).
> Thanks for any clarification you can offer.
> Jerry, K4GEW
>

44435. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 07:45:45 UTC
From: vierugo
Topic: 44331 Message: 44435

Hi Terry
sorry I'm late but I've got to use the computer and do other tests

regards :

Yes these test points look like a small resistor. They are found with one end terminated on the board and the free end coiled to allow connecting a mini-grabber test lead. At TP-3 it is placed in series and has very low resistance maybe around 0.10 ohms and half of that is due to the resistance of the DMM test lead and clips.
It is good to measure VCO signal level at TP-3 because it tells you that the coax cable and connectors are good from the PLL board to the RF board. Approx 1.0 rms or 2.828 P-P VCO level is needed at RX and TX Mixers for good RX and TX performance. I have seen bad connections at the coax connectors at each end and one time the cable pulled off the connector.
Good idea to measure levels at D40 on PLL. If you have good readings at D40 then need to pull coax jumper off and re-seat it at each end.
I dont think the coax cable is the problem as you do have voltage at one end of VFO tuning range.
I looked at my notes and I see that the level at 0, 250, and 500 does not very much from Zero to 500. No more than 50 mv and usually less than this in the 10 to 15 mv range.
My lowest voltage levels were on 1.5mhz at approx 870mv rms or 2.46v P-P. On 20 meters approx 945mv or 2.67v P-P. On all other bands approx 1200 mv to 1300 mv or approx 3.5v P-P from zero to 500 VFO tuning range.
"

Unfortunately, I found that the tensions are very different so there must be something very obvious that I was wrong to measure

---
"
Lets talk about 20 meters (14mhz). Here is what I understand you found at Step 9. Let me know if this is correct.
DC voltages measured at TP-1 on PLL Board.
Frequencies measured at D40 on PLL board or at TP-3
VFO 0 = 3.70vdc @ 22.83mhz
VFO 250 = 4.50vdc @ 23.08mhz
VFO 500 = 5.73vdc @ 23.33mhz.
VCO output at TP-3 on RF board = 0.40 p-p at VFO 0-250-500 positions
Also, are you reporting you have approx 1.0 to 2.0 p-p rf volts at TP-3 on 1.5, 3.5 and 7.0 mhz. All other bands have 0 rf volts output at TP-3.
If you had a bad cable or connectors or solder connections you should not have any VCO output at TP-3 on some bands and not on others.
"Let me know if what I have stated here is correct.
"

Yes , as you say : here is correct, this is my situation

---
1. Is Conn 1 plugged in while taking the Step 9 voltages?
"
yes :the conn 1 in pll is plugged : the manual service not specify an unplugged action

---
"
2. Is the Digital Display blanked (off) for the bands where you have no VCO output voltage at TP-3?
"

no : at step 9 the Digital display is okay in all band : the digital display is blanked (off) only after step 10 , when unplug J1 , J5 and when i start to change the BPF-A ; after a first adjustment , in many bands , from 14.x to 29.x the Digital display is go off , even when I connected j1 , and for restore i've readjust in L14,T13,L15 and only after many attempts the display is go on in all band and all limits lower and upper;

==========

However, there is a small flea that's been bugging me for a while:
in step:

Step-3 0.3 +- 1dB
Step-5 1.0 +- 1dB
step-6 0.3 +- 1dB

is specified to control the voltages :

These voltages are Vrms or Vpp?
1) If are Vrms then I'm wrong because i interpreted these values as Vpp (not shoot me!)

if the manual service intends values in Vrms :

2) when the step-3 (as in step 5 but with a V = 1.0) says
0.3 +- 1dB what he means:
a)
-1 dB +1 dB
[0.891251, 1.12202] Vrms ->
[2.521, 3.174] Vpp
what is 0.3? an optimum value, a minimum value,an average ?

b)
0.3 -1 dB , 0.3 + 1 dB
[-0.591251, 1.42202] Vrms
-> [????, 4.022] Vpp
but lower value is negative : i must get the abs value?

3) when the step-6 says
0.3 +- 1dB what he means:
a)
-1 dB +1 dB
[0.891251, 1.12202] Vrms ->
[2.521, 3.174] Vpp
but the same step say :

"......if value outside specified limit adjust L19. L20 until voltage is 0.3 ...."
but then what does + / - 1 dB

maybe the problem is these values incorrect's for my rtx!

from a mathematical point of view it is not very clear which are the optimal values and the limits imposed

The mathematical expression:
x1 +- k
means:
[x1 - k, x1 + k]
but here I do not understand what you mean

(even less clear, but you've explained it well, what is the meaning of the target voltage in step 9)

What do you think?

Ugo

44436. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-09 23:24:34 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44436

Ugo:

Maybe we should start a new thread as this is getting long or take off the forum as not sure much interest in the TS-830 PLL? I am in no hurry and no pressure on you. You do this at your own pace. Sometimes it is good to back track and repeat steps.

It appears to me that you are starting at Step 1 in the Service Manual and doing a complete alignment for the first time. If this is correct it will take time to understand the steps and absent some key test gear alternate methods to accomplish the step or to perhaps skip the step.If you get to a point where you cannot perform the step we can discuss that.

The voltage levels in the Service Manual are RMS taken by a RF probe and VTVM or a RF Millivoltmeter.

For example, at Step 3 you are measuring and adjusting the RF output voltage level of the Carrier Oscillator. The spec says it should be 0.3v +/- 1dB. This means they are looking for 300mv, but the radio will perform to specification if the voltage is 1dB higher than 300mv or 1 dB lower than 300mv. You could say that 300mv is the optimum level, but running with the level within the +/- 1 dB tolerance will not result in measurable receiver or transmitter performance decline.

This means the Carrier Osc level should be 267mv to 377mv by my math. So using your O-scope it would be a low of 0.755 p-p to a high of 1.066 p-p volts.

Step 5 states 1.0v +/- 1dB. I interpret that to mean 0.890v to 1.122v rms. Using your O-scope means 2.52 p-p to 3.17 p-p. So 2.83 p-p would be "optimum", but 2.52 to 3.17 is OK.

Maybe it would be better to say these are "Target" values and not "Optimum".values. If a value was critical they would tighten up the +/- dB tolerance.

Yes Step 9 has to be performed with Conn1 and Conn 5 plugged in.

Suggest you check my math as always easy for a mistake or a typo.

I will read and study the rest of your response.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry
sorry I'm late but I've got to use the computer and do other tests

regards :

Yes these test points look like a small resistor. They are found with one end terminated on the board and the free end coiled to allow connecting a mini-grabber test lead. At TP-3 it is placed in series and has very low resistance maybe around 0.10 ohms and half of that is

due to the resistance of the DMM test lead and clips.
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VCO output at TP-3 on RF board = 0.40 p-p at VFO 0-250-500 positions
Also, are you reporting you have approx 1.0 to 2.0 p-p rf volts at TP-3 on 1.5, 3.5 and 7.0 mhz. All other bands have 0 rf volts output at TP-3.
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"

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"
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when I connected j1 , and for restore i've readjust in L14,T13,L15 and only after many attempts the display is go on in all band and all limits lower and upper;

==========

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2) when the step-3 (as in step 5 but with a V = 1.0) says
0.3 +- 1dB what he means:
a)
-1 dB +1 dB
[0.891251, 1.12202] Vrms ->
[2.521, 3.174] Vpp
what is 0.3? an optimum value, a minimum value,an average ?

b)
0.3 -1 dB , 0.3 + 1 dB
[-0.591251, 1.42202] Vrms
-> [????, 4.022] Vpp
but lower value is negative : i must get the abs value?

3) when the step-6 says
0.3 +- 1dB what he means:
a)
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[0.891251, 1.12202] Vrms ->
[2.521, 3.174] Vpp
but the same step say :
".....if value outside specified limit adjust L19. L20 until voltage is 0.3 ...."
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x1 +- k
means:
[x1 - k, x1 + k]
but here I do not understand what you mean

(even less clear, but you've explained it well, what is the meaning of the target voltage in step 9)

What do you think?

Ugo

44437. Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 14:39:23 UTC
From: Barry
Topic: 44437 Message: 44437

I'm having trouble with an external VFO-820 - when I plug it into my TS-820, it doesn't work properly in that it won't change frequencies and won't really do much of anything. It looks like it should be working - the lights come on, etc. - but I would think more than likely that it is a relay problem, but I'm open to suggestions.

I took the relay out and cleaned the contacts on the bottom, but I haven't opened the relay itself up to clean inside. One of my friends here, Jimmy Lamanteer, mentioned that I could carefully open the plastic top on the relay and try to clean the contacts inside with a little DeOxit on a business card.

If that doesn't work, is this relay the same as the one that goes in the TS-820? If so I could just order an OMRON relay and be fine, right?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

P. S. The TS-820 is still kicking along just great - I took it to the beach when I was on vacation last week and easily made contacts into Germany, Hungary, and all over the US on a speaker wire dipole that I had tied to a 20' crappie pole on the vacation house balcony.

44438. RE: RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 15:32:43 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44438

Ugo:

If you are going thru the complete TS830 alignment using the service manual there is one more thing to remember. Any step that tells you to inject a RF signal they will list the signal level in dB. This dB level is not the American standard that we typically use. This can confuse you.

For example if you look at Step 15 where you are aligning the receiver IF amp transformers they tell you to inject 1.9mhz at 40dB. This means you inject 50.0uv or a -73dBm signal and not 100uv. Be careful looking at some conversion charts on the web as they are not based on correct reference.

The Kenwood Japanese SG 0dB = American SG 0.50uv = -113dBm

With 0dB = 0.50uv then for each 6dB step the voltage will double. So 6dB = 1.0uv, 12dB = 2.0uv ....40dB = 50.0uv and so on.

Microvolts (uv) and dBm output levels are more typically available on the common signal generators we use here (HP8640B, Wavetek 3002, HP 606, URM 25B, BK E200D etc) and not dB.

If you do not have a Rf sig gen with a calibrated step attenuator we can discuss options off the forum.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

44439. Re: Vacuum tube theory videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 10:36:09 UTC
From: cl5ltd
Topic: 44375 Message: 44439

+1 for posting to youtube - there are some excellent radio related clips covering all areas of the hobby. I've spent hours combing through radio clips and learned plenty. If you've taken the time to make these clips, please upload - easy enough process

44440. New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 19:16:22 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44440

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44441. Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 20:13:27 UTC
From: William Houghton
Topic: 44440 Message: 44441

Jason,

Before you do anything else you should invest in a 50 ohm dummy load. Sometimes you can find a Heathkit Cantenna dummy load at swapmeets or estate sales. I think MFJ makes a clone of the Heathkit. These are rated at 1KW for about 10 seconds with the oil in them. I would get one rated at least 300W for use with the TS-520.

Using the dummy load has two benefits. One you won't be transmitting on the air while trying to fix a transmitter problem. Second, the load seen by the transmitter will be known and correct.

73,

Bill

From: "jason.bogstie@gmail.com" <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 10, 2013 12:16 PM
Subject: [TS-520_820_530_830] New Ham, Tuning issues

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44442. Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 20:12:42 UTC
From: Wes Will
Topic: 44440 Message: 44442

> I am operating on 40 meters with a dipole. All I have is this rig, a SWR
> meter, and the dipole, no other equipment for HF.

Quick question for clarity's sake. With what (coax or balanced
feedline) are you feeding your dipole? And how high up is it, just for
grins.

> I do not know for sure what my antenna's SWR is, when I attempt to use
> my SWR meter, it will not calibrate. I know the meter works, so I was
> concerned is may be an issue with the TS-520.

The reason your meter won't calibrate nor the 520 transmit is very
likely contained right here. It's probably NOT the radio.

--
Wes Will
N9KDY

44443. Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 20:21:12 UTC
From: Wes Will
Topic: 44440 Message: 44443

On 09/10/2013 03:13 PM, William Houghton wrote:
> Jason,
>
> Before you do anything else you should invest in a 50 ohm dummy load.

Great idea. But don't neglect the "building one" option.

You can get a bulkhead connector, a small tube of silicone, an empty quart paint can, some mineral oil, and a hand-full of resistors, for pretty cheap.

As in less than ten bucks cheap. I know because I've got one that will handle at least 500W, nearly indefinitely, right here and that's about what I have in it.

Took some soldering and a little work with a pencil and calculator (to get almost 100 resistors to come out to 50 ohms in a series-parallel combination), a drill and a ream for the hole in the lid, but it was cheap, and it works just fine.

Some times, ten dollars is even too much. I know all too well. (Stuck with an over-priced, still-busted 520SE, but with a perfectly-working -50 mike, and even the DG-5 and all the cables to go with it.... Got it down to three more wires to trace. I hope.)

--
Wes Will
N9KDY

44444. Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 20:33:04 UTC
From: jim
Topic: 44440 Message: 44444

On 9/10/2013 1:21 PM, Wes Will wrote:
>
> On 09/10/2013 03:13 PM, William Houghton wrote:
> > Jason,
> >
> > Before you do anything else you should invest in a 50 ohm dummy load.
>
> Great idea. But don't neglect the "building one" option.
>
> You can get a bulkhead connector, a small tube of silicone, an empty
> quart paint can, some mineral oil, and a hand-full of resistors, for
> pretty cheap.
>
> As in less than ten bucks cheap. I know because I've got one that will
> handle at least 500W, nearly indefinitely, right here and that's about
> what I have in it.
>
> Took some soldering and a little work with a pencil and calculator (to
> get almost 100 resistors to come out to 50 ohms in a series-parallel
> combination), a drill and a ream for the hole in the lid, but it was
> cheap, and it works just fine.
>
> Some times, ten dollars is even too much. I know all too well. (Stuck
> with an over-priced, still-busted 520SE, but with a perfectly-working
> -50 mike, and even the DG-5 and all the cables to go with it.... Got it
> down to three more wires to trace. I hope.)
>
> --
> Wes Will
> N9KDY
>
>
all of you have good idea? but go on ebay and buy one for cheap full it
up you are done....

44445. Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-10 22:05:31 UTC
From: John Davidson
Topic: 44440 Message: 44445

You need to advance the carrier control very carefully until; the plate current Ip Just starts to rise with the radio transmitting in the Tune Mode.Then start turning the drive control until you get a peak reading. Does this happen? A sudden jump in Ip indicates a dirty control or something more serious.
Good luck

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 10, 2013 3:16 PM
Subject: [TS-520_820_530_830] New Ham, Tuning issues

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44446. Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 00:04:27 UTC
From: <chris@...>
Topic: 44446 Message: 44446

I am playing with a TS-520S I bought at the Salvation Army a few years back. I had played with it for a while back then, but walked away from it. The receiver works 100%. However, I am only getting about 10W out on transmit for both CW and SSB. The strange thing is that I get almost no signal unless I back the carrier knob all the way counter clock wise to zero, and I finally get about 10w for CW. All other settings produce almost no output. The carrier knob doesn't seem to do anything for SSB on this radio. Again only about 10W out. Could this mean the driver tube is flat?

Any suggestions? I would love to get this old gal running 100% again.

73 de KQ6UP SK ..
Chris

44447. Re: [TS-520_820_530_830] Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 00:33:55 UTC
From: Chris Maness
Topic: 44446 Message: 44447

On Sep 10, 2013 5:14 PM, "Don Allen" <w9cw@...> wrote:
>
> On 9/10/2013 7:04 PM, chris@... wrote:
>>
>> The carrier knob doesn't seem to do anything for SSB on this radio
>
>
> Chris,
>
> This is a direct e-mail reply to you... rather than via the Yahoo group.
>
> The carried control is supposed to do nothing on SSB, only CW. Remember,
SSB by definition suppresses the carrier. The Mic gain control controls
the SSB output, and you should keep the meter swings in the ALC region.
>
> When operating CW, and after tuning up the transceiver, you set the
carrier control for 200 mA of plate current. If all is OK with the rig,
that should equate to approximately 90 to 100W output. If you're only
getting 10W out, there's a problem somewhere.
>
> 73
> Don W9CW
>

Where do suggest I start looking for the problem?

Thanks,
Chris KQ6UP

44448. RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 01:35:25 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44448

Chris:

The CAR pot has nothing to do with SSB mode in any KW hybrid radio. The CAR pot is used to forward bias the Balanced Modulator ring diodes in CW mode to produce a carrier output. In SSB the audio from the mic and the carrier oscillator mix in the Balanced Mod to produce a DSBSC signal.

Typical CAR pot levels in Tune or CW mode on a TS-520/520S with a good Driver stage is approx 2 (0900) for full scale ALC black box indication and 5 (1200) for FSD or full scale deflection of the meter.

Have you set the zero signal resting plate current to 60ma? If so, proceed to following test.

Easy test of the Driver stage is as follows:
1. SG switch off
2. Power and heaters on
3. Mode switch CW, Drive Control at 1200, VFO 200
4. Meter in ALC position
5. Car pot at 1200
6. Flip to Send and Peak the Drive control. If meter pegs full scale back Car pot level down to just get meter indicator off the peg.
7. Dont leave rig keyed for more than a few seconds. Leave it keyed long enough to make sure that the ALC indication doesnt slowly fall off of FSD. This most commonly may occur on 10 meters. If it does, it is time to replace the 12BY7A.
8. Repeat above steps on all bands.
9. With good driver stage should be able to get FSD on all bands with exception of perhaps 10 meters. On my 520 I can get full scale ALC deflection on 29mhz with Car pot advanced to 6.5 (1330). All other bands no more than 1200.

If you cannot get FSD with Car pot at approx 1200 then easy to try a new 12BY7A as a first step to resolve 10 watts output.

If Driver stage passes above test can be many reasons for low output.
1. Soft finals
2. Bad PA cage plate choke
3. Low finals anode and screen grid voltages
4. Usually band switch contacts are not the problem if low output occurs on all bands.

Do the Driver tube test and report back results. Also, do you have any means to measure RF drive levels? O-scope, RF millivolt meter, RF probe/VTVM? Easiest way to find reason for low RF output is to perform TX Level Diagram in the Service Manual.

Terry K9TW

--- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:

On Sep 10, 2013 5:14 PM, "Don Allen" <w9cw@...> wrote:
>
> On 9/10/2013 7:04 PM, chris@... wrote:
>>
>> The carrier knob doesn't seem to do anything for SSB on this radio
>
>
> Chris,
>
> This is a direct e-mail reply to you... rather than via the Yahoo group.
>
> The carried control is supposed to do nothing on SSB, only CW. Remember, SSB by definition suppresses the carrier. Â The Mic gain control controls the SSB output, and you should keep the meter swings in the ALC region.
>
> When operating CW, and after tuning up the transceiver, you set the carrier control for 200 mA of plate current. Â If all is OK with the rig, that should equate to approximately 90 to 100W output. Â If you're only getting 10W out, there's a problem somewhere.
>
> 73
> Don W9CW
>
Where do suggest I start looking for the problem?

Thanks,
Chris KQ6UP

44449. Kenwood Hybrid Net Update (September 10, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 01:53:16 UTC
From: Mark Gilger
Topic: 44449 Message: 44449

The Saturday□s net on 40 meter we had 11 stations checking in under good band conditions, although there was a contest on that was giving us a headache. There were 1 new check-ins, K4TFJ. Out of those, there was:

```
3 running TS-520(x)
3 running TS-530(x)
1 running TS-820(x)
0 running TS-830S
0 running TS-900

I was running my TS-940s. The rest were running
non hybrids of one model or another.
```

The Sunday□s net was run by Jimmy, WB2KNR on 20 meter. He had 20 stations checking in under good band conditions. He had 11 new check ins, KB0HAS, KJ4BT, KJ3Q, KD0PTM, K9ILL, N7GOD, N4JK, KC9RTX, N5EXK, WU7G, and KC9QVV. Out of those, there was:

```
4 running TS-520(x)
1 running TS-530(x)
3 running TS-820(x)
4 running TS-830S

The rest were running non hybrids of one model or another.
```

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940□s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

```
If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.
```

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 11, Sunday☐s total = 20 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44450. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 01:59:52 UTC
From: Chris Maness
Topic: 44446 Message: 44450

On Tue, Sep 10, 2013 at 6:35 PM, <wagstw46@...> wrote:

>
>
>
> Easy test of the Driver stage is as follows:
>
> 1. SG switch off
>
> 2. Power and heaters on
>
> 3. Mode switch CW, Drive Control at 1200, VFO 200
>
> 4. Meter in ALC position
>
> 5. Car pot at 1200
>
> 6. Flip to Send and Peak the Drive control. If meter pegs full scale back
> Car pot level down to just get meter indicator off the peg.
>
I get nothing here. I have to turn the Screen Grid back on to get
anything.

> 7. Dont leave rig keyed for more than a few seconds. Leave it keyed long
> enough to make sure that the ALC indication doesnt slowly fall off of FSD.
> This most commonly may occur on 10 meters. If it does, it is time to
> replace the 12BY7A.
>
I am not showing any deflection, are you sure the meter is not supposed to
be in plate current mode?

>
>
> 8. Repeat above steps on all bands.
>
> 9. With good driver stage should be able to get FSD on all bands with
> exception of perhaps 10 meters. On my 520 I can get full scale ALC
> deflection on 29mhz with Car pot advanced to 6.5 (1330). All other bands no
> more than 1200.
>
>
> If you cannot get FSD with Car pot at approx 1200 then easy to try a new
> 12BY7A as a first step to resolve 10 watts output.
>

Ok, off to the junk box.

>
> If Driver stage passes above test can be many reasons for low output.
>
> 1. Soft finals
>
> 2. Bad PA cage plate choke
>
> 3. Low finals anode and screen grid voltages
>
> 4. Usually band switch contacts are not the problem if low output occurs
> on all bands.
>

>
> Do the Driver tube test and report back results. Also, do you have any
> means to measure RF drive levels? O-scope, RF millivolt meter, RF
> probe/VTVM? Easiest way to find reason for low RF output is to perform TX
> Level Diagram in the Service Manual.
>

I have a scope, but not the other RF meters.

>
> Terry K9TW
>

Thanks, Terry
Chris KQ6UP

>
>

44451. Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 07:36:52 UTC
From: vierugo
Topic: 44331 Message: 44451

Hi Terry

Regards :

"
..... dB level is not the American standard that we typically use. This can confuse you. For example if you look at Step 15 where you are aligning the receiver IF amp transformers they tell you to inject 1.9mhz at 40dB. This means you inject 50.0uv or a -73dBm signal and not 100uv. Be careful looking at some conversion charts on the web as they are not based on correct reference.
The Kenwood Japanese SG 0dB = American SG 0.50uv = -113dBm
With 0dB = 0.50uv then for each 6dB step the voltage will double. So 6dB = 1.0uv, 12dB = 2.0uv ....40dB = 50.0uv and so on.
Microvolts (uv) and dBm output levels are more typically available on the common signal generators we use here (HP8640B, Wavetek 3002, HP 606, URM 25B, BK E200D etc) and not dB. If you do not have a Rf sig gen with a calibrated step attenuator we can discuss options off the forum.
"

thank you very much:

like you said I had misread but since I do not have a generator and accurate output voltages from the old Mial-150 the rule with a potentiometer, checking them oscilloscope, what you've told me is useful, very useful;

Well, at this point, as you said I think it is appropriate to close the thread but not without making a small conclusion:
the sweeper is almost essential, and perhaps cheapest way can be to use, as you suggested, a dds which, in my case will be controlled
by Arduino, allowing you to brush the various freq:
In my economic situation , given the low expense of a board dds with AD9850 and the availability of an arduino v2, does not cost much to try to make a sweeper also because I found many examples of interface between arduino and that card, and drive the whole PC for graphics and setup (if it does work no problem to publish hardware and software)

Ugo

44452. RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 11:05:31 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44452

Chris where in the manual does it tell you to use the Ip meter position to peak the Drive control? Disregard that kind of advise at this stage of your knowledge and experience.

You did not answer if you have set the resting plate currrent to 60ma in SSB mode with mic gain turned down. Were you able to do this?

I am 500% certain you dont want meter in Ip position. New folks are best served following the instructions.

When I told you to place meter in ALC and peak the Drive control that is what I meant. Not Ip.

If we are to help you it is important that you follow instructions and report back findings. So one last time from me:
1. Power on
2. Heaters on
3. Meter to ALC
4. Car Level pot at 1200
5. Drive Control at 1200
6. VFO 200 (need it in mid range so that the ALC peak will occur near 1200)
7. Mode switch Tune position
8. Band switch (repeat the test on each band)
9. Flip to Send and peak the Drive control for maximum ALC indication
10. If meter pegs back down Car Pot
11. If no meter indication increase CAR pot full CW and repeat

If you get no ALC indication on any band with Car pot full CW then report back.

Terry K9TW.

--- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:

On Tue, Sep 10, 2013 at 6:35 PM, <wagstw46@...> wrote:

Easy test of the Driver stage is as follows:
1. SG switch off
2. Power and heaters on
3. Mode switch CW, Drive Control at 1200, VFO 200
4. Meter in ALC position
5. Car pot at 1200
6. Flip to Send and Peak the Drive control. If meter pegs full scale back Car pot level down to just get meter indicator off the peg.
I get nothing here. I have to turn the Screen Grid back on to get anything.

7. Dont leave rig keyed for more than a few seconds. Leave it keyed long enough to make sure that the ALC indication doesnt slowly fall off of FSD. This most commonly may occur on 10 meters. If it does, it is time to replace the 12BY7A.

I am not showing any deflection, are you sure the meter is not supposed to be in plate current mode?

8. Repeat above steps on all bands.
9. With good driver stage should be able to get FSD on all bands with exception of perhaps 10 meters. On my 520 I can get full scale ALC deflection on 29mhz with Car pot advanced to 6.5 (1330). All other bands no more than 1200.

If you cannot get FSD with Car pot at approx 1200 then easy to try a new 12BY7A as a first step to resolve 10 watts output.

Ok, off to the junk box.

If Driver stage passes above test can be many reasons for low output.
1. Soft finals
2. Bad PA cage plate choke
3. Low finals anode and screen grid voltages
4. Usually band switch contacts are not the problem if low output occurs on all bands.

Do the Driver tube test and report back results. Also, do you have any means to measure RF drive levels? O-scope, RF millivolt meter, RF probe/VTVM? Easiest way to find reason for low RF output is to perform TX Level Diagram in the Service Manual.

I have a scope, but not the other RF meters.

Terry K9TW

Thanks, Terry
Chris KQ6UP

44453. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 12:52:46 UTC
From: Chris Maness
Topic: 44446 Message: 44453

On Sep 11, 2013 4:06 AM, <wagstw46@...> wrote:
>
>
>
> Chris where in the manual does it tell you to use the Ip meter position to peak the Drive control? Disregard that kind of advise at this stage of your knowledge and experience.
>
>
> You did not answer if you have set the resting plate currrent to 60ma in SSB mode with mic gain turned down. Were you able to do this?
>
>
> I am 500% certain you dont want meter in Ip position. New folks are best served following the instructions.
>
>
> When I told you to place meter in ALC and peak the Drive control that is what I meant. Not Ip.
>
>
> If we are to help you it is important that you follow instructions and report back findings. So one last time from me:
>
> 1. Power on
>
> 2. Heaters on
>
> 3. Meter to ALC
>
> 4. Car Level pot at 1200
>
> 5. Drive Control at 1200
>
> 6. VFO 200 (need it in mid range so that the ALC peak will occur near 1200)
>
> 7. Mode switch Tune position
>
> 8. Band switch (repeat the test on each band)
>
> 9. Flip to Send and peak the Drive control for maximum ALC indication
>
> 10. If meter pegs back down Car Pot
>

> 11. If no meter indication increase CAR pot full CW and repeat
>
> If you get no ALC indication on any band with Car pot full CW then report back.
>
>
> Terry K9TW.
>

I get no ALC deflection on any band following your instructions precisely.

Chris KQ6UP
>

44454. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 12:57:50 UTC
From: Chris Maness
Topic: 44446 Message: 44454

Ps. The idle current is 60ma exactly.

Chris

44455. RE: Re: help : tune a BPF without sweep generator

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 12:59:09 UTC
From: <wagstw46@...>
Topic: 44331 Message: 44455

Ugo:

In old days I had many LC type RF sig gens (Heath, Knight, Eico etc). These were certainly better than no sig gen and fine for signal injecting/tracing for troubleshooting but not good for alignment/calibration work. I have had to use O-scope to measure the Rf output voltage of the sig gen.

Remember if you homebrew the DDS sweep gen to include a sync output circuit (usually saw tooth) to provide a signal for the scopes external trigger input. This will be needed for stable display.

Lastly will need a means of generating Marker signals.

Might want to seach the Web for DDS sweep gen designs or kits?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry

Regards :

"
..... dB level is not the American standard that we typically use. This can confuse you. For example if you look at Step 15 where you are aligning the receiver IF amp transformers they tell you to inject 1.9mhz at 40dB. This means you inject 50.0uv or a -73dBm signal and not 100uv. Be careful looking at some conversion charts on the web as they are not based on correct reference.
The Kenwood Japanese SG 0dB = American SG 0.50uv = -113dBm
With 0dB = 0.50uv then for each 6dB step the voltage will double. So 6dB = 1.0uv, 12dB = 2.0uv ....40dB = 50.0uv and so on.
Microvolts (uv) and dBm output levels are more typically available on the common signal generators we use here (HP8640B, Wavetek 3002, HP 606, URM 25B, BK E200D etc) and not dB. If you do not have a Rf sig gen with a calibrated step attenuator we can discuss options off the forum.
"

thank you very much:

like you said I had misread but since I do not have a generator and accurate output voltages from the old Mial-150 the rule with a potentiometer, checking them oscilloscope, what you've told me is useful, very useful;

Well, at this point, as you said I think it is appropriate to close the thread but not without making a small conclusion:
the sweeper is almost essential, and perhaps cheapest way can be to use, as you suggested, a dds which, in my case will be controlled

by Arduino, allowing you to brush the various freq:
In my economic situation , given the low expense of a board dds with AD9850 and the availability of an arduino v2, does not cost much to try to make a sweeper also because I found many examples of interface between arduino and that card, and drive the whole PC for graphics and setup (if it does work no problem to publish hardware and software)

Ugo

44456. Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 12:14:12 UTC
From: Barry
Topic: 44437 Message: 44456

Anybody know which relay I need in my VFO-820?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@...> wrote:
>
> I'm having trouble with an external VFO-820 - when I plug it into my TS-820, it doesn't work properly in that it won't change frequencies and won't really do much of anything. It looks like it should be working - the lights come on, etc. - but I would think more than likely that it is a relay problem, but I'm open to suggestions.
>
> I took the relay out and cleaned the contacts on the bottom, but I haven't opened the relay itself up to clean inside. One of my friends here, Jimmy Lamanteer, mentioned that I could carefully open the plastic top on the relay and try to clean the contacts inside with a little DeOxit on a business card.
>
> If that doesn't work, is this relay the same as the one that goes in the TS-820? If so I could just order an OMRON relay and be fine, right?
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> P. S. The TS-820 is still kicking along just great - I took it to the beach when I was on vacation last week and easily made contacts into Germany, Hungary, and all over the US on a speaker wire dipole that I had tied to a 20' crappie pole on the vacation house balcony.
>

44457. RE: Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 14:20:59 UTC
From: <wagstw46@...>
Topic: 44437 Message: 44457

It takes same relay as the Aux relay in the radio. However would be pretty rare for the relay to be bad.

Are you saying it has an open closing coil or do you believe it has bad contacts?

You can try swapping with relay from the rig.

The contacts handle very little current so should last a life time. You can remove the plastic cover and wet some strips of copy paper with Deoxit and pull them thru the NO and NC contacts. Apply gentle pressure on the armature as you pull the wetted paper thru the contacts.

Kens Electronics in Kalamazoo Mich carries a NOS sub that works well.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Anybody know which relay I need in my VFO-820?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, "Barry" <bonnevilleblb@...> wrote:
>
> I'm having trouble with an external VFO-820 - when I plug it into my TS-820, it doesn't work properly in that it won't change frequencies and won't really do much of anything. It looks like it should be working - the lights come on, etc. - but I would think more than likely that it is a relay problem, but I'm open to suggestions.
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> If that doesn't work, is this relay the same as the one that goes in the TS-820? If so I could just order an OMRON relay and be fine, right?
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> P. S. The TS-820 is still kicking along just great - I took it to the beach when I was on vacation last week and easily made contacts into Germany, Hungary, and all over the US on a speaker wire dipole that I had tied to a 20' crappie pole on the vacation house balcony.
>

44458. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 14:43:28 UTC
From: Chris Maness
Topic: 44446 Message: 44458

So is the lack of any ALC deflection on all bands per the above test indicate that the driver tube needs to be replaced, or does is there something else I should check first?

Thanks for the help,
Chris Maness

On Wed, Sep 11, 2013 at 5:57 AM, Chris Maness <chris@...> wrote:

> Ps. The idle current is 60ma exactly.
>
> Chris
>

44459. Simple Ohms Law Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 15:26:06 UTC
From: Mike
Topic: 44459 Message: 44459

I'm improving my videosusing a different camera (Logitech C920 webcam) along with a new White Board. I made 2 simple Ohms Law videos, one is a simple Ohms Law test and the other contains the answers to, along with explanations, the Ohms Law test.

If you are interested, send me an email and I'll send the test video to you. You can view the videos using Windows Media Player. Provide your answers to include how you arrivedat your answers. Do NOT guess!!! Once I receive your answers I'll send you the video containing the answers and explanationson how to achieve the correct answers.

For those wondering if I would just upload them to Youtube, the answer is "No", at least not at this point.

73
Mike W5RKL

44460. Schottky diodes, anyone??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 15:46:46 UTC
From: Craig Roberts
Topic: 44459 Message: 44460

Hey y'all,

Has anyone replaced a TS-830S's mixer diodes D20-24 with Schottky devices? If so, what were the effects?

My 830 exhibits a hint of distortion on strong voice peaks, unlike my clean-as-a-whistle TS-530S. I'm wondering if improved diodes might help.

Oh -- one other question. Does anyone know of a workable replacement for the SM-200's seemingly unobtainable 75ARB31 CRT (or a source of this elusive item that I may have overlooked)?

Thanks and 73,

Craig
W3CRR

44462. TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 18:24:48 UTC
From: <coyoteinventor@...>
Topic: 44462 Message: 44462

I am considering working on a modification to my radio, but I need some guidance from the experts as I try to come up with a plan. ;-)

My goal: be able to connect the output of a QRP radio into the final stage of the TS-820 to use it as an amplifier. I assume this is possible, but please correct me if I'm wrong.

Things I think I need to look into:
- Where in the TS-820 signal paths I need to break connections and add some type of switch to choose which signal to feed into the final stage (TS-820 or external).
- Figure out what's the input power going into the final stage in the TS-820, so I try to match it (or stay below it) with the QRP radio.
Any hints on what things I need to watch out for while trying to figure out how to do this will be greatly appreciated. :-)

Thanks!

-- Cesar -- K1TNT

44463. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 18:49:16 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44463

Chris:

I tried to respond but have not seen it yet so not sure what happened. I dont like this new format. Hard to teach old dog new tricks/.

So let me restate to make sure I fully understand.

You are telling me that you had the SG switch off, the Heaters on, in CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at 1200 or No 5 position. When you flip to send and peak the Drive control thru its complete range that you get no ALC indication on any band. If that is true then most likely problem is:

1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder connections at tube socket.
2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
3. A bad meter position switch contacts (not very common).

I would start by replacing the 12BY7A driver tube. Make sure rig is unplugged and let it set awhile to ensure voltage discharged off HV caps. Remove rig top cover to access tube on the RF board. Sometimes the ground strap can be galled and bonded to the metal shield. There is a full length split on the shield. Use a thin flat blade screw driver to spread the split. Carefully work the shield can off so you do not break the ground strap that is sandwiched between the glass envelope and metal can. When replacing the shield make sure the ground strap is placed back between the shield and the tube.

Here is where you need an RF Probe and VTVM. In 10 minutes you could measure the RF drive voltage at the control grids of the 6146 finals to see if you have RF drive greater than approx 39rms volts. Should be close to 46rms volts for full scale ALC deflection. If you are experienced with O-scope could use it as well. RF probe and VTVM are a must have if to service own Hybrid.

If new Driver tube doesnt help then try cleaning the Aux relay. Come back for the procedure for that.

In case you are interested for the above test to work you need the following:
1. Good 6146 final tubes. By good I mean good filament so there is cathode emission.
2. Good negative dc operating bias on the control grids of the finals. By good I mean voltage on control grids must switch from approx -100vdc cut off bias to approx -55vdc operating bias when you flip to Send. This is occurring as you stated you are able to set resting plate current to 60ma.
3. Good RF drive voltage at the control grids of the 6146 finals. By good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and -55 = approx +10 volts on positive peak of the drive envelope. This causes control grid to be positive with respect to the cathode and approx 40ua of grid current.

When the control grid of the 6146 final tubes becomes positive with respect to the cathode grid current will flow. When grid current flows the ALC amp transistor senses it and reduces the ALC bus voltage and reduces the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc RF-1 level the ALC meter circuit sees this and drives the meter up scale. So with any hint of grid current the ALC meter should move up scale. At approx 40ua of grid current meter should be full scale.

If the Driver tube is soft could have insufficient RF voltage swing at 6146 control grids to overcome the -55vdc bias offset. For example if Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts. So if RF drive is swinging the control grid to +55 volts on positive going peak of the drive envelope then +55 and -55 means Zero difference voltage and the control grid is not positive with respect to the cathode and there will be no grid current and no ALC indication.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

So is the lack of any ALC deflection on all bands per the above test indicate that the driver tube needs to be replaced, or does is there something else I should check first?

Thanks for the help,

Chris Maness

On Wed, Sep 11, 2013 at 5:57 AM, Chris Maness <chris@...> wrote:

Ps. The idle current is 60ma exactly.

Chris

44464. Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 19:10:16 UTC
From: Chris Maness
Topic: 44446 Message: 44464

On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:

>
>
> Chris:
>
>
> I tried to respond but have not seen it yet so not sure what happened. I
> dont like this new format. Hard to teach old dog new tricks/.
>
>
> So let me restate to make sure I fully understand.
>
>
> You are telling me that you had the SG switch off, the Heaters on, in CW
> mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at
> 1200 or No 5 position. When you flip to s! end and peak the Drive control
> thru its complete range that you get no ALC indication on any band. If that
> is true then most likely problem is:
>

Yes, you have understood me correctly I did the test 100% per your
instruction. I also did the test as if I was following the tuning
procedure to peak the driver as per the manual. I did this in TUN mode.
Every single band showed no deflection when the CAR was at 5 and also at
10 (fully CW). I will try to get a hold of a 12BY7A and report back.

Thank you for the flow chart below.

>
> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
> connections at tube socket.
>
> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>
> 3. A bad meter position switch contacts (not very common).
>
>
> I would start by replacing the 12BY7A driver tube. Make sure rig is
> unplugged and let it set awhile to ensure voltage discharged off HV caps.
> Remove rig top cover to access tube on the RF board. Sometimes the ground
> strap can be galled and bonded to the metal shield. There is a full length
> split on the shield. Use a thin flat blade screw driver to spread the
> split. Carefully work the shield can off so you do not break the ground
> strap that is sandwiched between the glass envelope and metal can. When

> replacing the shield make sure the ground strap is placed back between the
> shield and the tube.
>
>
> Here is where you need an RF Probe and VTVM. In 10 minutes you could
> measure the RF drive voltage at the control grids of the 6146 finals to see
> if you have RF drive greater than approx 39rms volts. Should be close to
> 46rms volts for full scale ALC deflection. If you are experienced with
> O-scope could use it as well. RF probe and VTVM are a must have if to
> service own Hybrid.
>
>
> If new Driver tube doesnt help then try cleaning the Aux relay. Come back
> for the procedure for that.
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> following:
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> emission.
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> 2. Good negative dc operating bias on the control grids of the finals. By
> good I mean voltage on control grids must switch from approx -100vdc cut
> off bias to approx -55vdc operating bias when you flip to Send. This is
> occurring as you stated you are able to set resting plate current to 60ma.
>
> 3. Good RF drive voltage at the control grids of the 6146 finals. By good
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> approx +10 volts on positive peak of the drive envelope. This causes
> control grid to be positive with respect to the cathode and ! approx 40ua
> of grid current.
>
>
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> respect to the cathode grid current will flow. When grid current flows the
> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
> So with any hint of grid current the ALC meter should move up scale. At
> approx 40ua of grid current meter should be full scale.
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> If the Driver tube is soft could have insufficient RF voltage swing at
> 6146 control grids to overcome the -55vdc bias offset. For example if
> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
> So if RF drive is swinging the control grid to +55 volts on positive going
> peak of the drive envelope then +55 and -55 means Zero difference voltage
> and the control grid is not positive with respect to the cathode and there
> will be no grid current and no ALC indication.

>
>
> Terry K9TW
>

73 de KQ6UP
Chris

44465. Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 19:25:33 UTC
From: Chris Maness
Topic: 44446 Message: 44465

Two more questions. Why would it only put out power in CW when the CAR is fully CCW (0 position)? If I increase it at all I loose all power to the antenna. At full CCW I get 10W out. This seems strange to me. However, under NO conditions do I get an ALC deflection (in TUN or CW). I have not messed with the ALC in SSB. However, I only get about 10W out in SSB too. Audio is also a bit on the crappy side. I suppose loss in linearity of the driver tube could explain the bad audio.

Can I use my modern DVM in place of a VTVM? I might have an oldy at my parent's house if they have not tossed it.

Thanks,
Chris

On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...>wrote:

>
>
>
> On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:
>
>>
>>
>> Chris:
>>
>>
>> I tried to respond but have not seen it yet so not sure what happened. I
>> dont like this new format. Hard to teach old dog new tricks/.
>>
>>
>> So let me restate to make sure I fully understand.
>>
>>
>> You are telling me that you had the SG switch off, the Heaters on, in CW
>> mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at
>> 1200 or No 5 position. When you flip to s! end and peak the Drive control
>> thru its complete range that you get no ALC indication on any band. If that
>> is true then most likely problem is:
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> instruction. I also did the test as if I was following the tuning
> procedure to peak the driver as per the manual. I did this in TUN mode.
> Every single band showed no deflection when the CAR was at 5 and also at
> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.

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> Thank you for the flow chart below.
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>>
>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>> connections at tube socket.
>>
>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>
>> 3. A bad meter position switch contacts (not very common).
>>
>>
>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
>> Remove rig top cover to access tube on the RF board. Sometimes the ground
>> strap can be galled and bonded to the metal shield. There is a full length
>> split on the shield. Use a thin flat blade screw driver to spread the
>> split. Carefully work the shield can off so you do not break the ground
>> strap that is sandwiched between the glass envelope and metal can. When
>> replacing the shield make sure the ground strap is placed back between the
>> shield and the tube.
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>> Here is where you need an RF Probe and VTVM. In 10 minutes you could
>> measure the RF drive voltage at the control grids of the 6146 finals to see
>> if you have RF drive greater than approx 39rms volts. Should be close to
>> 46rms volts for full scale ALC deflection. If you are experienced with
>> O-scope could use it as well. RF probe and VTVM are a must have if to
>> service own Hybrid.
>>
>>
>> If new Driver tube doesnt help then try cleaning the Aux relay. Come back
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>> approx +10 volts on positive peak of the drive envelope. This causes

>> control grid to be positive with respect to the cathode and ! approx 40ua
>> of grid current.
>>
>>
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>> respect to the cathode grid current will flow. When grid current flows the
>> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
>> So with any hint of grid current the ALC meter should move up scale. At
>> approx 40ua of grid current meter should be full scale.
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>> 6146 control grids to overcome the -55vdc bias offset. For example if
>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>> So if RF drive is swinging the control grid to +55 volts on positive going
>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>> and the control grid is not positive with respect to the cathode and there
>> will be no grid current and no ALC indication.
>>
>>
>> Terry K9TW
>>
>
> 73 de KQ6UP
> Chris
>

44466. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 19:53:45 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44466

I am using about 25 feet of RG-8X, 50ohm. The antenna is in a pseudo V formation on my roof (one leg is coming down and is attached to my wooden fence, the other is sloping along the side of my roof, with the center of the dipole attached to my satellite dish mount, maybe 20-25 feet off of the ground.

--- In ts-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

> I am operating on 40 meters with a dipole. All I have is this rig, a SWR
> meter, and the dipole, no other equipment for HF.

Quick question for clarity's sake. With what (coax or balanced
feedline) are you feeding your dipole? And how high up is it, just for
grins.

> I do not know for sure what my antenna's SWR is, when I attempt to use
> my SWR meter, it will not calibrate. I know the meter works, so I was
> concerned is may be an issue with the TS-520.

The reason your meter won't calibrate nor the 520 transmit is very
likely contained right here. It's probably NOT the radio.

--
Wes Will
N9KDY

44467. RE: Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 18:55:11 UTC
From: <jweigh@...>
Topic: 44429 Message: 44467

Thanks to all for the responses. If I had a brain I would have figured it out as the pin numbers get the wires soldered to them and the numbers are right next to the pins, DUH. thanks again, Jerry K4GEW

--- In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Jason, you are referring to the same side of the plug I am. The pins are soldered on one side ONLY and that is the side where the pin numbers are stamped next to the pins. All he has to do is look and he will see the pin numbers. If he looks on the side where the pins are the Longest then he is looking at the wrong side.

On 9/9/2013 11:58 AM, jason.bogstie@... wrote:

You should be looking at the pins on the inside of the connector. I wired mine backwards on the first attempt, I didn't burn anything up, the cable just didn't work. I ended up having to wire it twice.

-Jason, K7BOG

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have found this diagram in the "files section" http://f1.grp.yahoofs.com/v1/1OctUrAC_aviYuKqxEOzF8YWGvA5NYaUx6IVu-dGQhSYn9uQwBPx5_4huNfkBpdn1jPIzZbGINak-MEcmlACq7su/KENWOOD%20TS-520S%20Power%20Connector%20Wiring.JPG

and need to know if what I'm looking at is the inside of the connector on the power cord or is it looking at the back of the radio or is it looking into the connector face into the female pins.
Sorry to have to ask such a simple question but my previous experience has been automotive connectors and they almost always give both female and male pin views (or component and connector).
Thanks for any clarification you can offer.
Jerry, K4GEW

44468. RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 21:19:27 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44468

I do not know why Car Pot is behaving this way. Perhaps you have bad Balanced Modulator ring diodes or the carrier null is severely mis-adjusted? I would fix ALC indication/rf drive first and then see if there is a relationship.

The Car Level Pot works with the Balanced Modulator to produce a CW carrier. The Balanced Modulator is a Mixer. Car pot takes 9vdc and supplies it thru voltage divider to provide a variable 0.1vdc to 0.7vdc to forward bias the ring diodes. When these diode pairs are turned by this variable bias voltage from the Car Level Pot it unbalances the modulator and produces a carrier at the output. You adjust the output power in CW mode with the Car Level pot. It has no efffect in SSB mode.

When you say you are getting 10 watts output in SSB mode are you saying when you key the mic in SSB with mic gain turned all the way down you are getting out 10 watts? OR

Are you saying while modulating the rig in SSB mode (speaking into the microphone with the mic gain turned up to approx 1200) that you only see about 10 watts on voice peaks?

These are two very different things. 10 watts on voice peaks is a little low but it depends on your mic, the mic gain setting, how you are talking in to it and a little with the ballistic characteristics of your wattmeter.

If it is the former then the Balanced Modulator carrier null/balance is probably out of adjustment assuming no problem with the ring diodes. You will need to adjust TC-1 and VR-2 on the Generator board to null and balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or O-scope to do this. We can help you perform this step. Another way to do it is with a separate receiver sitting near the 520 but not as sensitive, but probably OK at this point to get it close.

If it is the later then with rig loaded to 100 watts output it is normal to see peaks of no more than 25 to 30 watts maximum on an average reading wattmeter as you modulate the rig. If you had ALC indication would tell you to adjust mic gain to keep ALC indication within middle of the black rectangular box. Your manual will tell you to keep the peaks within the upper limit of the range. This is to prevent splatter to adjacent frequencies.

With the rig in LSB or USB you should be able to key the mic or flip to send and have no RF output power until you speak in the Mic. The Car Level pot has nothing to do with this. It can be set anywhere and have no effect on SSB power output.

When you say your audio is distorted are you saying your transmit audio or receive audio? If transmit then I would perform the carrier null/balance as a first step.

Yes you can use a DMM but it is not as good for peaking and nulling as an analog meter is. It will work if that is what you have. Also, depending on your DMM it may not be 10meg input and not good for much more than measuring things like dc power supply voltages and some of the tube dc voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A cheap Harbor Freight has an input Z of under 1 meg and some of the Lowes/Sears/Home Depot are around 2meg. They are for electricians and not electronic work.

Terry K9TW

1.

--- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:

Two more questions. Why would it only put out power in CW when the CAR is fully CCW (0 position)? If I increase it at all I loose all power to the antenna. At full CCW I get 10W out. This seems strange to me. However, under NO conditions do I get an ALC deflection (in TUN or CW). I have not messed with the ALC in SSB. However, I only get about 10W out in SSB too. Audio is also a bit on the crappy side. I suppose loss in linearity of the driver tube could explain the bad audio.

Can I use my modern DVM in place of a VTVM? I might have an oldy at my parent's house if they have not tossed it.

Thanks,
Chris

On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:

On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:

Chris:

I tried to respond but have not seen it yet so not sure what happened. I dont like this new format. Hard to teach old dog new tricks/.

So let me restate to make sure I fully understand.

You are telling me that you had the SG switch off, the Heaters on, in CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at 1200 or No 5 position. When you flip to s! end and peak the Drive control thru its complete range that you get no ALC indication on any band. If that is true then most likely problem is:

Yes, you have understood me correctly I did the test 100% per your instruction. I also did the test as if I was following the tuning procedure to peak the driver as per the manual. I did this in TUN mode. Every single band showed no deflection when the CAR was at 5 and also at 10 (fully CW). I will try to get a hold of a 12BY7A and report back.

Thank you for the flow chart below.

1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder connections at tube socket.

2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
3. A bad meter position switch contacts (not very common).

I would start by replacing the 12BY7A driver tube. Make sure rig is unplugged and let it set awhile to ensure voltage discharged off HV caps. Remove rig top cover to access tube on the RF board. Sometimes the ground strap can be galled and bonded to the metal shield. There is a full length split on the shield. Use a thin flat blade screw driver to spread the split. Carefully work the shield can off so you do not break the ground strap that is sandwiched between the glass envelope and metal can. When replacing the shield make sure the ground strap is placed back between the shield and the tube.

Here is where you need an RF Probe and VTVM. In 10 minutes you could measure the RF drive voltage at the control grids of the 6146 finals to see if you have RF drive greater than approx 39rms volts. Should be close to 46rms volts for full scale ALC deflection. If you are experienced with O-scope could use it as well. RF probe and VTVM are a must have if to service own Hybrid.

If new Driver tube doesnt help then try cleaning the Aux relay. Come back for the procedure for that.

In case you are interested for the above test to work you need the following:
1. Good 6146 final tubes. By good I mean good filament so there is cathode emission.
2. Good negative dc operating bias on the control grids of the finals. By good I mean voltage on control grids must switch from approx -100vdc cut off bias to approx -55vdc operating bias when you flip to Send. This is occurring as you stated you are able to set resting plate current to 60ma.

3. Good RF drive voltage at the control grids of the 6146 finals. By good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and -55 = approx +10 volts on positive peak of the drive envelope. This causes control grid to be positive with respect to the cathode and ! approx 40ua of grid current.

When the control grid of the 6146 final tubes becomes positive with respect to the cathode grid current will flow. When grid current flows the ALC amp transistor senses it and reduces the ALC bus voltage and reduces the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc RF-1 level the ALC meter circuit sees this and drives the meter up scale. So with any hint of grid current the ALC meter should move up scale. At approx 40ua of grid current meter should be full scale.

If the Driver tube is soft could have insufficient RF voltage swing at 6146 control grids to overcome the -55vdc bias offset. For example if Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts. So if RF drive is swinging the control grid to +55 volts on positive going peak of the drive envelope then +55 and -55 means Zero difference voltage and the control grid is not positive with respect to the cathode and there will be no grid current and no ALC indication.

Terry K9TW

73 de KQ6UP
Chris

44469. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 21:44:42 UTC
From: Chris Maness
Topic: 44446 Message: 44469

>
>
>
> When you say you are getting 10 watts output in SSB mode are you saying
> when you key the mic in SSB with mic gain turned all the way down you are
> getting out 10 watts? OR
>

I am getting 10W peaks. No carrier present. I think I remember aligning
the radio when I first got it. It is pretty much working ok, but with low
power.

>
> Are you saying while modulating the rig in SSB mode (speaking into the
> microphone with the mic gain turned up to approx 1200) that you only see
> about 10 watts on voice peaks?
>

Yes.

>
> These are two very different things. 10 watts on voice peaks is a little
> low but it depends on your mic, the mic gain setting, how you are talking
> in to it and a little with the ballistic characteristics of your wattmeter.
>
>
> If it is the former then the Balanced Modulator carrier null/balance is
> probably out of adjustment assuming no problem with the ring diodes. You
> will need to adjust TC-1 and VR-2 on the Generator board to null and
> balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or
> O-scope to do this. We can help you perform this step. Another way to do it
> is with a separate receiver sitting near the 520 but not as sensitive, but
> probably OK at this po! int to get it close.
>
>
>
Yes, it is balanced. See above.

> If it is the later then with rig loaded to 100 watts output it is normal
> to see peaks of no more than 25 to 30 watts maximum on an average reading
> wattmeter as you modulate the rig. If you had ALC indication would tell you
> to adjust mic gain to keep ALC indication within middle of the black
> rectangular box. Your manual will tell you to keep the peaks within the
> upper limit of the range. This is to prevent splatter to adjacent
> frequencies.
>

Yes, got it. Just like most other SSB rigs.

>
> With the rig in LSB or USB you should be able to key the mic or flip to
> send and have no RF output power until you speak in the Mic. The Car Level
> pot has nothing to do with this. It can be set anywhere and have no effect
> on SSB power output.
>

Yes, no power unless modulation is present.

>
> When you say your audio is distorted are you saying your transmit audio or
> receive audio? If transmit then I would perform the carrier null/balance as
> a first step.
>
When I increase the mic gain, but this could be the said splatter. I am
not going to worry about this until I can get the rig to put out more power
and a proper ALC reading.

>
> Yes you can use a DMM but it is not as good for peaking and nulling as an
> analog meter is. It will work if that is what you have. Also, depending on
> your DMM it may not be 10meg input and not good for much more than
> measuring things like dc power supply voltages and some of the tube dc
> voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A
> cheap Harbor Freight has an input Z of under 1 meg and some of the
> Lowes/Sears/Home Depot are around 2meg. They are for electricians and not
> electronic work.
>

Got it. For peaking. I had one when I was a teenager. I think I saw it
at my parents house. I have not messed with it since the 80's.

>
> Terry K9TW
>
>
> Thanks,
Chris Maness

>
> 1.
>
>
> --- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:
>
> Two more questions. Why would it only put out power in CW when the CAR is
> fully CCW (0 position)? If I increase it at all I loose all power to the
> antenna. At full CCW I get 10W out. This seems strange to me. However,
> under NO conditions do I get an ALC deflection (in TUN or CW). I have not
> messed with the ALC in SSB. However, I only get about 10W out in SSB too.
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> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:
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>>
>>>
>>>
>>> Chris:
>>>
>>>
>>> I tried to respond but have not seen it yet so not sure what happened. I
>>> dont like this new format. Hard to teach old dog new tricks/.
>>>
>>>
>>> So let me restate to make sure I fully understand.
>>>
>>>
>>> You are telling me that you had the SG switch off, the Heaters on, in CW
>>> mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at
>>> 1200 or No 5 position. When you flip to s! end and peak the Drive control
>>> thru its complete range that you get no ALC indication on any band. If that
>>> is true then most likely problem is:
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>> Every single band showed no deflection when the CAR was at 5 and also at
>> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.
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>> Thank you for the flow chart below.
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>>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>>> connections at tube socket.
>>>
>>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>>

>>> 3. A bad meter position switch contacts (not very common).
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>>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
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>>> strap can be galled and bonded to the metal shield. There is a full length
>>> split on the shield. Use a thin flat blade screw driver to spread the
>>> split. Carefully work the shield can off so you do not break the ground
>>> strap that is sandwiched between the glass envelope and metal can. When
>>> replacing the shield make sure the ground strap is placed back between the
>>> shield and the tube.
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>>> O-scope could use it as well. RF probe and VTVM are a must have if to
>>> service own Hybrid.
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>>> back for the procedure for that.
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>>> In case you are interested for the above test to work you need the
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>>> 1. Good 6146 final tubes. By good I mean good filament so there is
>>> cathode emission.
>>>
>>> 2. Good negative dc operating bias on the control grids of the finals.
>>> By good I mean voltage on control grids must switch from approx -100vdc cut
>>> off bias to approx -55vdc operating bias when you flip to Send. This is
>>> occurring as you stated you are able to set resting plate current to 60ma.
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>>> 3. Good RF drive voltage at the control grids of the 6146 finals. By
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>>> of grid current.
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>>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
>>> So with any hint of grid current the ALC meter should move up scale. At

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>>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>>> So if RF drive is swinging the control grid to +55 volts on positive going
>>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>>> and the control grid is not positive with respect to the cathode and there
>>> will be no grid current and no ALC indication.
>>>
>>>
>>> Terry K9TW
>>>
>>
>> 73 de KQ6UP
>> Chris
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44470. Re: [TS-520_820_530_830] RE: Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 22:05:42 UTC
From: N3Kvl
Topic: 44429 Message: 44470

Sent from my LG Smartphone on Sprint

jweigh@aol.com wrote:

44471. Re: [TS-520_820_530_830] RE: Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 22:05:42 UTC
From: N3Kvl
Topic: 44429 Message: 44471

Sent from my LG Smartphone on Sprint

jweigh@aol.com wrote:

44472. Re: [TS-520_820_530_830] RE: Proper wiring for TS520S power cord (AC)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 22:05:45 UTC
From: N3Kvl
Topic: 44429 Message: 44472

Sent from my LG Smartphone on Sprint

jweigh@aol.com wrote:

44473. RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 22:50:10 UTC
From: <wagstw46@...>
Topic: 44462 Message: 44473

Cesar:

Class AB-1 doesnt really take RF drive power. Since there is no grid current can be no power consumed. Only RF voltage swing is required. However, there are rf losses from charge and discharge of the inter-electrode capacitance of the 6146 tubes at an rf rate and from cathode/heater lead inductance path. So in practice the 12BY7A driver tube does supply approx 2.0 to 2.5 watts output power to the 6146 control grid circuit.

You can estimate the output power by calculating the plate current and the dc input power and then assuming an efficiency factor for a Class A rf amplifier. To do this look at your schematic and total up the resistance in the cathode lead to ground or just measure it. Then use the cathode voltage in Tx mode listed on the schematic or measure it and use I = E/R. Some schematics show 0 cathode volts in Tx which is of course wrong.

For example for a TS830 the cathode resistance is 168 ohms and cathode voltage is 4.6vdc. Plate current (ignoring small amount of screen grid current) I = 4.6/168 = 27ma. Plate voltage = 297vdc so Dc input power is P= 297 x .027 = 8 watts. Assume Class A amplifier efficiency = 25% then 8 x .25 = 2.0 watts. If efficiency was 30% then output power = 8 x .30 = 2.4 watts.

So approx Dc input power of the KW hybrid 12BY7A Driver tube is 8 watts and approx RF output power is 2.0 to 2.5 watts.

What the control grid of the 6146 looks like to the Driver plate circuit is a complex Z. It is really Admittance that can be looked at as a capacitor and resistor in parallel and shunted from grid to cathode. It is not easy to calculate and it varies. With no grid current the Z is essentially infinite and with grid current it can be around 1000 ohms or so.

I have played around with lifting the DRV lead off the 6146 control grids and placing a carbon resistor dummy load to chassis ground and measuring the RF voltage across it. From around 1000 to 2000 ohms can get close to the same level of RF voltage as with DRV terminated on the 6146 grids. Using a 1000 ohm carbon resistor to simulate what the Driver tube tank circuit sees isnt exactly correct and in fact may de-tune the Q of the tank.

For high power Class AB1 linear amps it is common to place a 100 ohm or so high wattage swamping resistor from grid to cathode to provide a constant impedance for the driver stage to look at so wont have distortion. We dont do that with our hybrids. We rely on a parallel resonant tank circuit at output of the Driver tube to smooth out the impedance variations under SSB modulation and very small amounts of grid current to ensure we will not have a lot of distortion and IMD generation.

You can approximate the impedance of the 6146 control grids by this formula:
Rg = (Eg max) squared/ 2 x Pd. Where Rg is the grid impedance, Eg is the peak RF drive voltage, and Pd is the peak drive power.

Here is calc for TS-830 using 47rms volts of rf grid drive at 6146 control grids (measured at 100 watts output power) 47 x 1.414 = 66 peak rf volts:

Rg = (66)squared /2 x 2 = 4356/4 = 1089 ohms

So 6146 control grids look approx like a 1100 ohm resistor with 47volts drive and -60vdc operating bias. This means if you terminate the 12BY7A DRV lead with approx 1100 ohms to ground the tube will deliver approx 2 watts.

I call these back of envelope calcs.

I suspect your QRP rig would like to look at 50 ohms so you would most likely need a broad band transformer at the control grids to get the match from 1100 ohms to approx 50 ohms? Could wind a toroid transformer or buy transformer from Mini-circuits. I wont go into the impedance ratio vs turn ratio calcs and design of the torid matching transformer here. Plenty of resources to help you with that.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am considering working on a modification to my radio, but I need some guidance from the experts as I try to come up with a plan. ;-)

My goal: be able to connect the output of a QRP radio into the final stage of the TS-820 to use it as an amplifier. I assume this is possible, but please correct me if I'm wrong.

Things I think I need to look into:
- Where in the TS-820 signal paths I need to break connections and add some type of switch to choose which signal to feed into the final stage (TS-820 or external).
- Figure out what's the input power going into the final stage in the TS-820, so I try to match it (or stay below it) with the QRP radio.
Any hints on what things I need to watch out for while trying to figure out how to do this will be greatly appreciated. :-)

Thanks!

-- Cesar -- K1TNT

44474. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 23:19:19 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44474

I tried what you said, but the needle pegs above about 1.75 on the CAR dial. The needle won't peak above 80 ma.

--- In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

You need to advance the carrier control very carefully until; the plate current Ip Just starts to rise with the radio transmitting in the Tune Mode.Then start turning the drive control until you get a peak reading. Does this happen? A sudden jump in Ip indicates a dirty control or something more serious.
Good luck

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 10, 2013 3:16 PM
Subject: [TS-520_820_530_830] New Ham, Tuning issues

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44475. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 20:01:55 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44475

When I advance the CAR, I have to stop it at about 1.75 or when I peak it, it is outside of the ALC range. I also tried what you said, I started CAR at 0 and slowly advanced it, but the needle stopped going higher when I hit the same spot (1.75). I tried to peak it there, but the needle doesn't peak past about 80 ma.

--- In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

You need to advance the carrier control very carefully until; the plate current Ip Just starts to rise with the radio transmitting in the Tune Mode.Then start turning the drive control until you get a peak reading. Does this happen? A sudden jump in Ip indicates a dirty control or something more serious.
Good luck

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Thank you guys in advance,

Jason, K7BOG

44476. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-11 23:48:08 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44476

OK then you clearly have RF output to dummy load. That means have RF drive. Now question is why no ALC indication. Sounds more like low RF drive on all bands and not no RF drive.

So trying a new 12BY7A is an easy first step.

Also, check on the VTVM at folks house and can make or buy an RF probe. Just need to measure the RF drive voltage at control grids of the finals in CW mode with the max rf output you can get. As I said assuming normal operating bias voltage you must have greater than approx 39rms rf drive volts to have any ALC indication.

If replacing Driver tube restores ALC indication in Tune mode and full RF output power we can go back to this business of Car Level pot having to be at a very low level.

This is where you need a good DMM to measure the bias voltage at the balanced modulator to see what is appearing there as you rotate the pot. Perhaps the voltage divider resistance has changed and instead of having approx 0.10vdc a low end of the pot you have a volt or so. In that case you would have instant hard turn of the ring diodes.

If you have a DMM and want to measure the Car Level voltages can do that now. Connect your DMM at BM terminal on the Gen board. Be very careful as you will be very close to HV filter caps and 900vdc. Dont let clip leads pop off BM terminal or let your hand contact the HV. You wont have to worry about getting a new driver tube.

The Balanced Mod diodes are 1N60 assuming they are the original germaniums. They have a turn on around 0.25vdc to 0.30vdc. Will start to conduct below this level.

Here are voltage levels I have recorded for the Car Level Pot steps.
1 = 0.10vdc
2 = 0.26vdc
3 = 0.30vdc
4 = 0.34vdc
5 = 0.38vdc
6 = 0.40vdc
7 = 0.42vdc
8 = 0.45vdc
9 = 0.48vdc
10 = 0.48vdc

Now you know every thing that I do.

Terry K9TW

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If it is the former then the Balanced Modulator carrier null/balance is probably out of adjustment assuming no problem with the ring diodes. You will need to adjust TC-1 and VR-2 on the Generator board to null and balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or O-scope to do this. We can help you perform this step. Another way to do it is with a separate receiver sitting near the 520 but not as sensitive, but probably OK at this po! int to get it close.

Yes, it is balanced. See above.

If it is the later then with rig loaded to 100 watts output it is normal to see peaks of no more than 25 to 30 watts maximum on an average reading wattmeter as you modulate the rig. If you had ALC indication would tell you to adjust mic gain to keep ALC indication within middle of the black rectangular box. Your manual will tell you to keep the peaks within the upper limit of the range. This is to prevent splatter to adjacent frequencies.

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With the rig in LSB or USB you should be able to key the mic or flip to send and have no RF output power until you speak in the Mic. The Car Level pot has nothing to do with this. It can be set anywhere and have no effect on SSB power output.

Yes, no power unless modulation is present.

When you say your audio is distorted are you saying your transmit audio or receive audio? If transmit then I would perform the carrier null/balance as a first step.

When I increase the mic gain, but this could be the said splatter. I am not going to worry about this until I can get the rig to put out more power and a proper ALC reading.

Yes you can use a DMM but it is not as good for peaking and nulling as an analog meter is. It will work if that is what you have. Also, depending on your DMM it may not be 10meg input and not good for much more than measuring things like dc power supply voltages and some of the tube dc voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A cheap Harbor Freight has an input Z of under 1 meg and some of the Lowes/Sears/Home Depot are around 2meg. They are for electricians and not electronic work.

Got it. For peaking. I had one when I was a teenager. I think I saw it at my parents house. I have not messed with it since the 80's.

Terry K9TW

Thanks,
Chris Maness

1.

--- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:

Two more questions. Why would it only put out power in CW when the CAR is fully CCW (0 position)? If I increase it at all I loose all power to the antenna. At full CCW I get 10W out. This seems strange to me. However, under NO conditions do I get an ALC deflection (in TUN or CW). I have not messed with the ALC in SSB. However, I only get about 10W out in SSB too. Audio is also a bit on the crappy side. I suppose loss in linearity of the driver tube could explain the bad audio.

Can I use my modern DVM in place of a VTVM? I might have an oldy at my parent's house if they have not tossed it.

Thanks,
Chris

On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:

On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:

Chris:

I tried to respond but have not seen it yet so not sure what happened. I dont like this new format. Hard to teach old dog new tricks/.

So let me restate to make sure I fully understand.

You are telling me that you had the SG switch off, the Heaters on, in CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at 1200 or No 5 position. When you flip to s! end and peak the Drive control thru its complete range that you get no ALC indication on any band. If that is true then most likely problem is:

Yes, you have understood me correctly I did the test 100% per your instruction. I also did the test as if I was following the tuning procedure to peak the driver as per the manual. I did this in TUN mode. Every single band showed no deflection when the CAR was at 5 and also at 10 (fully CW). I will try to get a hold of a 12BY7A and report back.

Thank you for the flow chart below.

1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder connections at tube socket.

2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
3. A bad meter position switch contacts (not very common).

I would start by replacing the 12BY7A driver tube. Make sure rig is unplugged and let it set awhile to ensure voltage discharged off HV caps. Remove rig top cover to access tube on the RF board. Sometimes the ground strap can be galled and bonded to the metal shield. There is a full length split on the shield. Use a thin flat blade screw driver to spread the split. Carefully work the shield can off so you do not break the ground strap that is sandwiched between the glass envelope and metal can. When replacing the shield make sure the ground strap is placed back between the shield and the tube.

Here is where you need an RF Probe and VTVM. In 10 minutes you could measure the RF drive voltage at the control grids of the 6146 finals to see if you have RF drive greater than approx 39rms volts. Should be close to 46rms volts for full scale ALC deflection. If you are experienced with O-scope could use it as well. RF probe and VTVM are a must have if to service own Hybrid.

If new Driver tube doesnt help then try cleaning the Aux relay. Come back for the procedure for that.

In case you are interested for the above test to work you need the following:
1. Good 6146 final tubes. By good I mean good filament so there is cathode emission.
2. Good negative dc operating bias on the control grids of the finals. By good I mean voltage on control grids must switch from approx -100vdc cut off bias to approx -55vdc operating bias when you flip to Send. This is occurring as you stated you are able to set resting plate current to 60ma.

3. Good RF drive voltage at the control grids of the 6146 finals. By good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and -55 = approx +10 volts on positive peak of the drive envelope. This causes control grid to be positive with respect to the cathode and ! approx 40ua of grid current.

When the control grid of the 6146 final tubes becomes positive with respect to the cathode grid current will flow. When grid current flows the ALC amp transistor senses it and reduces the ALC bus voltage and reduces the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc RF-1 level the ALC meter circuit sees this and drives the meter up scale. So with any hint of grid current the ALC meter should move up scale. At approx 40ua of grid current meter should be full scale.

If the Driver tube is soft could have insufficient RF voltage swing at 6146 control grids to overcome the -55vdc bias offset. For example if Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts. So if RF drive is swinging the control grid to +55 volts on positive going peak of the drive envelope then +55 and -55 means Zero difference voltage and the control grid is not positive with respect to the cathode and there will be no grid current and no ALC indication.

Terry K9TW

73 de KQ6UP
Chris

44477. RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 00:00:57 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44477

The ALC range has nothing to do with peaking the RF Drive control. None of the meter scales are involved in this step. You just need to advance Car level pot to give yourself a good amount of indication to clearly see the peak. If the meter should peg simply reduce the Car Level pot to get the meter pointer back off the peg.

You are tuning the Driver stage tank circuit to resonance. You are not setting grid current level. I would not peak it much less than half of the ALC box as can get unstable there and be touchy to tune. 1/2 to 2/3 of the panel meter full scale is just fine level for you to be able to adjust the Drive control for a definitive peak.

What you are really looking at is the ALC bus voltage. When the Driver stage tank is properly tuned for maximum RF drive voltage swing at the 6146 control grids the ALC bus voltage will be at its lowest point. At its lowest point the ALC meter circuit drives the meter up scale.

There are Extra class KW hybrid owners who teach a caution about staying inside the ALC box when peaking the Drive control. It is sad and no amount of logic will ever convince them otherwise.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

When I advance the CAR, I have to stop it at about 1.75 or when I peak it, it is outside of the ALC range. I also tried what you said, I started CAR at 0 and slowly advanced it, but the needle stopped going higher when I hit the same spot (1.75). I tried to peak it there, but the needle doesn't peak past about 80 ma.

--- In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

You need to advance the carrier control very carefully until; the plate current Ip Just starts to rise with the radio transmitting in the Tune Mode.Then start turning the drive control until you get a peak reading. Does this happen? A sudden jump in Ip indicates a dirty control or something more serious.
Good luck

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 10, 2013 3:16 PM
Subject: [TS-520_820_530_830] New Ham, Tuning issues

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44478. Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 00:36:26 UTC
From: Brian Forney
Topic: 44440 Message: 44478

Hi Jason:

I just realized that you live nearby. I live in Meridian. Most of the folks that post on this board are FAR more technically proficient than I am but I am very comfortable tuning up and operating a Kenwood hybrid. Perhaps having a set of eyes physically present while you are going through the steps might catch something that we are missing in email.

If you'd like I could arrange to drop by and take a look. I may end up as puzzled as you but it couldn't hurt to have another set of eyes on it.

Let me know if you are interested.

73,
  Brian (K7TKT)
  Meridian, ID

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 11, 2013 5:19 PM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

I tried what you said, but the needle pegs above about 1.75 on the CAR dial. The needle won't peak above 80 ma.

--- In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

You need to advance the carrier control very carefully until; the plate current Ip Just starts to rise with the radio transmitting in the Tune Mode.Then start turning the drive control until you get a peak reading. Does this happen? A sudden jump in Ip indicates a dirty control or something more serious.
Good luck

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 10, 2013 3:16 PM
Subject: [TS-520_820_530_830] New Ham, Tuning issues

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I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44479. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 02:07:00 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44479

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.
5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10 seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.
7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication. Make sure you note where the peak is at each time. You can read it off the black plate

current scale. If you have opened the plates of the Load capacitor too much (too far clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is defective and not a rig problem or you have an open down stream of the SWR bridge and and will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

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I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44480. RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 02:17:25 UTC
From: <coyoteinventor@...>
Topic: 44462 Message: 44480

Thanks a lot for the ton of information posted Terry! I have a lot to learn and look into, but you have definitely provided a lot to digest. I'll reply to this once I have more time to look more into the details and even try to make some of the measurements you mention (may need to ask where to tap for some of them, but I'll give it a shot first).

Thanks again for taking the time Terry! It sounds like my idea may be doable, but with a bit a work involved. I hope I have enough knowledge to figure some of these things out. ;-)

Quick question. Do you know if I would have to "tune" the radio first for the corresponding band to obtain the right plate current, load, etc, before driving the external signal into the final stage?

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Cesar:

Class AB-1 doesnt really take RF drive power. Since there is no grid current can be no power consumed. Only RF voltage swing is required. However, there are rf losses from charge and discharge of the inter-electrode capacitance of the 6146 tubes at an rf rate and from cathode/heater lead inductance path. So in practice the 12BY7A driver tube does supply approx 2.0 to 2.5 watts output power to the 6146 control grid circuit.

You can estimate the output power by calculating the plate current and the dc input power and then assuming an efficiency factor for a Class A rf amplifier. To do this look at your schematic and total up the resistance in the cathode lead to ground or just measure it. Then use the cathode voltage in Tx mode listed on the schematic or measure it and use I = E/R. Some schematics show 0 cathode volts in Tx which is of course wrong.

For example for a TS830 the cathode resistance is 168 ohms and cathode voltage is 4.6vdc. Plate current (ignoring small amount of screen grid current) I = 4.6/168 = 27ma. Plate voltage = 297vdc so Dc input power is P= 297 x .027 = 8 watts. Assume Class A amplifier efficiency = 25% then 8 x .25 = 2.0 watts. If efficiency was 30% then output power = 8 x .30 = 2.4 watts.

So approx Dc input power of the KW hybrid 12BY7A Driver tube is 8 watts and approx RF output power is 2.0 to 2.5 watts.

What the control grid of the 6146 looks like to the Driver plate circuit is a complex Z. It is really Admittance that can be looked at as a capacitor and resistor in parallel and shunted from grid to cathode. It is not easy to calculate and it varies. With no grid current the Z is essentially infinite and with grid current it can be around 1000 ohms or so.

I have played around with lifting the DRV lead off the 6146 control grids and placing a carbon resistor dummy load to chassis ground and measuring the RF voltage across it. From around 1000 to 2000 ohms can get close to the same level of RF voltage as with DRV terminated on the 6146 grids. Using a 1000 ohm carbon resistor to simulate what the Driver

tube tank circuit sees isnt exactly correct and in fact may de-tune the Q of the tank.

For high power Class AB1 linear amps it is common to place a 100 ohm or so high wattage swamping resistor from grid to cathode to provide a constant impedance for the driver stage to look at so wont have distortion. We dont do that with our hybrids. We rely on a parallel resonant tank circuit at output of the Driver tube to smooth out the impedance variations under SSB modulation and very small amounts of grid current to ensure we will not have a lot of distortion and IMD generation.

You can approximate the impedance of the 6146 control grids by this formula:
Rg = (Eg max) squared/ 2 x Pd. Where Rg is the grid impedance, Eg is the peak RF drive voltage, and Pd is the peak drive power.

Here is calc for TS-830 using 47rms volts of rf grid drive at 6146 control grids (measured at 100 watts output power) 47 x 1.414 = 66 peak rf volts:

Rg = (66)squared /2 x 2 = 4356/4 = 1089 ohms

So 6146 control grids look approx like a 1100 ohm resistor with 47volts drive and -60vdc operating bias. This means if you terminate the 12BY7A DRV lead with approx 1100 ohms to ground the tube will deliver approx 2 watts.

I call these back of envelope calcs.

I suspect your QRP rig would like to look at 50 ohms so you would most likely need a broad band transformer at the control grids to get the match from 1100 ohms to approx 50 ohms? Could wind a toroid transformer or buy transformer from Mini-circuits. I wont go into the impedance ratio vs turn ratio calcs and design of the torid matching transformer here. Plenty of resources to help you with that.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am considering working on a modification to my radio, but I need some guidance from the experts as I try to come up with a plan. ;-)

My goal: be able to connect the output of a QRP radio into the final stage of the TS-820 to use it as an amplifier. I assume this is possible, but please correct me if I'm wrong.

Things I think I need to look into:
- Where in the TS-820 signal paths I need to break connections and add some type of switch to choose which signal to feed into the final stage (TS-820 or external).
- Figure out what's the input power going into the final stage in the TS-820, so I try to match it (or stay below it) with the QRP radio.
Any hints on what things I need to watch out for while trying to figure out how to do this will be greatly appreciated. :-)

Thanks!

-- Cesar -- K1TNT

44481. RE: RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 11:36:57 UTC
From: <wagstw46@...>
Topic: 44462 Message: 44481

You could do that to get the pi-network adjusted to resonance and antenna load, but no real need. You dont have to do that. You could make a chart of bands/frequency for the Plate Load and Plate Tune caps and pre-set them as many high power linear amp owners do.

Think of how you would load a high power linear amplifier with your KW hybrid as the exciter. No way to load the Linear without excitation so they just pre-set the Linear pi-network caps. You load the Hybrid (now serving as an exciter) into dummy load and then you drive the Linear with it . Depending on how much drive the Linear takes there are various ways to provide that level from your hybrid.

With your idea you are just replacing the Hybrid Driver stage with your QRP rig and using the finals as a Linear amp. So you would load your QRP "exciter" into a 50 ohm dummy load to 2 watts output. Then switch its output to a jack on back of Hybrid that feeds DRV on the Final board.

One thing is not likely that your QRP exciter is going to have an ALC input so will lose that control voltage. So will have to watch Ip meter or external wattmeter to adjust mic gain for proper modulation if plannng SSB operation. If CW mode only then no concern.

Also does your QRP "exciter" have a provision to key a Linear? If not then you would have to do manual switching or build a relay scheme.

Instead of using your KW hybrid PA as a Linear amp for your QRP rig. You might want to consider building a 1 or 2 tube 6146 linear amp. Would be a great learning project to scrounge the parts for it and its power supply. Also great sense of accomplishment. Maybe buy a tech special TS520 and pull the parts from it.
.

Take a look at this simple design. Older QST issues also have similar designs.

http://faculty.frostburg.edu/phys/latta/ee/6146amp/6146amp.html

Terry K9TW

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For high power Class AB1 linear amps it is common to place a 100 ohm or so high wattage swamping resistor from grid to cathode to provide a constant impedance for the driver stage to look at so wont have distortion. We dont do that with our hybrids. We rely on a parallel resonant tank circuit at output of the Driver tube to smooth out the impedance variations under SSB modulation and very small amounts of grid current to ensure we will not have a lot of distortion and IMD generation.

You can approximate the impedance of the 6146 control grids by this formula:
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Here is calc for TS-830 using 47rms volts of rf grid drive at 6146 control grids (measured at 100 watts output power) 47 x 1.414 = 66 peak rf volts:

Rg = (66)squared /2 x 2 = 4356/4 = 1089 ohms

So 6146 control grids look approx like a 1100 ohm resistor with 47volts drive and -60vdc operating bias. This means if you terminate the 12BY7A DRV lead with approx 1100 ohms to ground the tube will deliver approx 2 watts.

I call these back of envelope calcs.

I suspect your QRP rig would like to look at 50 ohms so you would most likely need a broad band transformer at the control grids to get the match from 1100 ohms to approx 50 ohms? Could wind a toroid transformer or buy transformer from Mini-circuits. I wont go into the impedance ratio vs turn ratio calcs and design of the torid matching transformer here. Plenty of resources to help you with that.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am considering working on a modification to my radio, but I need some guidance from the experts as I try to come up with a plan. ;-)

My goal: be able to connect the output of a QRP radio into the final stage of the TS-820 to use it as an amplifier. I assume this is possible, but please correct me if I'm wrong.

Things I think I need to look into:
- Where in the TS-820 signal paths I need to break connections and add some type of switch to choose which signal to feed into the final stage (TS-820 or external).
- Figure out what's the input power going into the final stage in the TS-820, so I try to match it (or stay below it) with the QRP radio.
Any hints on what things I need to watch out for while trying to figure out how to do this will be greatly appreciated. :-)

Thanks!

-- Cesar -- K1TNT

44482. RE: RE: RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 11:47:26 UTC
From: <wagstw46@...>
Topic: 44462 Message: 44482

I also forgot to mention you could buy a Heathkit DX-20, DX-35, DX-40 and use your QRP rig to replace the Driver stage in it. This would be a simple and low cost approach.

Probably the cheapest thing you can do as buying parts today is not what it use to be as far as availability and cost. We use to search for and buy most of our parts by hamfesting which was part of the fun and eBay kind of took care of that for us.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

You could do that to get the pi-network adjusted to resonance and antenna load, but no real need. You dont have to do that. You could make a chart of bands/frequency for the Plate Load and Plate Tune caps and pre-set them as many high power linear amp owners do.

Think of how you would load a high power linear amplifier with your KW hybrid as the exciter. No way to load the Linear without excitation so they just pre-set the Linear pi-network caps. You load the Hybrid (now serving as an exciter) into dummy load and then you drive the Linear with it . Depending on how much drive the Linear takes there are various ways to provide that level from your hybrid.

With your idea you are just replacing the Hybrid Driver stage with your QRP rig and using the finals as a Linear amp. So you would load your QRP "exciter" into a 50 ohm dummy load to 2 watts output. Then switch its output to a jack on back of Hybrid that feeds DRV on the Final board.

One thing is not likely that your QRP exciter is going to have an ALC input so will lose that control voltage. So will have to watch Ip meter or external wattmeter to adjust mic gain for proper modulation if plannng SSB operation. If CW mode only then no concern.

Also does your QRP "exciter" have a provision to key a Linear? If not then you would have to do manual switching or build a relay scheme.

Instead of using your KW hybrid PA as a Linear amp for your QRP rig. You might want to consider building a 1 or 2 tube 6146 linear amp. Would be a great learning project to scrounge the parts for it and its power supply. Also great sense of accomplishment. Maybe buy a tech special TS520 and pull the parts from it.
.

Take a look at this simple design. Older QST issues also have similar designs.

http://faculty.frostburg.edu/phys/latta/ee/6146amp/6146amp.html

Terry K9TW

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--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Thanks a lot for the ton of information posted Terry! I have a lot to learn and look into, but you have definitely provided a lot to digest. I'll reply to this once I have more time to look more into the details and even try to make some of the measurements you mention (may need to ask where to tap for some of them, but I'll give it a shot first).

Thanks again for taking the time Terry! It sounds like my idea may be doable, but with a bit a work involved. I hope I have enough knowledge to figure some of these things out. ;-)

Quick question. Do you know if I would have to "tune" the radio first for the corresponding band to obtain the right plate current, load, etc, before driving the external signal into the final stage?

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Cesar:

Class AB-1 doesnt really take RF drive power. Since there is no grid current can be no power consumed. Only RF voltage swing is required. However, there are rf losses from charge and discharge of the inter-electrode capacitance of the 6146 tubes at an rf rate and from cathode/heater lead inductance path. So in practice the 12BY7A driver tube does supply approx 2.0 to 2.5 watts output power to the 6146 control grid circuit.

You can estimate the output power by calculating the plate current and the dc input power and then assuming an efficiency factor for a Class A rf amplifier. To do this look at your schematic and total up the resistance in the cathode lead to ground or just measure it. Then use the cathode voltage in Tx mode listed on the schematic or measure it and use I = E/R. Some schematics show 0 cathode volts in Tx which is of course wrong.

For example for a TS830 the cathode resistance is 168 ohms and cathode voltage is 4.6vdc. Plate current (ignoring small amount of screen grid current) I = 4.6/168 = 27ma. Plate voltage = 297vdc so Dc input power is P= 297 x .027 = 8 watts. Assume Class A amplifier efficiency = 25% then 8 x .25 = 2.0 watts. If efficiency was 30% then output power = 8 x .30 = 2.4 watts.

So approx Dc input power of the KW hybrid 12BY7A Driver tube is 8 watts and approx RF output power is 2.0 to 2.5 watts.

What the control grid of the 6146 looks like to the Driver plate circuit is a complex Z. It is really Admittance that can be looked at as a capacitor and resistor in parallel and shunted from grid to cathode. It is not easy to calculate and it varies. With no grid current the Z is essentially infinite and with grid current it can be around 1000 ohms or so.

I have played around with lifting the DRV lead off the 6146 control grids and placing a carbon resistor dummy load to chassis ground and measuring the RF voltage across it. From around 1000 to 2000 ohms can get close to the same level of RF voltage as with DRV terminated on the 6146 grids. Using a 1000 ohm carbon resistor to simulate what the Driver tube tank circuit sees isnt exactly correct and in fact may de-tune the Q of the tank.

For high power Class AB1 linear amps it is common to place a 100 ohm or so high wattage swamping resistor from grid to cathode to provide a constant impedance for the driver stage to look at so wont have distortion. We dont do that with our hybrids. We rely on a parallel resonant tank circuit at output of the Driver tube to smooth out the impedance variations under SSB modulation and very small amounts of grid current to ensure we will not have a

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Terry K9TW

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I am considering working on a modification to my radio, but I need some guidance from the experts as I try to come up with a plan. ;-)

My goal: be able to connect the output of a QRP radio into the final stage of the TS-820 to use it as an amplifier. I assume this is possible, but please correct me if I'm wrong.

Things I think I need to look into:
- Where in the TS-820 signal paths I need to break connections and add some type of switch to choose which signal to feed into the final stage (TS-820 or external).
- Figure out what's the input power going into the final stage in the TS-820, so I try to match it (or stay below it) with the QRP radio.
Any hints on what things I need to watch out for while trying to figure out how to do this will be greatly appreciated. :-)

Thanks!

-- Cesar -- K1TNT

44483. Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 12:19:39 UTC
From: Barry
Topic: 44437 Message: 44483

I'm going to take the relay apart and try to clean it to see if that helps out. I'll keep you posted, and thanks a lot, Terry.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44484. RE: Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 12:37:41 UTC
From: <wagstw46@...>
Topic: 44437 Message: 44484

Are you using a home made inter-connect cable or a Kenwood cable? Are you certain the cable is good? Have you rung it out?

Any test gear that you could use to measure the Ext VFO output level and frequency? With covers off rig this can be done at the back of the Ext VFO socket pins.

Need to troubleshoot the problem. I am not clear how you diagnosed that the relay was the problem with the operational issue?

Terry K9TW

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Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44485. RE: RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 13:34:58 UTC
From: <wagstw46@...>
Topic: 44462 Message: 44485

Cesar:

I am sorry for so much detail. My interest in understanding how these hybrids works often gets in the way of a succinct answer.

I saw your call letters and the question about Driver stage power led me to believe you were perhaps more experienced.

Of course nothing wrong with your question as Hams have been experimenting and modifying and converting for years.

Maybe just print the response and file it away. If you do pursue this and make your own measurements I would be interested in your results.

A simple answer would have been something like approx 2.0 to 2.5 watts output and input Z varies and will likely need to use a matching transformer between the QRP rig and 6146 control grids.

I get carried away and like to discuss this kind of thing with folks with common interest. A little hard to find those folks today.

If you decide to pursue email me off the forum and we can discuss and not use the bandwidth here.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Quick question. Do you know if I would have to "tune" the radio first for the corresponding band to obtain the right plate current, load, etc, before driving the external signal into the final stage?

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Terry K9TW

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I am considering working on a modification to my radio, but I need some guidance from the experts as I try to come up with a plan. ;-)

My goal: be able to connect the output of a QRP radio into the final stage of the TS-820 to use it as an amplifier. I assume this is possible, but please correct me if I'm wrong.

Things I think I need to look into:
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Any hints on what things I need to watch out for while trying to figure out how to do this will be greatly appreciated. :-)

Thanks!

-- Cesar -- K1TNT

44486. Re: [TS-520_820_530_830] RE: RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 14:03:14 UTC
From: Jan Servaites
Topic: 44462 Message: 44486

Terry,
I'm working on a 6146 amp right now, using the PA from an 820 parts radio. I recently acquired a FLEX 1500 (its QRP), and it is going to be the PA for my FLEX. Also the 6146B will give some wonderful experience in working with tetrodes and also to appreciate its excellent linearity & power output.
Jan N8CBX

wagstw46@... wrote:

Instead of using your KW hybrid PA as a Linear amp for your QRP rig. You might want to consider building a 1 or 2 tube 6146 linear amp. Would be a great learning project to scrounge the parts for it and its power supply. Also great sense of accomplishment. Maybe buy a tech special TS520 and pull the parts from it.

Take a look at this simple design. Older QST issues also have similar designs.

http://faculty.frostburg.edu/phys/latta/ee/6146amp/6146amp.html

Terry K9TW

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44487. RE: RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 15:42:40 UTC
From: <coyoteinventor@...>
Topic: 44462 Message: 44487

Terry,

I will look into the 6146 amplifier as it would be nice to build something like this and avoid "injuries" to my already loved TS-820.

Thanks for sharing that link. I will look more into it as see if it's something I can find parts for and afford. It looks like a lot of fun so it's got my attention already! ;-)

Thanks again!

Cesar K1TNT

--- In ts-520_820_530_830@yahoogroups.com, <jservaites@...> wrote:

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Terry K9TW

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44488. Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 16:02:08 UTC
From: Barry
Topic: 44437 Message: 44488

I do have a good Kenwood cable. The old cable that I had before needs soldering, but I picked up another good Kenwood cable while I was on vacation.

I talked with a couple of people that seemed to think the relay probably was the problem - I don't visually see any other loose connections or anything, so the relay is what was my next logical conclusion.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

Are you using a home made inter-connect cable or a Kenwood cable? Are you certain the cable is good? Have you rung it out?

Any test gear that you could use to measure the Ext VFO output level and frequency? With covers off rig this can be done at the back of the Ext VFO socket pins.

Need to troubleshoot the problem. I am not clear how you diagnosed that the relay was the problem with the operational issue?

Terry K9TW

44489. TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 06:32:17 UTC
From: davegm8upi
Topic: 44489 Message: 44489

Hi folks. New to group so be gentle !!
My newly acquired TS-830S seems in v good condition. RX is great compared with a couple of "modern" rigs and great SSB audio reports. 100w+ out on all bands, CW key down, with Car level at 12 o'clock.
My problem is that when using the MC-50 mic I am finding that to get the ALC to move to around half scale, all bands, I need to talk with the mic very close, ie a couple of inches, even with mic gain at max. (Proc off). Vox operation seems fine, so I assume audio 1st stage amp gain is ok. Is this normal with this mic ??
I would really like to use mic at a more comfortable distance, ie 6 - 8 inches, without using Processor. Is it worthwhile trying my Behringer 502 mic amp/mixer in line with mic ?
I do understand that this amp is really designed for low imp mics, and it's use will no doubt mess up the great "Kenwood audio" reports I am currently getting.
Any advice on this, other than changing the mic ?
Regards
Dave

44490. RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 04:35:24 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44490

Hi, Terry:

I have the resistors on order for the dummy load, I should have it built on Saturday.

I followed the manual exactly, but I did follow your posted instructions, and the same result happened.

1. All switches and dials were preset to the table in the manual.
2. I confirmed again, the current is set at 60 ma,
3. For setting CAR, I started with the dial at 12:00, the needle pegs, so I turned it down. The needle peaks at the highest mark on the ALC meter line when my CAR is set to about 1.75
4. This step is where I always have my problem. The needle starts out at the 85 ma position and doesn't move at all when I turn the Plate dial. I have to stop tuning at this step because I can't get the needle to move at all.

I can see how a wattmeter would be nice to have, but I don't own one. I am on a bit of a tight budget right now, and I can't really afford it right now.

I will try all of this again when I get my dummy load built on Saturday, but where I stand now is the problem I keep on having.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.

5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10 seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.
7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication. Make sure you note where the peak is at each time. You can read it off the black plate current scale. If you have opened the plates of the Load capacitor too much (too far clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is defective and not a rig problem or you have an open down stream of the SWR bridge and and will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44491. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 00:50:24 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44491

Hey, Brian:

That sounds good. I'll send you an email directly.

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Hi Jason:

I just realized that you live nearby. I live in Meridian. Most of the folks that post on this board are FAR more technically proficient than I am but I am very comfortable tuning up and operating a Kenwood hybrid. Perhaps having a set of eyes physically present while you are going through the steps might catch something that we are missing in email.

If you'd like I could arrange to drop by and take a look. I may end up as puzzled as you but it couldn't hurt to have another set of eyes on it.

Let me know if you are interested.

73,
Brian (K7TKT)
Meridian, ID

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 11, 2013 5:19 PM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

I tried what you said, but the needle pegs above about 1.75 on the CAR dial. The needle won't peak above 80 ma.

--- In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

You need to advance the carrier control very carefully until; the plate current Ip Just starts to rise with the radio transmitting in the Tune Mode.Then start turning the drive control until you get a peak reading. Does this happen? A sudden jump in Ip indicates a dirty control or something more serious.
Good luck

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 10, 2013 3:16 PM
Subject: [TS-520_820_530_830] New Ham, Tuning issues

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and

began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44492. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 16:32:05 UTC
From: Craig Roberts
Topic: 44489 Message: 44492

Make sure the MC-50's impedance is set to HIGH to match the radio. This is done by lining up the red dot on the microphone body near the connector and with one on the connector itself.

The MC-50's manual, such as it is, is available online with an explanation of its impedance matching feature.

73,

Craig
W3CRR
>

44493. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 16:38:08 UTC
From: David Mcalpin
Topic: 44489 Message: 44493

Yes Craig, Mic imp has been set at high !
Dave

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Cc: davegm8upi <davegm8upi@...>
Sent: Thursday, 12 September 2013, 17:32
Subject: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Make sure the MC-50's impedance is set to HIGH to match the radio. This is done by lining up the red dot on the microphone body near the connector and with one on the connector itself.

The MC-50's manual, such as it is, is available online with an explanation of its impedance matching feature.

73,

Craig
W3CRR

44494. W5RKL Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 17:02:00 UTC
From: <n6wk@...>
Topic: 44494 Message: 44494

Here is a short Video Mike, W5RKL, made regarding Ohms law.
Take a look.
http://www.n6wk.com/w5rkl/Simple%20Ohms%20Law%20test.wmv
See if you can answer his Questions.

44495. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 17:34:05 UTC
From: Dave & Loraine
Topic: 44489 Message: 44495

Dave,
The MC50 is a 'close talk' mike. A couple of inches.
Try taping-over the front half of the side slots for better articulation.
Read previous posts in mic alc topic.

If you feel that you need an external mic amp, experiment and make notes!
I built a one-transistor amp into the base of my MC50. Current draw is <100uA so the 9v battery lasts well over a year.
73 dave f4eyk

44496. Re: [TS-520_820_530_830] W5RKL Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 18:14:33 UTC
From: Craig Roberts
Topic: 44494 Message: 44496

And, no fair using your VOM!

44497. RE: Re: [TS-520_820_530_830] RE: RE: TS-820 - tapping into the final stage

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 18:18:17 UTC
From: <wagstw46@...>
Topic: 44462 Message: 44497

Hi Jan:

That is a great idea. You can experiment with the SG supply and you can meter the thing so you can see what is going on. A zero center meter for screen grid current would be good. You will have to decide if you will use the ALC. I dont know how you would be able to use the RF Negative feedback. Its a copy of Collins early SSB circuit.

When you get it done I would be interested to see what you did at the control grids to couple the Flex drive signal. All kinds of options. If you look at what Dr. Latta did he used link couplng and a LC tank circuit. Could use Pi-network, but I think I would like to explore broad band transformer?

Be curious to see how you calculate the input Z. I think one of few people I know who could do a back of envelope calc for a grid driven tetrode input is Ray. Most folks build grounded grid today and lots of info and easy to calc what the cathode looks like to the exciter. Dont see as much info for grid driven amps. You have great resource with that group.

Lots of fun.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,
I'm working on a 6146 amp right now, using the PA from an 820 parts radio. I recently acquired a FLEX 1500 (its QRP), and it is going to be the PA for my FLEX. Also the 6146B will give some wonderful experience in working with tetrodes and also to appreciate its excellent linearity & power output.
Jan N8CBX

wagstw46@... wrote:

Instead of using your KW hybrid PA as a Linear amp for your QRP rig. You might want to consider building a 1 or 2 tube 6146 linear amp. Would be a great learning project to scrounge the parts for it and its power supply. Also great sense of accomplishment. Maybe buy a tech special TS520 and pull the parts from it.

Take a look at this simple design. Older QST issues also have similar designs.

http://faculty.frostburg.edu/phys/latta/ee/6146amp/6146amp.html

Terry K9TW

.

44498. RE: Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 18:30:49 UTC
From: <wagstw46@...>
Topic: 44437 Message: 44498

Well I hope cleaning the relay contacts fixes whatever your operational issue is.

If not come back and I am sure someone here will help you troubleshoot the problem.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I do have a good Kenwood cable. The old cable that I had before needs soldering, but I picked up another good Kenwood cable while I was on vacation.

I talked with a couple of people that seemed to think the relay probably was the problem - I don't visually see any other loose connections or anything, so the relay is what was my next logical conclusion.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

Are you using a home made inter-connect cable or a Kenwood cable? Are you certain the cable is good? Have you rung it out?

Any test gear that you could use to measure the Ext VFO output level and frequency? With covers off rig this can be done at the back of the Ext VFO socket pins.

Need to troubleshoot the problem. I am not clear how you diagnosed that the relay was the problem with the operational issue?

Terry K9TW

44499. RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 18:56:14 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44499

OK there is no problem peaking the RF Drive control with Car Level Pot at 1.75 position. Peaking at the max of the ALC printed black range as I have said more than once is meaningless. If it makes you happy that is good. Just peak it where ever you want so Driver plate circuit is tuned to resonance so you have sufficient RF drive.

Now you must switch the meter from ALC to IP position. Are you doing that?

Also as I told you pre-set the LOAD capacitor to full CCW. This will allow you to see some level of plate current dip. If you have the LOAD control half open or more you wont see much dip at all. The manual does not tell you to do this.

You should still be in Tune mode and then Flip to Send. Are you saying at this point you see 85ma of Ip (plate current) and you cannot get that current to dip or increase in value when you adjust the TUNE Control?

Are you swinging the TUNE control over a large range or just barely tweaking it at its pre-set 7mhz band position on the white arc?

There is one other possibility and that is the shaft coupler set screws at the PA cage end of the shaft may be loose and when you are turning the TUNE knob it is not mechanically coupled to the TUNE capacitor shaft that protrudes from the cage and not opening and closing its plates. This is not common, but it does happen. When you turn the TUNE control knob with the rig in receive mode does it turn approx 3/4 of its travel and come to a positive stop or can you just turn it continuously?

Sometimes people remove the stop collar screw or it backs out and the white mark on the knob no longer aligns with the white band markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi, Terry:

I have the resistors on order for the dummy load, I should have it built on Saturday.

I followed the manual exactly, but I did follow your posted instructions, and the same result happened.

1. All switches and dials were preset to the table in the manual.
2. I confirmed again, the current is set at 60 ma,
3. For setting CAR, I started with the dial at 12:00, the needle pegs, so I turned it down. The needle peaks at the highest mark on the ALC meter line when my CAR is set to about 1.75
4. This step is where I always have my problem. The needle starts out at the 85 ma position and doesn't move at all when I turn the Plate dial. I have to stop tuning at this step because I can't get the needle to move at all.

I can see how a wattmeter would be nice to have, but I don't own one. I am on a bit of a tight budget right now, and I can't really afford it right now.

I will try all of this again when I get my dummy load built on Saturday, but where I stand now is the problem I keep on having.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.
5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10 seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.
7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication.

Make sure you note where the peak is at each time. You can read it off the black plate current scale. If you have opened the plates of the Load capacitor too much (too far clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is defective and not a rig problem or you have an open down stream of the SWR bridge and and will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44500. Ohms Law video test

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 18:56:08 UTC
From: Mike
Topic: 44500 Message: 44500

Gordon has uploaded one of my videosto his server. The video isa simple ohms law circuit test for anyone to take to measure your basic ohms law knowledge. The circuit is simple, values are shown in the video, and the video includes 4 simple questions. You can access the video at the following link:

http://www.n6wk.com/w5rkl/Simple%20Ohms%20Law%20test.wmv

You can submit your answers to either the group or via private email to me, it's up to you. The video is designed primarily for those who are studying/learning aboutand how to use ohms law but it can be a refresher for those who have used ohms law in the past but would like a refresher.

I'm working with Gordon so I have can upload the videos myself. I currently have a video that shows whathappens if a single component value changes and what effects that single component's change in value has on the overall circuit. Hope to have it uploaded soon.

73
Mike W5RKL

44501. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-12 22:57:14 UTC
From: W5RKL
Topic: 44489 Message: 44501

If the transceiver is the TS-830, which it appears it is, then the MC-50 can be set for either low or high impedance. The TS-830 has a microphone impedance range from 500 ohms to 50K ohms (see the 830's operator's specification page in the operator's manual).

73
Mike W5RKL

On 9/12/2013 11:32 AM, Craig Roberts wrote:
>
> Make sure the MC-50's impedance is set to HIGH to match the radio.
> This is done by lining up the red dot on the microphone body near the
> connector and with one on the connector itself.
>
> The MC-50's manual, such as it is, is available online with an
> explanation of its impedance matching feature.
>
> 73,
>
> Craig
> W3CRR
>
>
>
>

44502. Basic resistance videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 02:20:07 UTC
From: Mike
Topic: 44502 Message: 44502

Gordon has allowed me to upload my basic electronic videos to his website.

The link to the videosis

http://www.n6wk.com/w5rkl

There is a simple Ohms Law training video using a simple circuit of 3 resistors in series. There are 4 questions for you to answer.

73
Mike W5RKL

44503. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 09:45:58 UTC
From: David Mcalpin
Topic: 44489 Message: 44503

Thanks for advice. Yes I have read somewhere that some folk mask some of the mic side slots, and get improvement.
Like the idea of a single transistor amp built into base. May try this over next few days.
Suppose virtually any low signal NPN will do. maybe 2N2222 would do job.
Thanks
Dave

From: Dave & Loraine <dave.crooks@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, 12 September 2013, 18:34
Subject: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Dave,
The MC50 is a 'close talk' mike. A couple of
inches.
Try taping-over the front half of the side slots
for better articulation.
Read previous posts in mic alc
topic.

If you feel that you need an external mic amp,
experiment and make notes!
I built a one-transistor amp into the base of my
MC50. Current draw is <100uA so the 9v battery lasts well over a
year.
73 dave f4eyk

44504. TS530 and Test Equipment FOR SALE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 16:23:25 UTC
From: <jeaton@...>
Topic: 44504 Message: 44504

I have had all of this since I was first licensed and have just never got around to learning how to work on the TS530 yet.

The 530 has some issues that I can give more details on. All the rest is used with fairly normal wear.

TS530S (Included spare HV Caps, resistor kit, driver tube) - $200
AT230 - $200
VFO240 - $150
MC50 - $50
SP520 - $25

LeCroy 9400 125MHz Dual Channel O-Scope (with probes) $500
Heathkit IM18 VTVM - $35
Heathkit 309C Probe - $20
HP 5382A Freq. Counter - $50
Eico 232 VTVM (bent needle) - $10

You can contact me via email KD8MAB (at) the-eatons (dot) com with other questions.
(Prices do not include shipping)

Joe

44505. Re: [TS-520_820_530_830] TS530 and Test Equipment FOR SALE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 16:48:52 UTC
From: Mac Haszard
Topic: 44504 Message: 44505

Joe,

I'll take the VFO-240 - just verified it works with my TS-830S.

73,

Mac K6OVI

From: "jeaton@the-eatons.com" <jeaton@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 13, 2013 12:23 PM
Subject: [TS-520_820_530_830] TS530 and Test Equipment FOR SALE

I have had all of this since I was first licensed and have just never got around to learning how to work on the TS530 yet.

The 530 has some issues that I can give more details on. All the rest is used with fairly normal wear.

TS530S (Included spare HV Caps, resistor kit, driver tube) - $200
AT230 - $200
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MC50 - $50
SP520 - $25

LeCroy 9400 125MHz Dual Channel O-Scope (with probes) $500
Heathkit IM18 VTVM - $35
Heathkit 309C Probe - $20
HP 5382A Freq. Counter - $50
Eico 232 VTVM (bent needle) - $10

You can contact me via email KD8MAB (at) the-eatons (dot) com with other questions.
(Prices do not include shipping)

Joe

44506. RE: Re: [TS-520_820_530_830] TS530 and Test Equipment FOR SALE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 17:16:00 UTC
From: <wagstw46@...>
Topic: 44504 Message: 44506

Joe:

You have obviously made up your mind to sell off your KW Hybrid gear and test equipment. I hate to see that. I hope you did not get discouraged by perceived lack of help or the kind of help you got on this forum.

"Electronic" help is never going be as good as a local Elmer can provide you. It can certainly be a little overwhelming to learn how to use the test gear and read schematics etc.

With the test gear you have (assuming it is working) you should be able to do about 95% of what you need to do on any Hybrid. True some rigs can be real dogs. I have spent many hours trying to figure out what has been done to them. It can be discouraging trying to work with what is essentially junk.

Sometimes you need to cut bait and sell the problem rig and look for a better rig. They are out there.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Joe,

I'll take the VFO-240 - just verified it works with my TS-830S.

73,

Mac K6OVI

From: "jeaton@..." <jeaton@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 13, 2013 12:23 PM
Subject: [TS-520_820_530_830] TS530 and Test Equipment FOR SALE

I have had all of this since I was first licensed and have just never got around to learning how to work on the TS530 yet.

The 530 has some issues that I can give more details on. All the rest is used with fairly normal wear.

TS530S (Included spare HV Caps, resistor kit, driver tube) - $200
AT230 - $200
VFO240 - $150
MC50 - $50
SP520 - $25

LeCroy 9400 125MHz Dual Channel O-Scope (with probes) $500
Heathkit IM18 VTVM - $35

Heathkit 309C Probe - $20
HP 5382A Freq. Counter - $50
Eico 232 VTVM (bent needle) - $10

You can contact me via email KD8MAB (at) the-eatons (dot) com with other questions.
(Prices do not include shipping)

Joe

44507. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 17:56:39 UTC
From: <pmarkavage@...>
Topic: 44489 Message: 44507

If you want more punch in your MC-50, just slide an empty toilet paper roll (or something similar) over the mike end and talk into the other end of the paper roll. Based on past technical analysis, too long of a paper roll (Reynolds foil type paper tube) and your audio will develop a severe punchy hollow sound.

Pete, wa2cwa
http://www.manualman.com

On Fri, 13 Sep 2013 10:45:58 +0100 (BST) David Mcalpin
<davegm8upi@...> writes:

Thanks for advice. Yes I have read somewhere that some folk mask some of the mic side slots, and get improvement.
Like the idea of a single transistor amp built into base. May try this over next few days.
Suppose virtually any low signal NPN will do. maybe 2N2222 would do job.
Thanks
Dave

From: Dave & Loraine <dave.crooks@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, 12 September 2013, 18:34
Subject: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Dave,
The MC50 is a 'close talk' mike. A couple of inches.
Try taping-over the front half of the side slots for better articulation.
Read previous posts in mic alc topic.

If you feel that you need an external mic amp, experiment and make notes!
I built a one-transistor amp into the base of my MC50. Current draw is <100uA so the 9v battery lasts well over a year.
73 dave f4eyk

44508. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 19:09:30 UTC
From: Dave & Loraine
Topic: 44489 Message: 44508

The circuit is the simplest.
Mic input via a 1uF cap to base of a BCxxx which is biased by 390k+.
Output from collector via 1uF cap.
Emitter grounded.
Collector 9v+ alcaline via a 10k resistor.
Veroboard construction.

Try the tape first as it's easy.
I made mp3s before and after and subtracted 'before' then compared them on Excel.
Bass and treble were slightly enhanced.
73 dave f4eyk

[Non-text portions of this message have been removed]

44509. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 19:16:31 UTC
From: Dave & Loraine
Topic: 44489 Message: 44509

Mike,
The 820 Operating Manual 2.5 states '50K impedance only'.
Does the 830 have a differnt mic amp to the 820?
Dave f4EYK

44510. TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 20:48:47 UTC
From: <GEAgent21@...>
Topic: 44510 Message: 44510

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44511. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 21:58:56 UTC
From: Mike
Topic: 44489 Message: 44511

Dave F4EYK,

You are correct, the TS-820 has a high microphone impedance of 50K.
However, the initial post/discussion/question is not about a TS-820but
rather it's about a TS-830(see the segment of the initial post cut and
pasted below) and the MC-50 microphone:

"/My newly acquired TS-830S seems in v good condition. RX is great
compared with a couple of "modern" rigs and great SSB audio reports.
100w+ out on all bands, CW key down, with Car level at 12 o'clock. My
problem is that when using the MC-50 mic I am finding that to get the
ALC to move to around half scale, all bands.../"

There is no indication/mention of a TS-820 anywhere in the initial post.

The TS-830 has a wide microphone impedance range from 500 ohms to 50K ohms.

73
Mike W5RKL

On 9/13/2013 2:16 PM, Dave & Loraine wrote:
>
> Mike,
> The 820 Operating Manual 2.5 states '50K impedance only'.
> Does the 830 have a differnt mic amp to the 820?
> Dave f4EYK
>

44512. RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-13 22:04:10 UTC
From: <wagstw46@...>
Topic: 44510 Message: 44512

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44513. Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 00:50:41 UTC
From: Brian Forney
Topic: 44440 Message: 44513

Hi all:

Thanks for your help with Jason's tuning issues.

I went over to his station to look at his TS-520. I took my dummy load, straight key and AT230 to give us a little better set up for our efforts.

Here is what we did:
1. Hooked up the AT230 and dummy load. Set the antenna to point to the dummy load
2. Band to 40m
3. Verified that the plate idling current is 60ma.
4. Went through the typical Kenwood hybrid tune up
4a. Verified starting switch positions
4b. Tune position, ALC meter, AT230 to power
4c. Peaked drive for about 2/3 meter
4d. IP meter
4e. Dipped the plate (To this point everything on the 520 meter and the AT230 power reading looked the same as it does when I tune up my 830---It all looked normal to me.)
4f. Mode to CW. VOX on

4g. Closed the key (Even with no load the IP is showing 200ma and the power out is about 70w.)
4h. I advanced the load a bit (CW), keyed the rig and dipped the plate again. The plate current was higher but the power out was lower. No matter where I set the load/dipped the plate, the highest output was with minimum load (fully CCW).
5. Tried the same procedure on 20m. Same results
6. Advancing the carrier to 225ma with the load at minimum, plate dipped, produces 100w.
7. After this I checked Jason's antenna...the SWR is about 10:1 (he is working on that). He also has resistors on order to use to construct his own dummy load.

8. We listened around the bands a bit. The radio seems to hear fine.

So...I think the problem where he wasn't getting a dip in the plate current before (previous email) was probably because the load was fully CW instead of fully CCW at that time. Trying to tune into a 10:1 antenna was probably not helping things.

Questions:
1. Thoughts on the load issue? Seems like the load range we want is somewhere beyond the minimum of what we are getting now. It is possible that the minimum setting happens to be just the load we want but that doesn't seem right.

Both Jason and I have fairly limited technical skills working inside the radio. I've done the basic stuff (cleaned relays, performed an alignment, etc.) but that is about the limit of my experience (so far---learning acquiring test equipment as things come up.)

Thanks,
  Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 11, 2013 8:07 PM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.
5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10 seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.
7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication. Make sure you note where the peak is at each time. You can read it off the black plate current scale. If you have opened the plates of the Load capacitor too much (too far

clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is defective and not a rig problem or you have an open down stream of the SWR bridge and and will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44514. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 01:33:31 UTC
From: Chris Maness
Topic: 44446 Message: 44514

Ok, I tried a couple of different driver tubes now. With on RCA that
appeared to be NOS, I doubled my output power to 20W, but no ALC deflection
in tune. With a generic tube I am getting 60W out in CW. However, still
no ALC deflection in TUN mode. No matter what the settings. The ALC meter
does deflect in USB/LSB. I would say that the meter function seems normal.
I get very little power out in SSB, and using a dummy load and my little
FT-817 for a monitor, the audio sounds pretty crappy.

Hope this helps the trouble shooting process.
73 de KQ6UP
Chris

On Wed, Sep 11, 2013 at 2:44 PM, Chris Maness <chris@...> wrote:

>
>>
>> When you say you are getting 10 watts output in SSB mode are you saying
>> when you key the mic in SSB with mic gain turned all the way down you are
>> getting out 10 watts? OR
>>
>
> I am getting 10W peaks. No carrier present. I think I remember aligning
> the radio when I first got it. It is pretty much working ok, but with low
> power.
>
>>
>> Are you saying while modulating the rig in SSB mode (speaking into the
>> microphone with the mic gain turned up to approx 1200) that you only see
>> about 10 watts on voice peaks?
>>
>
> Yes.
>
>>
>> These are two very different things. 10 watts on voice peaks is a little
>> low but it depends on your mic, the mic gain setting, how you are talking
>> in to it and a little with the ballistic characteristics of your wattmeter.
>>
>>
>> If it is the former then the Balanced Modulator carrier null/balance is
>> probably out of adjustment assuming no problem with the ring diodes. You
>> will need to adjust TC-1 and VR-2 on the Generator board to null and
>> balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or
>> O-scope to do this. We can help you perform this step. Another way to do it
>> is with a separate receiver sitting near the 520 but not as sensitive, but
>> probably OK at this po! int to get it close.

>>
>>
>>
> Yes, it is balanced. See above.
>
>
>> If it is the later then with rig loaded to 100 watts output it is normal
>> to see peaks of no more than 25 to 30 watts maximum on an average reading
>> wattmeter as you modulate the rig. If you had ALC indication would tell you
>> to adjust mic gain to keep ALC indication within middle of the black
>> rectangular box. Your manual will tell you to keep the peaks within the
>> upper limit of the range. This is to prevent splatter to adjacent
>> frequencies.
>>
>
> Yes, got it. Just like most other SSB rigs.
>
>>
>> With the rig in LSB or USB you should be able to key the mic or flip to
>> send and have no RF output power until you speak in the Mic. The Car Level
>> pot has nothing to do with this. It can be set anywhere and have no effect
>> on SSB power output.
>>
>
> Yes, no power unless modulation is present.
>
>>
>> When you say your audio is distorted are you saying your transmit audio
>> or receive audio? If transmit then I would perform the carrier null/balance
>> as a first step.
>>
> When I increase the mic gain, but this could be the said splatter. I am
> not going to worry about this until I can get the rig to put out more power
> and a proper ALC reading.
>
>>
>> Yes you can use a DMM but it is not as good for peaking and nulling as an
>> analog meter is. It will work if that is what you have. Also, depending on
>> your DMM it may not be 10meg input and not good for much more than
>> measuring things like dc power supply voltages and some of the tube dc
>> voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A
>> cheap Harbor Freight has an input Z of under 1 meg and some of the
>> Lowes/Sears/Home Depot are around 2meg. They are for electricians and not
>> electronic work.
>>
>
> Got it. For peaking. I had one when I was a teenager. I think I saw it
> at my parents house. I have not messed with it since the 80's.
>
>>

>> Terry K9TW
>>
>>
>> Thanks,
> Chris Maness
>
>
>>
>> 1.
>>
>>
>> --- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:
>>
>> Two more questions. Why would it only put out power in CW when the CAR
>> is fully CCW (0 position)? If I increase it at all I loose all power to
>> the antenna. At full CCW I get 10W out. This seems strange to me.
>> However, under NO conditions do I get an ALC deflection (in TUN or CW). I
>> have not messed with the ALC in SSB. However, I only get about 10W out in
>> SSB too. Audio is also a bit on the crappy side. I suppose loss in
>> linearity of the driver tube could explain the bad audio.
>>
>> Can I use my modern DVM in place of a VTVM? I might have an oldy at my
>> parent's house if they have not tossed it.
>>
>> Thanks,
>> Chris
>>
>>
>> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:
>>
>>
>>>
>>>
>>> On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:
>>>
>>>>
>>>>
>>>> Chris:
>>>>
>>>>
>>>> I tried to respond but have not seen it yet so not sure what happened.
>>>> I dont like this new format. Hard to teach old dog new tricks/.
>>>>
>>>>
>>>> So let me restate to make sure I fully understand.
>>>>
>>>>
>>>> You are telling me that you had the SG switch off, the Heaters on, in
>>>> CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than
>>>> at 1200 or No 5 position. When you flip to s! end and peak the Drive

>>>> control thru its complete range that you get no ALC indication on any band.
>>>> If that is true then most likely problem is:
>>>>
>>>
>>> Yes, you have understood me correctly I did the test 100% per your
>>> instruction. I also did the test as if I was following the tuning
>>> procedure to peak the driver as per the manual. I did this in TUN mode.
>>> Every single band showed no deflection when the CAR was at 5 and also at
>>> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.
>>>
>>> Thank you for the flow chart below.
>>>
>>>
>>>>
>>>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>>>> connections at tube socket.
>>>>
>>>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>>>
>>>> 3. A bad meter position switch contacts (not very common).
>>>>
>>>>
>>>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>>>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
>>>> Remove rig top cover to access tube on the RF board. Sometimes the ground
>>>> strap can be galled and bonded to the metal shield. There is a full length
>>>> split on the shield. Use a thin flat blade screw driver to spread the
>>>> split. Carefully work the shield can off so you do not break the ground
>>>> strap that is sandwiched between the glass envelope and metal can. When
>>>> replacing the shield make sure the ground strap is placed back between the
>>>> shield and the tube.
>>>>
>>>>
>>>> Here is where you need an RF Probe and VTVM. In 10 minutes you could
>>>> measure the RF drive voltage at the control grids of the 6146 finals to see
>>>> if you have RF drive greater than approx 39rms volts. Should be close to
>>>> 46rms volts for full scale ALC deflection. If you are experienced with
>>>> O-scope could use it as well. RF probe and VTVM are a must have if to
>>>> service own Hybrid.
>>>>
>>>>
>>>> If new Driver tube doesnt help then try cleaning the Aux relay. Come
>>>> back for the procedure for that.
>>>>
>>>>
>>>> In case you are interested for the above test to work you need the
>>>> following:
>>>>
>>>> 1. Good 6146 final tubes. By good I mean good filament so there is
>>>> cathode emission.

>>>>
>>>> 2. Good negative dc operating bias on the control grids of the finals.
>>>> By good I mean voltage on control grids must switch from approx -100vdc cut
>>>> off bias to approx -55vdc operating bias when you flip to Send. This is
>>>> occurring as you stated you are able to set resting plate current to 60ma.
>>>>
>>>> 3. Good RF drive voltage at the control grids of the 6146 finals. By
>>>> good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and
>>>> -55 = approx +10 volts on positive peak of the drive envelope. This causes
>>>> control grid to be positive with respect to the cathode and ! approx 40ua
>>>> of grid current.
>>>>
>>>>
>>>> When the control grid of the 6146 final tubes becomes positive with
>>>> respect to the cathode grid current will flow. When grid current flows the
>>>> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
>>>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>>>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
>>>> So with any hint of grid current the ALC meter should move up scale. At
>>>> approx 40ua of grid current meter should be full scale.
>>>>
>>>>
>>>> If the Driver tube is soft could have insufficient RF voltage swing at
>>>> 6146 control grids to overcome the -55vdc bias offset. For example if
>>>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>>>> So if RF drive is swinging the control grid to +55 volts on positive going
>>>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>>>> and the control grid is not positive with respect to the cathode and there
>>>> will be no grid current and no ALC indication.
>>>>
>>>>
>>>> Terry K9TW
>>>>
>>>
>>> 73 de KQ6UP
>>> Chris
>>>
>>
>>
>>
>>
>>
>
>

44515. Replacing the Power Rectifier Board - 520SE. ONE PROBLEM!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 01:51:16 UTC
From: Wes Will
Topic: 44440 Message: 44515

Ken, the board you sent me, with the exact same numbers screened on it (X43-1090-00) as the dead one

has one less pin and a totally different layout than the dead original.

The original board had a pin labeled

STB

And the new board does NOT. The old board with the STB connection (white-purple stripe wire) was to the junction of two resistors, R9 and R10. The other end of R9 went to the ground plane, the other end of R10 goes to the 210A pin. Both are 100K 1/8th Watt.

The new board has only ONE 100K resistor there, and it's a quarter-Watt.

I found my notes (though not the photos) of where each of the colours went on the original board. It's on a printout of the board layout from the service manual. I penned in the notation "STB" and wrote 'W-P'right next to it. Drew in the 100K resistor. And put on a couple of question marks. I had even forgotten about it, it has been so long since this whole thing started.

SO:

Should I get a 100K resistor out of the junkbox, and tack this in on the base of the one 100K resistor, and hook the other end to the white-purple wire? Or is there a better way to accomplish this?

I cannot find that STB connection on ANY of the schematics in the archives on that rectifier board. I'm going to put the toner on the white-purple wire, and track it back if I can, figure out what this thing is if I can.

I'm truly bumfuzzled, and somewhat bummed out. The rest of all of the connections are done. I've followed every bloody one of the connections back. I've soldered them all down nicely, nothing looks too bad, all the other wires are finished. I was hoping to plug in the dummy load and try to power this up tonight. Looks like that's out of the question.

All the work, everything going along so well, and then there's this ONE spare nut left.... Sigh. Figures.

--
Wes Will
N9KDY

44516. Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 02:57:44 UTC
From: GEAgent21@...
Topic: 44510 Message: 44516

Terry
Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time,
wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while
adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot
as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you
are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com,
<ts-520_820_530_830@yahoogroups.com> wrote:

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead
spot is where I would like to set ALC. Probably in the mic adj . I turn
the mic control clockwise and the meter needle moves to the right to a point
where it drops back to zero. If I continue to turn clockwise the needle
will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44517. Replacing the Power Rectifier Board - 520SE. Follow-up.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 03:01:18 UTC
From: Wes Will
Topic: 44440 Message: 44517

The white-purple wire that was on the rectifier board pin labeled STB, runs to the AF board (X49-0008-01) to the pin also labeled STB on that board.

Any clue what STB is supposed to stand for? And what should that line carry? Looks like bias of some sort for the AF board. I'm going to check the schematic and try to figure out what this thing does, and see what I should do about it.

Interesting that neither the 520 nor the 520S even have that line...

What's REALLY annoying is that some imbecile in production DIDN'T change the numbers between two very different boards.

Gah. This is truly annoying.

--
Wes Will
N9KDY

44518. RE: Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 03:21:07 UTC
From: <wagstw46@...>
Topic: 44510 Message: 44518

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time, wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi

My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.

73

Greg

KC9VVU

44519. Re: [TS-520_820_530_830] Replacing the Power Rectifier Board - 520SE. Follow-up.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 03:54:38 UTC
From: n6wk@...
Topic: 44440 Message: 44519

Pretty sure the STB is "Side Tone Base" Or "Side tone Bias".
It does go to Q6 which is the side tone Transistor

73,
Gordon
N6WK

On 9/13/2013 8:01
PM, Wes Will wrote:
>
> The white-purple wire that was on the rectifier board pin labeled STB,
> runs to the AF board (X49-0008-01) to the pin also labeled STB on that
> board.
>
> Any clue what STB is supposed to stand for? And what should that line
> carry? Looks like bias of some sort for the AF board. I'm going to
> check the schematic and try to figure out what this thing does, and see
> what I should do about it.
>
> Interesting that neither the 520 nor the 520S even have that line...
>
> What's REALLY annoying is that some imbecile in production DIDN'T change
> the numbers between two very different boards.
>
> Gah. This is truly annoying.
>
> --
> Wes Will
> N9KDY
>
>

--

44520. Re: [TS-520_820_530_830] Replacing the Power Rectifier Board - 520SE. Follow-up.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 03:56:44 UTC
From: n6wk@...
Topic: 44440 Message: 44520

Check voltage on the base of Q6 Look for 2.2 volts.

On 9/13/2013 8:01 PM, Wes Will wrote:
>
> The white-purple wire that was on the rectifier board pin labeled STB,
> runs to the AF board (X49-0008-01) to the pin also labeled STB on that
> board.
>
> Any clue what STB is supposed to stand for? And what should that line
> carry? Looks like bias of some sort for the AF board. I'm going to
> check the schematic and try to figure out what this thing does, and see
> what I should do about it.
>
> Interesting that neither the 520 nor the 520S even have that line...
>
> What's REALLY annoying is that some imbecile in production DIDN'T change
> the numbers between two very different boards.
>
> Gah. This is truly annoying.
>
> --
> Wes Will
> N9KDY
>
>

--

44521. Re: [TS-520_820_530_830] Replacing the Power Rectifier Board - 520SE. Follow-up.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 04:09:13 UTC
From: Wes Will
Topic: 44440 Message: 44521

On 09/13/2013 10:54 PM, n6wk@... wrote:
> Pretty sure the STB is "Side Tone Base" Or "Side tone Bias".
> It does go to Q6 which is the side tone Transistor
>
> 73,
> Gordon
> N6WK

Yep. Via that 100K resistor, only one of which is present on this "identical" board. Identical in -stock number- perhaps but rather very different in the parts and tie-points it presents.

Found a 520SE - specific manual and schematic, which shows the correct schematic including the Side-Tone Bias line. It was in hard-copy, in a batch of paperwork that came with the machine when it was delivered to me. I hadn't gone through all of it, and when I did I found the books for the SE, and for the DG-5, and the MC-50, tucked inside a folder in the bottom of the pile.

It appears to me that all I really need to is to tack-solder another 100K resistor onto the appropriate point on this board, and tie the wire which leads to Q6 to the other end of the resistor, to fix this little problem.

Anyone disagree? Any better ideas? Since the boards are "the same" yet quite different in this one respect, I don't see a lot of other choices unless I start from scratch with another board from

BOB (!! Not Ken!! SORRY BOB!! I am hideous with names, always have been... And I still appreciate the good price on the board you sent.)

I am not really up for waiting for another mailing, sending this one back, unsoldering and re-soldering all those wires yet again... This has gone on quite long enough, so far as I am (and my WIFE is!) concerned. It's going to have to get a closed case and a clean work-area pretty soon, to get it out of the way. And avoid the wifely wrath.

Unless there are better suggestions, I'll give the modification (added resistor) a try tomorrow.

Thanks in advance.

--
Wes Will
N9KDY

44522. Re: [TS-520_820_530_830] Replacing the Power Rectifier Board - 520SE. Follow-up.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 04:29:26 UTC
From: Wes Will
Topic: 44440 Message: 44522

On 09/13/2013 10:56 PM, n6wk@... wrote:
> Check voltage on the base of Q6 Look for 2.2 volts.

Umm.... It's the entire rectifier board I'm replacing, sure and begorrah. There won't be ANY voltage, anywhere, until I get the power supply section back in there.

But once I'm done, I will check for that 2.2 volts. And hope I find it there.

Since I keep hearing a deafening silence, the 100K resistor tack-job it shall be.

Tomorrow. Not tonight. Too close to midnight at the moment to be working on anything like this. Tomorrow, when I'm more alert.

--
Wes Will
N9KDY

44523. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 07:56:33 UTC
From: Dave & Loraine
Topic: 44489 Message: 44523

Mike,
Yes. The subject is TS-830S but my question was "Does the 830 have a differnt mic amp to the 820?"
73 dave f4eyk

44524. Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 11:18:30 UTC
From: Mike
Topic: 44489 Message: 44524

Dave,

Each of the Kenwood hybrid operator's manuals has a specification sheet/page that states the microphone impedance value/range. This page typically is at thefront of the manual.

73
Mike W5RKL

On 9/14/2013 2:56 AM, Dave & Loraine wrote:
>
> Mike,
> Yes. The subject is TS-830S but my question was "Does the 830 have a
> differnt mic amp to the 820?"
> 73 dave f4eyk
>

44525. RE: Re: [TS-520_820_530_830] Replacing the Power Rectifier Board - 520SE. Follow-up.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 11:47:35 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44525

I am a little confused. Are you replacing a 520SE HV Rect board with one from a TS-520?

If so, the two 100k divider resistors needed for STB are not on the 520 rectifier board. If you look at the TS520 schematic and follow the 210A terminal post leads you will see the two 100k resistors. They are shown just below the Indicator Board. Physically they are mounted on a phenolic terminal strip next to one of the 6146 finals. A yellow wire from 210A feeds them and a brown wire takes the approx +105vdc and feeds the STB wire wrap post on the Audio board.

The 520, 520S and 520SE all use same RC Phase Shift Side Tone Oscillator circuit. All have an STB line that is originated from 210A on the HV rectifier board.

STB is Side Tone Bias. It should be approx +105vdc at the STB terminal on the Audio board. STB works in conjunction with KEY to forward bias Diode D3 inserted in the RC Phase Shift Network of the Side Tone Oscillator. You can Google on RC phase shift network oscillators to see how they work. You will also find a formula to use that you can plug in the RC values and calculate the frequency. In this case .012uf and 10k ohms. Some folks dont like the approx 750hz tone and change these values.

D3 is there to open and close this RC network that provides regenerative feedback from the Collector to the Base of the Q6 Oscillator. D3 switch is one of the means that they make sure that the oscillator does not run when the code key is up.

STB provides +105vdc thru a 1meg series dropping resistor to the anode of D3. KEY supplies -67vdc thru a 220k series dropping resistor to the anode of D3. So you have two voltages in parallel supplied to the anode of D3. The cathode of D3 switch is at ground potential thru a 10k resistor.

With the code key up D3 is reverse biased and turned off opening Q6 oscillator feedback path. When you press the code key Key goes to 0vdc and D3 is then forward biased by STB and the feedback path is completed. It takes STS and STE to turn on the oscillator but not relative to what STB is and what it does.

So if you have used a TS520 HV rectifier board without the two 100k divider resistors mounted outboard you will need to add them . You need to divide 210A in half to provide +105vdc at STB terminal on the Audio board. It is there in Rx and Tx modes and approx +105vdc at all times. .

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 09/13/2013 10:56 PM, n6wk@... wrote:
> Check voltage on the base of Q6 Look for 2.2 volts.

Umm.... It's the entire rectifier board I'm replacing, sure and begorrah. There won't be ANY voltage, anywhere, until I get the power supply section back in there.

But once I'm done, I will check for that 2.2 volts. And hope I find it there.

Since I keep hearing a deafening silence, the 100K resistor tack-job it shall be.

Tomorrow. Not tonight. Too close to midnight at the moment to be working on anything like this. Tomorrow, when I'm more alert.

--
Wes Will
N9KDY

44526. RE: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 12:24:15 UTC
From: <wagstw46@...>
Topic: 44489 Message: 44526

Dave:

I am not an audio amp design guy. I believe the difference in the required mic specifications between the TS820 and TS830 may have to do with the Processor design and where the processor is at in the SSB signal generation path. I dont think like most specs in the TS820 manuals that it is a mistake that it does not list the same impedance range as the TS830. However, it could simply be an an oversight and that would certainly not surprise me.

The TS820 is not an RF clipper circuit. This processor is inserted right after the 1st Mic pre-amp stage and takes the audio output from it and feeds it to the processor mic amp which then inserts the audio into a Balanced Mod along with a 455khz LO signal to produce a DSBSC signal. It then processes (compresses) this signal which is ultimately fed to the actual SSB balanced modulator.

It seems that the processor mic amp would not care or see what the mic impedance presented to the 1st mic amp is. It may all have to do with the mic amp output level that is provided to the processor?

The TS-830 uses a true RF clipper that is in the IF path so mic amps and mic Z mean nothing to this design.

Both rigs use a similar single transistor mic pre-amp circuits. You can look at the component values and the active device and see some differences but as I said not a audio guy.

I think if you measure the output of each 1st mic amp you may see some difference in level for the same position of the mic gain pot? However you would think they would deal with that at the mic amp that directly feeds the processor balanced modulator and not at the 1st mic amp.

Again this is not what I know. Just suggesting it may be a reason for specifying the high Z mic for the TS820 which I understand is your question and a good one.

Maybe someday if I get curious enough I can inject 5mv 1500hz into each mic input and follow the levels thru each rig for a given mic gain pot setting. Could also connect a MC-50 on low Z setting to my TS820 and measure the levels in the processor chain and compare to when the high Z setting is used.

Another rainy day science project!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Mike,

Yes. The subject is TS-830S but my question was "Does the 830 have a differnt mic amp to the 820?"

73 dave f4eyk

44527. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 13:32:01 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44527

Chris if you are loading to 60 watts output now in CW mode with the new Driver tube that is progress.

If you load to 60 watts output and then flip to SSB and modulate the rig it would be normal to see no more than 15 to 20 watts on voice peaks on an average reading wattmeter. Of course audio should not sound garbled. Sometimes audio wont sound good if the receiving rig in the shack is close to the transmitting rig and is being overloaded. Have you removed ant to the receiver or turned on rf attenuator to see if it helps with the audio quality?

At 60 watts output in CW you will not see any ALC if you flip from IP back to ALC position. This is because you will have less than 30rms rf drive volts on Pin 5 of the finals at 60 watts output. 30 x 1.414 = 42 peak rf volts. Your operating bias is - 49vdc. You cannot expect +42 volts of rf drive to overcome -49 volts of bias. There can be no ALC indication if there is no grid current flowing on positive peaks of the rf drive envelope. To really understand where you are at you need to be able to measure the operating dc bias voltage and the RF drive voltage at the 6146 control grids.

When you go to USB and modulate the rig now you will get spikes of RF drive voltage at Pin 5 that will overcome the -49vdc bias offset and cause the ALC meter to deflect up scale. If you whistle in the mic may even peg the ALC indication.

Car pot level and mic gain unbalance the Balanced Modulator in different ways and can be comparing apples to oranges depending on Car level set point and mic gain set point and how hard you are talking the rig up.

As to bad audio. You could have bad audio but absent a 2 tone test an on air report would be better assessment.

As to getting power output up to approx 100 watts have you performed a good coil pack alignment as detailed in the maintenance section of your operating manual?

Could also have soft finals or low DC voltages on the finals?

Sure wish you had a means to measure RF drive levels. In 10 minutes you would know where you do not have spec RF drive at. Then it is typically relatively easy to determine what is wrong once you know what stage you are dealing with.

Absent test gear all you can do is shine a flash lite, sniff, tap and probe, mess with molex connectors, spray contact cleaner, change driver and final tubes etc. That is all fine, but at some point you have to troubleshoot by making some simple and quick measurements.

It will save you needless hours and much frustration when you can build up a modest test bench.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ok, I tried a couple of different driver tubes now. With on RCA that appeared to be NOS, I doubled my output power to 20W, but no ALC deflection in tune. With a generic tube I am getting 60W out in CW. However, still no ALC deflection in TUN mode. No matter what the settings. The ALC meter does deflect in USB/LSB. I would say that the meter function seems normal. I get very little power out in SSB, and using a dummy load and my little FT-817 for a monitor, the audio sounds pretty crappy.

Hope this helps the trouble shooting process.
73 de KQ6UP
Chris

On Wed, Sep 11, 2013 at 2:44 PM, Chris Maness <chris@...> wrote:

When you say you are getting 10 watts output in SSB mode are you saying when you key the mic in SSB with mic gain turned all the way down you are getting out 10 watts? OR

I am getting 10W peaks. No carrier present. I think I remember aligning the radio when I first got it. It is pretty much working ok, but with low power.

Are you saying while modulating the rig in SSB mode (speaking into the microphone with the mic gain turned up to approx 1200) that you only see about 10 watts on voice peaks?

Yes.

These are two very different things. 10 watts on voice peaks is a little low but it depends on your mic, the mic gain setting, how you are talking in to it and a little with the ballistic characteristics of your wattmeter.

If it is the former then the Balanced Modulator carrier null/balance is probably out of adjustment assuming no problem with the ring diodes. You will need to adjust TC-1 and VR-2 on the Generator board to null and balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or O-scope to do this. We can help you perform this step. Another way to do it is with a separate receiver sitting near the 520 but not as sensitive, but probably OK at this po! int to get it close.

Yes, it is balanced. See above.

If it is the later then with rig loaded to 100 watts output it is normal to see peaks of no more than 25 to 30 watts maximum on an average reading wattmeter as you modulate the rig. If you had ALC indication would tell you to adjust mic gain to keep ALC indication within middle of the black rectangular box. Your manual will tell you to keep the peaks within the upper limit of the range. This is to prevent splatter to adjacent frequencies.

Yes, got it. Just like most other SSB rigs.

With the rig in LSB or USB you should be able to key the mic or flip to send and have no RF output power until you speak in the Mic. The Car Level pot has nothing to do with this. It can be set anywhere and have no effect on SSB power output.

Yes, no power unless modulation is present.

When you say your audio is distorted are you saying your transmit audio or receive audio? If transmit then I would perform the carrier null/balance as a first step.

When I increase the mic gain, but this could be the said splatter. I am not going to worry about this until I can get the rig to put out more power and a proper ALC reading.

Yes you can use a DMM but it is not as good for peaking and nulling as an analog meter is. It will work if that is what you have. Also, depending on your DMM it may not be 10meg input and not good for much more than measuring things like dc power supply voltages and some of the tube dc voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A cheap Harbor Freight has an input Z of under 1 meg and some of the Lowes/Sears/Home Depot are around 2meg. They are for electricians and not electronic work.

Got it. For peaking. I had one when I was a teenager. I think I saw it at my parents house. I have not messed with it since the 80's.

Terry K9TW

Thanks,
Chris Maness

1.

--- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:

Two more questions. Why would it only put out power in CW when the CAR is fully CCW (0 position)? If I increase it at all I loose all power to the antenna. At full CCW I get 10W out. This seems strange to me. However, under NO conditions do I get an ALC deflection (in TUN or CW). I have not messed with the ALC in SSB. However, I only get about 10W out in SSB too. Audio is also a bit on the crappy side. I suppose loss in linearity of the driver tube could explain the bad audio.

Can I use my modern DVM in place of a VTVM? I might have an oldy at my parent's house if they have not tossed it.

Thanks,
Chris

On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:

On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:

Chris:

I tried to respond but have not seen it yet so not sure what happened. I dont like this new format. Hard to teach old dog new tricks/.

So let me restate to make sure I fully understand.

You are telling me that you had the SG switch off, the Heaters on, in CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at 1200 or No 5 position. When you flip to s! end and peak the Drive control thru its complete range that you get no ALC indication on any band. If that is true then most likely problem is:

Yes, you have understood me correctly I did the test 100% per your instruction. I also did the test as if I was following the tuning procedure to peak the driver as per the manual. I did this in TUN mode. Every single band showed no deflection when the CAR was at 5 and also at 10 (fully CW). I will try to get a hold of a 12BY7A and report back.

Thank you for the flow chart below.

1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder connections at tube socket.

2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
3. A bad meter position switch contacts (not very common).

I would start by replacing the 12BY7A driver tube. Make sure rig is unplugged and let it set awhile to ensure voltage discharged off HV caps. Remove rig top cover to access tube on the RF board. Sometimes the ground strap can be galled and bonded to the metal shield. There is a full length split on the shield. Use a thin flat blade screw driver to spread the split. Carefully work the shield can off so you do not break the ground strap that is sandwiched between the glass envelope and metal can. When replacing the shield make sure the ground strap is placed back between the shield and the tube.

Here is where you need an RF Probe and VTVM. In 10 minutes you could measure the RF drive voltage at the control grids of the 6146 finals to see if you have RF drive greater than approx 39rms volts. Should be close to 46rms volts for full scale ALC deflection. If you are experienced with O-scope could use it as well. RF probe and VTVM are a must have if to service own Hybrid.

If new Driver tube doesnt help then try cleaning the Aux relay. Come back for the procedure for that.

In case you are interested for the above test to work you need the following:
1. Good 6146 final tubes. By good I mean good filament so there is cathode emission.
2. Good negative dc operating bias on the control grids of the finals. By good I mean voltage on control grids must switch from approx -100vdc cut off bias to approx -55vdc operating bias when you flip to Send. This is occurring as you stated you are able to set resting plate current to 60ma.

3. Good RF drive voltage at the control grids of the 6146 finals. By good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and -55 = approx +10 volts on positive peak of the drive envelope. This causes control grid to be positive with respect to the cathode and ! approx 40ua of grid current.

When the control grid of the 6146 final tubes becomes positive with respect to the cathode grid current will flow. When grid current flows the ALC amp transistor senses it and reduces the ALC bus voltage and reduces the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc RF-1 level the ALC meter circuit sees this and drives the meter up scale. So with any hint of grid current the ALC meter should move up scale. At approx 40ua of grid current meter should be full scale.

If the Driver tube is soft could have insufficient RF voltage swing at 6146 control grids to overcome the -55vdc bias offset. For example if Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts. So if RF drive is swinging the control grid to +55 volts on positive going peak of the drive envelope then +55 and -55 means Zero difference voltage and the control grid is not positive with respect to the cathode and there will be no grid current and no ALC indication.

Terry K9TW

73 de KQ6UP
Chris

44528. RE: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 13:57:44 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44528

I hope you meant you set the AT230 to look at the dummy load and not the antenna?

What I think you are saying is that on 40 meters and 20 meters you can load the rig into a dummy load to approx 100 watts output, but to do that you have to have the Plate load capacitor plates fully closed.ie near full CCW position.

It sounds like not getting fixed padder caps switched in parallel with the Plate Load cap. However 20 meters doesnt use a padder. The bandswitch coupler is very different in the 520 so should not be an issue with wrong tank coil tap selected.
Did you try to load on 10 meters? It requires the lowest amount of Plate load capacitance.

The antenna SWR issue has nothing to do with problem as you are loading into the dummy load. Needs to be looked at but need to fix rig first. Probably just need to trim each leg to get it resonant in portion of 40 meter band where he wants it to be.

This is a puzzle. I need to study schematic and think about it. Perhaps someone else has a thought.

Lastly, no need to use a code key or place rig in vox. When I am testing a rig on the bench I make it as simple as possible. No need to introduce additional coax jumpers etc. Just the rig, the wattmeter, and the dummy load. Did you use the AT-230 in bypass to just have the wattmeter capability? If so, that is OK. I know folks who dont operate cw who think they have to load with a key in the jack instead of using the Send switch on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all:

Thanks for your help with Jason's tuning issues.

I went over to his station to look at his TS-520. I took my dummy load, straight key and AT230 to give us a little better set up for our efforts.

Here is what we did:
1. Hooked up the AT230 and dummy load. Set the antenna to point to the dummy load
2. Band to 40m
3. Verified that the plate idling current is 60ma.
4. Went through the typical Kenwood hybrid tune up
4a. Verified starting switch positions
4b. Tune position, ALC meter, AT230 to power
4c. Peaked drive for about 2/3 meter
4d. IP meter
4e. Dipped the plate (To this point everything on the 520 meter and the AT230 power reading looked the same as it does when I tune up my 830---It all looked normal to me.)
4f. Mode to CW. VOX on
4g. Closed the key (Even with no load the IP is showing 200ma and the power out is about

70w.)
4h. I advanced the load a bit (CW), keyed the rig and dipped the plate again. The plate current was higher but the power out was lower. No matter where I set the load/dipped the plate, the highest output was with minimum load (fully CCW).
5. Tried the same procedure on 20m. Same results
6. Advancing the carrier to 225ma with the load at minimum, plate dipped, produces 100w.
7. After this I checked Jason's antenna...the SWR is about 10:1 (he is working on that). He also has resistors on order to use to construct his own dummy load.
8. We listened around the bands a bit. The radio seems to hear fine.

So...I think the problem where he wasn't getting a dip in the plate current before (previous email) was probably because the load was fully CW instead of fully CCW at that time. Trying to tune into a 10:1 antenna was probably not helping things.

Questions:
1. Thoughts on the load issue? Seems like the load range we want is somewhere beyond the minimum of what we are getting now. It is possible that the minimum setting happens to be just the load we want but that doesn't seem right.

Both Jason and I have fairly limited technical skills working inside the radio. I've done the basic stuff (cleaned relays, performed an alignment, etc.) but that is about the limit of my experience (so far---learning acquiring test equipment as things come up.)

Thanks,
Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 11, 2013 8:07 PM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may

choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.
5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10 seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.
7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication. Make sure you note where the peak is at each time. You can read it off the black plate current scale. If you have opened the plates of the Load capacitor too much (too far clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is defective and not a rig problem or you have an open down stream of the SWR bridge and and will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44529. Re: TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 14:47:50 UTC
From: Brian Allen
Topic: 44489 Message: 44529

I used tape around the head of the mic and it made a big difference. I purchased a mint mc50. I have several mics and it is at the bottom far as audio reports on my hybrids. I was very disappointed.

44530. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 15:10:55 UTC
From: Chris Maness
Topic: 44446 Message: 44530

Ok, update. I tried the 160/80/40m with the new driver. I get ALC deflection in TUN finally. I get a peak of about 40% of full scale in 160m. I get 20% of full scale in 80m, and it just barley moves at the DRIVE peak on 40m. Not even a quiver at 20m. So I am thinking my best driver is still on the flat side. I think there is a problem though. I only get deflection when the CAR is set to fully CCW. That makes me think something is broken, and will still be an issue when I get a strong driver tube.

Chris
Ok, I tried a couple of different driver tubes now. With on RCA that appeared to be NOS, I doubled my output power to 20W, but no ALC deflection in tune. With a generic tube I am getting 60W out in CW. However, still no ALC deflection in TUN mode. No matter what the settings. The ALC meter does deflect in USB/LSB. I would say that the meter function seems normal. I get very little power out in SSB, and using a dummy load and my little FT-817 for a monitor, the audio sounds pretty crappy.

Hope this helps the trouble shooting process.
73 de KQ6UP
Chris

On Wed, Sep 11, 2013 at 2:44 PM, Chris Maness <chris@...> wrote:

>
>>
>> When you say you are getting 10 watts output in SSB mode are you saying
>> when you key the mic in SSB with mic gain turned all the way down you are
>> getting out 10 watts? OR
>>
>
> I am getting 10W peaks. No carrier present. I think I remember aligning
> the radio when I first got it. It is pretty much working ok, but with low
> power.
>
>>
>> Are you saying while modulating the rig in SSB mode (speaking into the
>> microphone with the mic gain turned up to approx 1200) that you only see
>> about 10 watts on voice peaks?
>>
>
> Yes.
>
>>
>> These are two very different things. 10 watts on voice peaks is a little
>> low but it depends on your mic, the mic gain setting, how you are talking

>> in to it and a little with the ballistic characteristics of your wattmeter.
>>
>>
>> If it is the former then the Balanced Modulator carrier null/balance is
>> probably out of adjustment assuming no problem with the ring diodes. You
>> will need to adjust TC-1 and VR-2 on the Generator board to null and
>> balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or
>> O-scope to do this. We can help you perform this step. Another way to do it
>> is with a separate receiver sitting near the 520 but not as sensitive, but
>> probably OK at this po! int to get it close.
>>
>>
>>
> Yes, it is balanced. See above.
>
>
>> If it is the later then with rig loaded to 100 watts output it is normal
>> to see peaks of no more than 25 to 30 watts maximum on an average reading
>> wattmeter as you modulate the rig. If you had ALC indication would tell you
>> to adjust mic gain to keep ALC indication within middle of the black
>> rectangular box. Your manual will tell you to keep the peaks within the
>> upper limit of the range. This is to prevent splatter to adjacent
>> frequencies.
>>
>
> Yes, got it. Just like most other SSB rigs.
>
>>
>> With the rig in LSB or USB you should be able to key the mic or flip to
>> send and have no RF output power until you speak in the Mic. The Car Level
>> pot has nothing to do with this. It can be set anywhere and have no effect
>> on SSB power output.
>>
>
> Yes, no power unless modulation is present.
>
>>
>> When you say your audio is distorted are you saying your transmit audio
>> or receive audio? If transmit then I would perform the carrier null/balance
>> as a first step.
>>
> When I increase the mic gain, but this could be the said splatter. I am
> not going to worry about this until I can get the rig to put out more power
> and a proper ALC reading.
>
>>
>> Yes you can use a DMM but it is not as good for peaking and nulling as an
>> analog meter is. It will work if that is what you have. Also, depending on
>> your DMM it may not be 10meg input and not good for much more than
>> measuring things like dc power supply voltages and some of the tube dc

>> voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A
>> cheap Harbor Freight has an input Z of under 1 meg and some of the
>> Lowes/Sears/Home Depot are around 2meg. They are for electricians and not
>> electronic work.
>>
>
> Got it. For peaking. I had one when I was a teenager. I think I saw it
> at my parents house. I have not messed with it since the 80's.
>
>>
>> Terry K9TW
>>
>>
>> Thanks,
> Chris Maness
>
>
>>
>> 1.
>>
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>> --- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:
>>
>> Two more questions. Why would it only put out power in CW when the CAR
>> is fully CCW (0 position)? If I increase it at all I loose all power to
>> the antenna. At full CCW I get 10W out. This seems strange to me.
>> However, under NO conditions do I get an ALC deflection (in TUN or CW). I
>> have not messed with the ALC in SSB. However, I only get about 10W out in
>> SSB too. Audio is also a bit on the crappy side. I suppose loss in
>> linearity of the driver tube could explain the bad audio.
>>
>> Can I use my modern DVM in place of a VTVM? I might have an oldy at my
>> parent's house if they have not tossed it.
>>
>> Thanks,
>> Chris
>>
>>
>> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:
>>
>>
>>>
>>>
>>> On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:
>>>
>>>>
>>>>
>>>> Chris:
>>>>
>>>>

>>>> I tried to respond but have not seen it yet so not sure what happened.
>>>> I dont like this new format. Hard to teach old dog new tricks/.
>>>>
>>>>
>>>> So let me restate to make sure I fully understand.
>>>>
>>>>
>>>> You are telling me that you had the SG switch off, the Heaters on, in
>>>> CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than
>>>> at 1200 or No 5 position. When you flip to s! end and peak the Drive
>>>> control thru its complete range that you get no ALC indication on any band.
>>>> If that is true then most likely problem is:
>>>>
>>>
>>> Yes, you have understood me correctly I did the test 100% per your
>>> instruction. I also did the test as if I was following the tuning
>>> procedure to peak the driver as per the manual. I did this in TUN mode.
>>> Every single band showed no deflection when the CAR was at 5 and also at
>>> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.
>>>
>>> Thank you for the flow chart below.
>>>
>>>
>>>>
>>>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>>>> connections at tube socket.
>>>>
>>>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>>>
>>>> 3. A bad meter position switch contacts (not very common).
>>>>
>>>>
>>>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>>>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
>>>> Remove rig top cover to access tube on the RF board. Sometimes the ground
>>>> strap can be galled and bonded to the metal shield. There is a full length
>>>> split on the shield. Use a thin flat blade screw driver to spread the
>>>> split. Carefully work the shield can off so you do not break the ground
>>>> strap that is sandwiched between the glass envelope and metal can. When
>>>> replacing the shield make sure the ground strap is placed back between the
>>>> shield and the tube.
>>>>
>>>>
>>>> Here is where you need an RF Probe and VTVM. In 10 minutes you could
>>>> measure the RF drive voltage at the control grids of the 6146 finals to see
>>>> if you have RF drive greater than approx 39rms volts. Should be close to
>>>> 46rms volts for full scale ALC deflection. If you are experienced with
>>>> O-scope could use it as well. RF probe and VTVM are a must have if to
>>>> service own Hybrid.
>>>>

>>>>
>>>> If new Driver tube doesnt help then try cleaning the Aux relay. Come
>>>> back for the procedure for that.
>>>>
>>>>
>>>> In case you are interested for the above test to work you need the
>>>> following:
>>>>
>>>> 1. Good 6146 final tubes. By good I mean good filament so there is
>>>> cathode emission.
>>>>
>>>> 2. Good negative dc operating bias on the control grids of the finals.
>>>> By good I mean voltage on control grids must switch from approx -100vdc cut
>>>> off bias to approx -55vdc operating bias when you flip to Send. This is
>>>> occurring as you stated you are able to set resting plate current to 60ma.
>>>>
>>>> 3. Good RF drive voltage at the control grids of the 6146 finals. By
>>>> good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and
>>>> -55 = approx +10 volts on positive peak of the drive envelope. This causes
>>>> control grid to be positive with respect to the cathode and ! approx 40ua
>>>> of grid current.
>>>>
>>>>
>>>> When the control grid of the 6146 final tubes becomes positive with
>>>> respect to the cathode grid current will flow. When grid current flows the
>>>> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
>>>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>>>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
>>>> So with any hint of grid current the ALC meter should move up scale. At
>>>> approx 40ua of grid current meter should be full scale.
>>>>
>>>>
>>>> If the Driver tube is soft could have insufficient RF voltage swing at
>>>> 6146 control grids to overcome the -55vdc bias offset. For example if
>>>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>>>> So if RF drive is swinging the control grid to +55 volts on positive going
>>>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>>>> and the control grid is not positive with respect to the cathode and there
>>>> will be no grid current and no ALC indication.
>>>>
>>>>
>>>> Terry K9TW
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>>>
>>> 73 de KQ6UP
>>> Chris
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44531. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 16:35:02 UTC
From: Chris Maness
Topic: 44446 Message: 44531

Another update. On air reports state my audio sounds distorted. It does sound better with the ATT on my monitor radio, but I am getting bad audio reports from distant stations. I am so bummed. This radio has the nicest receive audio I have ever heard on SSB. I hope I can get this ironed out.

Thanks,
Chris KQ6UP

On Sat, Sep 14, 2013 at 8:10 AM, Chris Maness <chris@...> wrote:

> Ok, update. I tried the 160/80/40m with the new driver. I get ALC
> deflection in TUN finally. I get a peak of about 40% of full scale in
> 160m. I get 20% of full scale in 80m, and it just barley moves at the
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> no ALC deflection in TUN mode. No matter what the settings. The ALC meter
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> I get very little power out in SSB, and using a dummy load and my little
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>>> is with a separate receiver sitting near the 520 but not as sensitive, but
>>> probably OK at this po! int to get it close.
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>> Yes, it is balanced. See above.
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>>> If it is the later then with rig loaded to 100 watts output it is normal
>>> to see peaks of no more than 25 to 30 watts maximum on an average reading
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>>> on your DMM it may not be 10meg input and not good for much more than
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>>>>>
>>>>> So let me restate to make sure I fully understand.
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>>>>> You are telling me that you had the SG switch off, the Heaters on, in
>>>>> CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than
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>>>>> control thru its complete range that you get no ALC indication on any band.
>>>>> If that is true then most likely problem is:
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>>>> Every single band showed no deflection when the CAR was at 5 and also at
>>>> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.
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>>>> Thank you for the flow chart below.
>>>>
>>>>>
>>>>>
>>>>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>>>>> connections at tube socket.
>>>>>
>>>>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>>>>
>>>>> 3. A bad meter position switch contacts (not very common).
>>>>>
>>>>>
>>>>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>>>>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
>>>>> Remove rig top cover to access tube on the RF board. Sometimes the ground
>>>>> strap can be galled and bonded to the metal shield. There is a full length
>>>>> split on the shield. Use a thin flat blade screw driver to spread the
>>>>> split. Carefully work the shield can off so you do not break the ground
>>>>> strap that is sandwiched between the glass envelope and metal can. When

>>>>> replacing the shield make sure the ground strap is placed back between the
>>>>> shield and the tube.
>>>>>
>>>>>
>>>>> Here is where you need an RF Probe and VTVM. In 10 minutes you could
>>>>> measure the RF drive voltage at the control grids of the 6146 finals to see
>>>>> if you have RF drive greater than approx 39rms volts. Should be close to
>>>>> 46rms volts for full scale ALC deflection. If you are experienced with
>>>>> O-scope could use it as well. RF probe and VTVM are a must have if to
>>>>> service own Hybrid.
>>>>>
>>>>>
>>>>> If new Driver tube doesnt help then try cleaning the Aux relay. Come
>>>>> back for the procedure for that.
>>>>>
>>>>>
>>>>> In case you are interested for the above test to work you need the
>>>>> following:
>>>>>
>>>>> 1. Good 6146 final tubes. By good I mean good filament so there is
>>>>> cathode emission.
>>>>>
>>>>> 2. Good negative dc operating bias on the control grids of the finals.
>>>>> By good I mean voltage on control grids must switch from approx -100vdc cut
>>>>> off bias to approx -55vdc operating bias when you flip to Send. This is
>>>>> occurring as you stated you are able to set resting plate current to 60ma.
>>>>>
>>>>> 3. Good RF drive voltage at the control grids of the 6146 finals. By
>>>>> good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and
>>>>> -55 = approx +10 volts on positive peak of the drive envelope. This causes
>>>>> control grid to be positive with respect to the cathode and ! approx 40ua
>>>>> of grid current.
>>>>>
>>>>>
>>>>> When the control grid of the 6146 final tubes becomes positive with
>>>>> respect to the cathode grid current will flow. When grid current flows the
>>>>> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
>>>>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>>>>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
>>>>> So with any hint of grid current the ALC meter should move up scale. At
>>>>> approx 40ua of grid current meter should be full scale.
>>>>>
>>>>>
>>>>> If the Driver tube is soft could have insufficient RF voltage swing at
>>>>> 6146 control grids to overcome the -55vdc bias offset. For example if
>>>>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>>>>> So if RF drive is swinging the control grid to +55 volts on positive going
>>>>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>>>>> and the control grid is not positive with respect to the cathode and there
>>>>> will be no grid current and no ALC indication.

>>>>>
>>>>>
>>>>> Terry K9TW
>>>>>
>>>>
>>>> 73 de KQ6UP
>>>> Chris
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44532. 12BY7A Brand Recommendations?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 16:36:43 UTC
From: Chris Maness
Topic: 44532 Message: 44532

I need a new driver tube, and I see that there are many brands on the auction site. What brand/brands play well with the TS-520S?

Thanks,
Chris Maness KQ6UP

44533. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 17:38:47 UTC
From: Chris Maness
Topic: 44446 Message: 44533

Question. Would the fact that I am using a MC-30S mike cause an issue? I
don't own the original MC-50.

Thanks,
Chris KQ6UP

On Sat, Sep 14, 2013 at 9:35 AM, Chris Maness <chris@...> wrote:

> Another update. On air reports state my audio sounds distorted. It does
> sound better with the ATT on my monitor radio, but I am getting bad audio
> reports from distant stations. I am so bummed. This radio has the nicest
> receive audio I have ever heard on SSB. I hope I can get this ironed out.
>
> Thanks,
> Chris KQ6UP
>
>
> On Sat, Sep 14, 2013 at 8:10 AM, Chris Maness <chris@...>wrote:
>
>> Ok, update. I tried the 160/80/40m with the new driver. I get ALC
>> deflection in TUN finally. I get a peak of about 40% of full scale in
>> 160m. I get 20% of full scale in 80m, and it just barley moves at the
>> DRIVE peak on 40m. Not even a quiver at 20m. So I am thinking my best
>> driver is still on the flat side. I think there is a problem though. I
>> only get deflection when the CAR is set to fully CCW. That makes me think
>> something is broken, and will still be an issue when I get a strong driver
>> tube.
>>
>> Chris
>> Ok, I tried a couple of different driver tubes now. With on RCA that
>> appeared to be NOS, I doubled my output power to 20W, but no ALC deflection
>> in tune. With a generic tube I am getting 60W out in CW. However, still
>> no ALC deflection in TUN mode. No matter what the settings. The ALC meter
>> does deflect in USB/LSB. I would say that the meter function seems normal.
>> I get very little power out in SSB, and using a dummy load and my little
>> FT-817 for a monitor, the audio sounds pretty crappy.
>>
>> Hope this helps the trouble shooting process.
>> 73 de KQ6UP
>> Chris
>>
>>
>> On Wed, Sep 11, 2013 at 2:44 PM, Chris Maness <chris@...>wrote:
>>
>>>
>>>>

>>>> When you say you are getting 10 watts output in SSB mode are you saying
>>>> when you key the mic in SSB with mic gain turned all the way down you are
>>>> getting out 10 watts? OR
>>>>
>>>
>>> I am getting 10W peaks. No carrier present. I think I remember
>>> aligning the radio when I first got it. It is pretty much working ok, but
>>> with low power.
>>>
>>>>
>>>> Are you saying while modulating the rig in SSB mode (speaking into the
>>>> microphone with the mic gain turned up to approx 1200) that you only see
>>>> about 10 watts on voice peaks?
>>>>
>>>
>>> Yes.
>>>
>>>>
>>>> These are two very different things. 10 watts on voice peaks is a
>>>> little low but it depends on your mic, the mic gain setting, how you are
>>>> talking in to it and a little with the ballistic characteristics of your
>>>> wattmeter.
>>>>
>>>>
>>>> If it is the former then the Balanced Modulator carrier null/balance
>>>> is probably out of adjustment assuming no problem with the ring diodes. You
>>>> will need to adjust TC-1 and VR-2 on the Generator board to null and
>>>> balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or
>>>> O-scope to do this. We can help you perform this step. Another way to do it
>>>> is with a separate receiver sitting near the 520 but not as sensitive, but
>>>> probably OK at this po! int to get it close.
>>>>
>>>>
>>>>
>>> Yes, it is balanced. See above.
>>>
>>>
>>>> If it is the later then with rig loaded to 100 watts output it is
>>>> normal to see peaks of no more than 25 to 30 watts maximum on an average
>>>> reading wattmeter as you modulate the rig. If you had ALC indication would
>>>> tell you to adjust mic gain to keep ALC indication within middle of the
>>>> black rectangular box. Your manual will tell you to keep the peaks within
>>>> the upper limit of the range. This is to prevent splatter to adjacent
>>>> frequencies.
>>>>
>>>
>>> Yes, got it. Just like most other SSB rigs.
>>>
>>>>
>>>> With the rig in LSB or USB you should be able to key the mic or flip to

>>>> send and have no RF output power until you speak in the Mic. The Car Level
>>>> pot has nothing to do with this. It can be set anywhere and have no effect
>>>> on SSB power output.
>>>>
>>>
>>> Yes, no power unless modulation is present.
>>>
>>>>
>>>> When you say your audio is distorted are you saying your transmit audio
>>>> or receive audio? If transmit then I would perform the carrier null/balance
>>>> as a first step.
>>>>
>>> When I increase the mic gain, but this could be the said splatter. I am
>>> not going to worry about this until I can get the rig to put out more power
>>> and a proper ALC reading.
>>>
>>>>
>>>> Yes you can use a DMM but it is not as good for peaking and nulling as
>>>> an analog meter is. It will work if that is what you have. Also, depending
>>>> on your DMM it may not be 10meg input and not good for much more than
>>>> measuring things like dc power supply voltages and some of the tube dc
>>>> voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A
>>>> cheap Harbor Freight has an input Z of under 1 meg and some of the
>>>> Lowes/Sears/Home Depot are around 2meg. They are for electricians and not
>>>> electronic work.
>>>>
>>>
>>> Got it. For peaking. I had one when I was a teenager. I think I saw
>>> it at my parents house. I have not messed with it since the 80's.
>>>
>>>>
>>>> Terry K9TW
>>>>
>>>>
>>>> Thanks,
>>> Chris Maness
>>>
>>>
>>>>
>>>> 1.
>>>>
>>>>
>>>> --- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:
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>>>> Two more questions. Why would it only put out power in CW when the CAR
>>>> is fully CCW (0 position)? If I increase it at all I loose all power to
>>>> the antenna. At full CCW I get 10W out. This seems strange to me.
>>>> However, under NO conditions do I get an ALC deflection (in TUN or CW). I
>>>> have not messed with the ALC in SSB. However, I only get about 10W out in
>>>> SSB too. Audio is also a bit on the crappy side. I suppose loss in

>>>> linearity of the driver tube could explain the bad audio.
>>>>
>>>> Can I use my modern DVM in place of a VTVM? I might have an oldy at my
>>>> parent's house if they have not tossed it.
>>>>
>>>> Thanks,
>>>> Chris
>>>>
>>>>
>>>> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:
>>>>
>>>>
>>>>>
>>>>>
>>>>> On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:
>>>>>
>>>>>>
>>>>>>
>>>>>> Chris:
>>>>>>
>>>>>>
>>>>>> I tried to respond but have not seen it yet so not sure what
>>>>>> happened. I dont like this new format. Hard to teach old dog new tricks/.
>>>>>>
>>>>>>
>>>>>> So let me restate to make sure I fully understand.
>>>>>>
>>>>>>
>>>>>> You are telling me that you had the SG switch off, the Heaters on, in
>>>>>> CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than
>>>>>> at 1200 or No 5 position. When you flip to s! end and peak the Drive
>>>>>> control thru its complete range that you get no ALC indication on any band.
>>>>>> If that is true then most likely problem is:
>>>>>>
>>>>>
>>>>> Yes, you have understood me correctly I did the test 100% per your
>>>>> instruction. I also did the test as if I was following the tuning
>>>>> procedure to peak the driver as per the manual. I did this in TUN mode.
>>>>> Every single band showed no deflection when the CAR was at 5 and also at
>>>>> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.
>>>>>
>>>>> Thank you for the flow chart below.
>>>>>
>>>>>
>>>>>>
>>>>>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>>>>>> connections at tube socket.
>>>>>>
>>>>>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>>>>>

>>>>>> 3. A bad meter position switch contacts (not very common).
>>>>>>
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>>>>>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>>>>>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
>>>>>> Remove rig top cover to access tube on the RF board. Sometimes the ground
>>>>>> strap can be galled and bonded to the metal shield. There is a full length
>>>>>> split on the shield. Use a thin flat blade screw driver to spread the
>>>>>> split. Carefully work the shield can off so you do not break the ground
>>>>>> strap that is sandwiched between the glass envelope and metal can. When
>>>>>> replacing the shield make sure the ground strap is placed back between the
>>>>>> shield and the tube.
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>>>>>> Here is where you need an RF Probe and VTVM. In 10 minutes you could
>>>>>> measure the RF drive voltage at the control grids of the 6146 finals to see
>>>>>> if you have RF drive greater than approx 39rms volts. Should be close to
>>>>>> 46rms volts for full scale ALC deflection. If you are experienced with
>>>>>> O-scope could use it as well. RF probe and VTVM are a must have if to
>>>>>> service own Hybrid.
>>>>>>
>>>>>>
>>>>>> If new Driver tube doesnt help then try cleaning the Aux relay. Come
>>>>>> back for the procedure for that.
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>>>>>> In case you are interested for the above test to work you need the
>>>>>> following:
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>>>>>> 1. Good 6146 final tubes. By good I mean good filament so there is
>>>>>> cathode emission.
>>>>>>
>>>>>> 2. Good negative dc operating bias on the control grids of the
>>>>>> finals. By good I mean voltage on control grids must switch from approx
>>>>>> -100vdc cut off bias to approx -55vdc operating bias when you flip to Send.
>>>>>> This is occurring as you stated you are able to set resting plate current
>>>>>> to 60ma.
>>>>>>
>>>>>> 3. Good RF drive voltage at the control grids of the 6146 finals. By
>>>>>> good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and
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>>>>>> control grid to be positive with respect to the cathode and ! approx 40ua
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>>>>>> When the control grid of the 6146 final tubes becomes positive with
>>>>>> respect to the cathode grid current will flow. When grid current flows the
>>>>>> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
>>>>>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>>>>>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.

>>>>>> So with any hint of grid current the ALC meter should move up scale. At
>>>>>> approx 40ua of grid current meter should be full scale.
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>>>>>> If the Driver tube is soft could have insufficient RF voltage swing
>>>>>> at 6146 control grids to overcome the -55vdc bias offset. For example if
>>>>>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>>>>>> So if RF drive is swinging the control grid to +55 volts on positive going
>>>>>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>>>>>> and the control grid is not positive with respect to the cathode and there
>>>>>> will be no grid current and no ALC indication.
>>>>>>
>>>>>>
>>>>>> Terry K9TW
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>>>>>
>>>>> 73 de KQ6UP
>>>>> Chris
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44534. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 17:53:43 UTC
From: Don Cunningham
Topic: 44446 Message: 44534

Chris,

Remember, all these microphones are getting OLD and many do have bad elements. Also, "on air audio reports" are suspect. Terry or whoever mentioned it is very correct in asking you to check yourself on a monitor receiver. If you have the opportunity, try another microphone. The "treasured" MC-50 you buy may or may not be any better than what you have. I have a shelf full of good looking microphones that sound VERY bad as the elements are shot.

I have the best luck monitoring myself by transmitting into a dummy load and trailing a short piece of any wire along the shelf from the monitor receiver. ALWAYS use headphones when monitoring yourself so you can hear the signal well. Make SURE you are on the same frequency as your transmitting rig (tune through the signal and see if you can hear a "sweet spot").

The next best test is to ask a ham close to you that knows what you sound like "live" to listen and comment. This is still VERY objective, as some like really bassy sound, some like more highs for "clarity". Each will likely give you a different report. You are the chief engineer and have to decide when you sound good to yourself!! Last tip: I often ask my wife of 45 years to put on the headphones and tell me if it sounds like me on the monitor receiver. She knows what I sound like best :>).
73,
Don, WB5HAK
On 9/14/2013 12:38 PM, Chris Maness wrote:
> Question. Would the fact that I am using a MC-30S mike cause an
> issue? I don't own the original MC-50.
>
> Thanks,
> Chris KQ6UP
>
>
> On Sat, Sep 14, 2013 at 9:35 AM, Chris Maness <chris@...
> <mailto:chris@...>> wrote:
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> Another update. On air reports state my audio sounds distorted.
> It does sound better with the ATT on my monitor radio, but I am
> getting bad audio reports from distant stations. I am so bummed.
> This radio has the nicest receive audio I have ever heard on SSB.
> I hope I can get this ironed out.
>
> Thanks,
> Chris KQ6UP

>
>
> On Sat, Sep 14, 2013 at 8:10 AM, Chris Maness
> <chris@... <mailto:chris@...>> wrote:
>
> Ok, update. I tried the 160/80/40m with the new driver. I
> get ALC deflection in TUN finally. I get a peak of about 40%
> of full scale in 160m. I get 20% of full scale in 80m, and it
> just barley moves at the DRIVE peak on 40m. Not even a quiver
> at 20m. So I am thinking my best driver is still on the flat
> side. I think there is a problem though. I only get
> deflection when the CAR is set to fully CCW. That makes me
> think something is broken, and will still be an issue when I
> get a strong driver tube.
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> Ok, I tried a couple of different driver tubes now. With on
> RCA that appeared to be NOS, I doubled my output power to 20W,
> but no ALC deflection in tune. With a generic tube I am
> getting 60W out in CW. However, still no ALC deflection in
> TUN mode. No matter what the settings. The ALC meter does
> deflect in USB/LSB. I would say that the meter function seems
> normal. I get very little power out in SSB, and using a dummy
> load and my little FT-817 for a monitor, the audio sounds
> pretty crappy.
>
> Hope this helps the trouble shooting process.
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> <chris@... <mailto:chris@...>> wrote:
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>
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> I am getting 10W peaks. No carrier present. I think I
> remember aligning the radio when I first got it. It is
> pretty much working ok, but with low power.
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> Are you saying while modulating the rig in SSB mode
> (speaking into the microphone with the mic gain turned

> up to approx 1200) that you only see about 10 watts on
> voice peaks?
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> Yes.
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> These are two very different things. 10 watts on voice
> peaks is a little low but it depends on your mic, the
> mic gain setting, how you are talking in to it and a
> little with the ballistic characteristics of your
> wattmeter.
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> If it is the former then the Balanced Modulator
> carrier null/balance is probably out of adjustment
> assuming no problem with the ring diodes. You will
> need to adjust TC-1 and VR-2 on the Generator board to
> null and balance the carrier between LSB and USB. Will
> need RF probe and VTVM/DMM or O-scope to do this. We
> can help you perform this step. Another way to do it
> is with a separate receiver sitting near the 520 but
> not as sensitive, but probably OK at this po! int to
> get it close.
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> Yes, it is balanced. See above.
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> output it is normal to see peaks of no more than 25 to
> 30 watts maximum on an average reading wattmeter as
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> upper limit of the range. This is to prevent splatter
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> With the rig in LSB or USB you should be able to key
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> until you speak in the Mic. The Car Level pot has
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> at minimum no less than at 1200 or No 5
> position. When you flip to s! end and peak
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> that you get no ALC indication on any
> band. If that is true then most likely
> problem is:
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> Yes, you have understood me correctly I did
> the test 100% per your instruction. I also

> did the test as if I was following the tuning
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> manual. I did this in TUN mode. Every single
> band showed no deflection when the CAR was at
> 5 and also at 10 (fully CW). I will try to
> get a hold of a 12BY7A and report back.
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> Thank you for the flow chart below.
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> and bonded to the metal shield. There is a
> full length split on the shield. Use a
> thin flat blade screw driver to spread the
> split. Carefully work the shield can off
> so you do not break the ground strap that
> is sandwiched between the glass envelope
> and metal can. When replacing the shield
> make sure the ground strap is placed back
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> the 6146 finals to see if you have RF
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> Should be close to 46rms volts for full
> scale ALC deflection. If you are
> experienced with O-scope could use it as
> well. RF probe and VTVM are a must have if
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> are able to set resting plate current to
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> insufficient RF voltage swing at 6146
> control grids to overcome the -55vdc bias
> offset. For example if Driver tube is only
> capable of 39rms volts then 39 x 1.414 =
> 55 peak volts. So if RF drive is swinging

> the control grid to +55 volts on positive
> going peak of the drive envelope then +55
> and -55 means Zero difference voltage and
> the control grid is not positive with
> respect to the cathode and there will be
> no grid current and no ALC indication.
>
>
> Terry K9TW
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>
> 73 de KQ6UP
> Chris
>
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>

44535. Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 18:19:37 UTC
From: Brian Forney
Topic: 44440 Message: 44535

Hi Terry:

Thank you.

Sorry...Yes, TS-520 to AT230 to dummy load for all tuning activities. I like to watch the power meter in actual watts output when I'm tuning. Also disregard the antenna reference...this is not the right board for that but it might explain some of the earlier odd readings Jason was getting since he was trying to tune into a load that was nowhere close to 50 ohm at frequency.

Yes, on 20m and 40m maximum output was acheived with minimum load (full ccw) and plate dipped. At 200ma current output was about 70w. It acts like there is too much load even at minimum. Giving it more load and redipping the plate results in less power out. Also, at minimum load and dipped I could get 100w by increasing the carrier so that my plate current was 225ma.

Sorry we didn't try other bands (10m). I suppose plate ma and watts out at the best load on each band would be useful to figure this out. Assuming it is OK with Jason, I could go back over sometime to do that.

Lastly, about the key. I guess I have something to learn here. When I tune up I use the send switch when in tune mode. However once I am ready to adjust the load and have to switch the mode to CW, putting the transceiver in send only shows idle current. I have to close the key to get full output so that I can adjust the load and re-dip the plate at 225ma (for my TS-830). If I don't put it in VOX mode then I have to flip the switch to send AND close the key to key the transmitter while I'm trying to dip. (I'm not that coordinated so I use the VOX). Anyway, not sure how I would do that without a key. This is a side issue but if I'm doing it wrong I'd like to know.

Thanks again for all of your help,
  Brian (K7TKT)

From: "wagstw46@yahoo.com" <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 7:57 AM
Subject: RE: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

I hope you meant you set the AT230 to look at the dummy load and not the antenna?

What I think you are saying is that on 40 meters and 20 meters you can load the rig into a dummy load to approx 100 watts output, but to do that you have to have the Plate load capacitor plates fully closed.ie near full CCW position.

It sounds like not getting fixed padder caps switched in parallel with the Plate Load cap. However 20 meters doesnt use a padder. The bandswitch coupler is very different in the 520 so should not be an issue with wrong tank coil tap selected.

Did you try to load on 10 meters? It requires the lowest amount of Plate load capacitance.

The antenna SWR issue has nothing to do with problem as you are loading into the dummy load. Needs to be looked at but need to fix rig first. Probably just need to trim each leg to get it resonant in portion of 40 meter band where he wants it to be.

This is a puzzle. I need to study schematic and think about it. Perhaps someone else has a thought.

Lastly, no need to use a code key or place rig in vox. When I am testing a rig on the bench I make it as simple as possible. No need to introduce additional coax jumpers etc. Just the rig, the wattmeter, and the dummy load. Did you use the AT-230 in bypass to just have the wattmeter capability? If so, that is OK. I know folks who dont operate cw who think they have to load with a key in the jack instead of using the Send switch on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all:

Thanks for your help with Jason's tuning issues.

I went over to his station to look at his TS-520. I took my dummy load, straight key and AT230 to give us a little better set up for our efforts.

Here is what we did:
1. Hooked up the AT230 and dummy load. Set the antenna to point to the dummy load
2. Band to 40m
3. Verified that the plate idling current is 60ma.
4. Went through the typical Kenwood hybrid tune up
4a. Verified starting switch positions
4b. Tune position, ALC meter, AT230 to power
4c. Peaked drive for about 2/3 meter
4d. IP meter
4e. Dipped the plate (To this point everything on the 520 meter and the AT230 power reading looked the same as it does when I tune up my 830---It all looked normal to me.)
4f. Mode to CW. VOX on

4g. Closed the key (Even with no load the IP is showing 200ma and the power out is about 70w.)
4h. I advanced the load a bit (CW), keyed the rig and dipped the plate again. The plate current was higher but the power out was lower. No matter where I set the load/dipped the plate, the highest output was with minimum load (fully CCW).
5. Tried the same procedure on 20m. Same results
6. Advancing the carrier to 225ma with the load at minimum, plate dipped, produces 100w.
7. After this I checked Jason's antenna...the SWR is about 10:1 (he is working on that).
 He also has resistors on order to use to construct his own dummy load.

8. We listened around the bands a bit. The radio seems to hear fine.

So...I think the problem where he wasn't getting a dip in the plate current before (previous email) was probably because the load was fully CW instead of fully CCW at that time. Trying to tune into a 10:1 antenna was probably not helping things.

Questions:
1. Thoughts on the load issue? Seems like the load range we want is somewhere beyond the minimum of what we are getting now. It is possible that the minimum setting happens to be just the load we want but that doesn't seem right.

Both Jason and I have fairly limited technical skills working inside the radio. I've done the basic stuff (cleaned relays, performed an alignment, etc.) but that is about the limit of my experience (so far---learning acquiring test equipment as things come up.)

Thanks,
  Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 11, 2013 8:07 PM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.
5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10 seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.

7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication. Make sure you note where the peak is at each time. You can read it off the black plate current scale. If you have opened the plates of the Load capacitor too much (too far clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is defective and not a rig problem or you have an open down stream of the SWR bridge and and

will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>Hey guys,
>
>
>I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.
>
>
>I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.
>
>
>I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.
>
>
>I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.
>
>
>I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).
>
>
>Thank you guys in advance,
>
>Jason, K7BOG

44536. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 19:15:42 UTC
From: Don
Topic: 43772 Message: 44536

Hi Terry

Don't know if you keep separate files on posters,but here goes

Were we left off was i had only a bad audio hum and no dial light on my
Ebay special.
Update

I now have a good working audio board and dial light display and good
audio output from the test's you last asked me to do are now fine
No meter movement,but loud.
The problems are now as follows.
Sidetone fine and good audio
Moni--i can hear it but very very low,,volume turned to full output.
Calibration,can hear it but very very low,,,volume turned to full
On my SG audio good,but only S-3 meter reading.
I can hear 40 meter strong signals at night,but very very low audio.

On transmit,i can only get the 60ma reading and that's it,no output.
All voltages on the finals are fine.
All voltages on the connector's are fine.

Don/Ve2ud

On 01/08/2013 8:10 PM, Terry Wagoner wrote:
>
> Don:
>
> The other common thing to look at before you pull the RF board would
> be VCO signal level and frequency at TP-3 on RF board.
>
> In 40 meter bandswitch position you should have close to 1.0rf volts @
> 16mhz (see service manual for frequency vs VFO setting) at TP-3.
>
> VCO is the Local Oscillator (LO) for both the Transmit Mixer and the
> 1st IF Mixer (RIF). NO VCO = no TX and no RX.
>
> Terry K9TW
>
> --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@...> wrote:
> >
> > Terry
> >
> > Think it's 8mm spacing on those caps,which would be just fine.Hard to
> > find a data sheet,but will keep searching.

> > Yes i was on forty meters when the arching started and then the radio
> > went to sleep.
> > I tried my SSG on all bands,and only 40 meters did not respond.
> > I will try that later or tomorrow and report back.
> >
> > 73
> > Don/Ve2ud
> >
> >
> >
> >
> >
> >
> >
> > On 01/08/2013 4:42 PM, Terry Wagoner wrote:
> > >
> > > Don:
> > >
> > > Can you find a Phillips capacitor data sheet to see what the pin
> > > spacing is?
> > >
> > > So you are saying no RX and no TX now on 40 meters after experiencing
> > > an arc during loading the rig.
> > >
> > > Also tried injecting 40 meter signal (7.2mhz?) into SO-239 and no RX
> > > signal.
> > >
> > > Would be interesting to inject 7.2mhz at TP-4 and see if you have RX.
> > >
> > > L15 tuned circuit is switched in by the RF board bandswitch deck S1-4
> > > and is shared with the TX Mixer and RF buffer amp FET Q2.
> > >
> > > Absent this tuned circuit you wont be able to peak the RF drive at
> > > output of the TX mixer and at gate circuit of Q2. I would think you
> > > should still be able to copy sig gen signal if you injected high
> > > enough level.
> > >
> > > If it were me I would trouble shoot via signal injection/tracing
> until
> > > I found where losing it. However if it is easier for you to remove
> the
> > > board and perform visual inspection go ahead. Just be careful on
> > > aligning the two shafts on re-install. Have you replaced the S22
> nylon
> > > coupler in the PA cage? If not, then would do that at this time.
> > >
> > > Terry K9TW
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>

> > > <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@> wrote:
> > > >
> > > > Terry
> > > > No i did not bridge it,i was thinking about it.
> > > > I remembered seeing a board on Ebay,so i wanted to compare it
> first,and
> > > > then Joe confirmed it.
> > > > Waiting for a answer from Jim on parts.
> > > > This might do if he has none.
> > > > >
> > > > >
> > > >
> http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20M
M-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37
> <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20
MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37>
>
> > >
> <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20
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MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37>>
> > > >
> > > > Might be a good time to take off the RF board and check it,as it
> has no
> > > > forty meters signal,when i feed a signal in from my SSG.
> > > > When i last loaded the rig it arched badly and then all when
> silent,it
> > > > was on forty meters.
> > > > >
> > > > >
> > > > >
> > > > Don/Ve2ud
> > > > >
> > > > >
> > > > >
> > > > >
> > > > >
> > > >
> > >
> > > [Non-text portions of this message have been removed]
> >
>
>

44537. RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 19:18:32 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44537

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Thank you.

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Lastly, about the key. I guess I have something to learn here. When I tune up I use the send switch when in tune mode. However once I am ready to adjust the load and have to switch the mode to CW, putting the transceiver in send only shows idle current. I have to close the key to get full output so that I can adjust the load and re-dip the plate at 225ma (for my TS-830). If I don't put it in VOX mode then I have to flip the switch to send AND close the key to key the transmitter while I'm trying to dip. (I'm not that coordinated so I use the VOX). Anyway, not sure how I would do that without a key. This is a side issue but if I'm doing it wrong I'd like to know.

Thanks again for all of your help,
Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 7:57 AM
Subject: RE: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

I hope you meant you set the AT230 to look at the dummy load and not the antenna?

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It sounds like not getting fixed padder caps switched in parallel with the Plate Load cap. However 20 meters doesnt use a padder. The bandswitch coupler is very different in the 520 so should not be an issue with wrong tank coil tap selected.
Did you try to load on 10 meters? It requires the lowest amount of Plate load capacitance.

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This is a puzzle. I need to study schematic and think about it. Perhaps someone else has a thought.

Lastly, no need to use a code key or place rig in vox. When I am testing a rig on the bench I make it as simple as possible. No need to introduce additional coax jumpers etc. Just the rig, the wattmeter, and the dummy load. Did you use the AT-230 in bypass to just have the wattmeter capability? If so, that is OK. I know folks who dont operate cw who think they have to load with a key in the jack instead of using the Send switch on the front panel.

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4a. Verified starting switch positions
4b. Tune position, ALC meter, AT230 to power
4c. Peaked drive for about 2/3 meter
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4e. Dipped the plate (To this point everything on the 520 meter and the AT230 power reading looked the same as it does when I tune up my 830---It all looked normal to me.)
4f. Mode to CW. VOX on
4g. Closed the key (Even with no load the IP is showing 200ma and the power out is about 70w.)
4h. I advanced the load a bit (CW), keyed the rig and dipped the plate again. The plate current was higher but the power out was lower. No matter where I set the load/dipped the plate, the highest output was with minimum load (fully CCW).
5. Tried the same procedure on 20m. Same results
6. Advancing the carrier to 225ma with the load at minimum, plate dipped, produces 100w.
7. After this I checked Jason's antenna...the SWR is about 10:1 (he is working on that). He also has resistors on order to use to construct his own dummy load.

8. We listened around the bands a bit. The radio seems to hear fine.

So...I think the problem where he wasn't getting a dip in the plate current before (previous email) was probably because the load was fully CW instead of fully CCW at that time. Trying to tune into a 10:1 antenna was probably not helping things.

Questions:
1. Thoughts on the load issue? Seems like the load range we want is somewhere beyond the minimum of what we are getting now. It is possible that the minimum setting happens to be just the load we want but that doesn't seem right.

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Thanks,
Brian (K7TKT)

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To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 11, 2013 8:07 PM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Jason:

The best advice you got was from Bill to get a dummy load. You say you followed the TS520 instructions exactly. It does not sound like that to me.

1. Preset all the controls as listed on Page 21 Table 2. Add one control. Set the Load control to full CCW (plates fully meshed). I know you cant see them. Someday take off cover of PA cage and study whats going on here.
2. Set the Plate Idling Current to 60ma. Do that with meter in Ip, mode switch LSB/USB, mic gain turned down. Unkey the rig.
3. Set meter switch back to ALC. Set Car Level Pot to 1200. Mode switch Tune. Flip to Send and adjust the Drive control for a peak. Around 1/2 or 2/3 of full scale is a good spot to be able to see the peak. If the meter pegs then just back down the car pot and re-peak the Drive control. Now you have set the the RF drive voltage to the 6146 control grids to maximum and ready to move on to the initial plate current dip.
4. Place meter in Ip position. Flip to Send and adjust Tune control for a minimum or dip in plate current. You will not see much plate current perhaps 50ma to 60ma. Dip may not be very pronounced. On a wattmeter would see approx 10 to 15 watts peak. Return to Rec or Stand-by (unkey the rig). You are adjusting the pi-network (tank circuit) to resonance at this step with the Screen Grid voltage reduced to about 1/2 normal. This allows you to get the final tubes ready for full SG voltage and no concern about the plate current being pegged high when you first key the rig in CW mode should it be off resonance. Later you may choose to load in CW mode from the outset, but not a good idea at this time of your understanding and experience.
5. If you do not have an external wattmeter then place the panel meter in the RF position. In this position none of the meter scales are used. You are looking at a sample of RF voltage being applied to your dummy load. This is relative power and not watts. Just looking for a maximum level on the meter.
6. Flip to Send and note the meter indication. Dont leave rig keyed for more than 5 to 10

seconds. If it is very low or very high adjust the RF sensitivity pot on left side of rig to get meter indicator at approx 1/2 to 2/3 scale. Unkey the rig.
7. For the next steps do not leave rig keyed more than approx 5 to 10 seconds at a time. You are going to be opening the plates of the Load capacitor a little at a time by turning the control clockwise and adjusting the Tune capacitor for maximum RF relative power indication. As you open the plates (turn Load control CW) you are coupling load and beginning to transfer tank circuit circulating current thru the dummy load resistor instead of shunting it thru the Load capacitor.
8. Turn the Load capacitor control a few degrees clockwise (open the plates) . Flip to Send and adjust the Tune capacitor for maximum RF relative power indication. Unkey the rig. If meter pegs at any time adjust the RF sensitivity pot to bring meter indication back around 2/3 scale.
9. Turn the Load capacitor control a few more degrees clockwise. Flip to Send and adjust Tune capacitor for maximum RF indication again. Unkey the rig.
10. Repeat this two step process until you cannot get anymore RF relative power indication. Make sure you note where the peak is at each time. You can read it off the black plate current scale. If you have opened the plates of the Load capacitor too much (too far clockwise) the RF relative power indication will start to fall off.
11. Place meter back to Ip.
12. Flip to Send and note IP reading. It should be approx 200ma. If it is you are done and ready for CW and SSB transmission.
13. If it is much above 200 ma say 225 ma to 250 ma (not likely it will be) then turn the Load control very slightly back CCW (close the plates a little) . Place meter back to RF position . Flip to Send and adjust the Tune control for maximum RF indication. Unkey the rig and place meter back to Ip.
14, Flip to Send and check IP again. Should now be closer to 200 ma and you are done. Unkey the rig. Read the section on CW and SSB transmission.

When you get better and more comfortable with this procedure you will simply at Step 8 alternately adjust the Load and Tune capacitors for maximum RF relative power indication or maximum RF output power on your external wattmeter (approx 100 watts with exception of 10 meters) at one step as you can do it quickly. Then you will check Ip to make sure not exceeding approx 200ma. It wont be a stepped procedure just a smooth one step loading.

An external wattmeter makes it nice because you can leave the panel meter in IP and just tune for approx 100 watts output and see at the same time if exceeding 200ma. It is much easier to see RF output peaks rather than plate current dip in a Class AB-1 transmitter. Also wattmeter is likely to have different ballistic characteristics than your panel meter making it easier to see changes. Also, if you see unusually high or low wattage you know there is a problem. Using the RF relative power meter and IP meter you have no idea if there is a problem. It would take the average ham a little time using just these two meters to realize that the PL-259 was not connected. With a wattmeter you know it instantly. Just makes loading a breeze for new folks.

Print this and pull it out when you get your dummy load. Remember SWR has nothing to do with your Car Level Pot.

Also if you have any reasonable level of RF output power from your rig you should be able to adjust the sensitivity pot on your SWR bridge to full scale in Forward position and then flip to Reflected and read the SWR. It doesnt care how you have loaded the rig. It just needs enough rf to get full scale deflection in Forward position and typically that is not much power. If you had RF output from your rig then it sounds like your SWR bridge is

defective and not a rig problem or you have an open down stream of the SWR bridge and and will see very high reflected.

Sorry so long but essentially restating the TS520 manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey guys,

I just got into amateur radio last month. I got my first HF rig at an estate sale for an old ham who passed away. I got the TS-520. The amateurs at the sale said the guy took really good care of his stuff and that this rig was recently serviced. I took it home and began to set it up.

I am operating on 40 meters with a dipole. All I have is this rig, a SWR meter, and the dipole, no other equipment for HF.

I ran through the tuning procedure in the Kenwood manual, I followed it exactly and everything went fine up to dipping the plate. The needle shows 60 ma, In order for ALC to peak, CAR needs to be set at 1.5 (anything higher and the needle pegs), and the plate reading is 80 ma, but will not dip when I turn the plate dial (which is centered on the band as per the instructions). I have also followed the tuning instructions by Ken, K4EAA and the same result happens.

I do not know for sure what my antenna's SWR is, when I attempt to use my SWR meter, it will not calibrate. I know the meter works, so I was concerned is may be an issue with the TS-520.

I have looked through the groups past posts, as well as Google, and I can't seem to find an answer to my problem. This post is the result of at least 3 days of failed research. Any help would be greatly appreciated. I can tune stations in just fine on 40 meters, but they just can't hear me (which is understandable for this situation).

Thank you guys in advance,

Jason, K7BOG

44538. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 19:26:51 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44538

The 520 needs a high Z mic. The MC30 is a 500 ohm low Z mic and intended for close talking in mobile applications. It is not designed for your 520. Even a MC35 isnt going to sound as good as a MC50 or MC60.

An Astatic D104 and a Shure 444D are both good mics for your 520.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Question. Would the fact that I am using a MC-30S mike cause an issue? I don't own the original MC-50.

Thanks,
Chris KQ6UP

On Sat, Sep 14, 2013 at 9:35 AM, Chris Maness <chris@...> wrote:

Another update. On air reports state my audio sounds distorted. It does sound better with the ATT on my monitor radio, but I am getting bad audio reports from distant stations. I am so bummed. This radio has the nicest receive audio I have ever heard on SSB. I hope I can get this ironed out.

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On Sat, Sep 14, 2013 at 8:10 AM, Chris Maness <chris@...> wrote:

Ok, update. I tried the 160/80/40m with the new driver. I get ALC deflection in TUN finally. I get a peak of about 40% of full scale in 160m. I get 20% of full scale in 80m, and it just barley moves at the DRIVE peak on 40m. Not even a quiver at 20m. So I am thinking my best driver is still on the flat side. I think there is a problem though. I only get deflection when the CAR is set to fully CCW. That makes me think something is broken, and will still be an issue when I get a strong driver tube.

Chris

Ok, I tried a couple of different driver tubes now. With on RCA that appeared to be NOS, I doubled my output power to 20W, but no ALC deflection in tune. With a generic tube I am getting 60W out in CW. However, still no ALC deflection in TUN mode. No matter what the settings. The ALC meter does deflect in USB/LSB. I would say that the meter function seems normal. I get very little power out in SSB, and using a dummy load and my little FT-817 for a monitor, the audio sounds pretty crappy.

Hope this helps the trouble shooting process.
73 de KQ6UP
Chris

On Wed, Sep 11, 2013 at 2:44 PM, Chris Maness <chris@...> wrote:

When you say you are getting 10 watts output in SSB mode are you saying when you key the mic in SSB with mic gain turned all the way down you are getting out 10 watts? OR

I am getting 10W peaks. No carrier present. I think I remember aligning the radio when I first got it. It is pretty much working ok, but with low power.

Are you saying while modulating the rig in SSB mode (speaking into the microphone with the mic gain turned up to approx 1200) that you only see about 10 watts on voice peaks?

Yes.

These are two very different things. 10 watts on voice peaks is a little low but it depends on your mic, the mic gain setting, how you are talking in to it and a little with the ballistic characteristics of your wattmeter.

If it is the former then the Balanced Modulator carrier null/balance is probably out of adjustment assuming no problem with the ring diodes. You will need to adjust TC-1 and VR-2 on the Generator board to null and balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or O-scope to do this. We can help you perform this step. Another way to do it is with a separate receiver sitting near the 520 but not as sensitive, but probably OK at this po! int to get it close.

Yes, it is balanced. See above.

If it is the later then with rig loaded to 100 watts output it is normal to see peaks of no more than 25 to 30 watts maximum on an average reading wattmeter as you modulate the rig. If you had ALC indication would tell you to adjust mic gain to keep ALC indication within middle of the black rectangular box. Your manual will tell you to keep the peaks within the upper limit of the range. This is to prevent splatter to adjacent frequencies.

Yes, got it. Just like most other SSB rigs.

With the rig in LSB or USB you should be able to key the mic or flip to send and have no RF output power until you speak in the Mic. The Car Level pot has nothing to do with this. It can be set anywhere and have no effect on SSB power output.

Yes, no power unless modulation is present.

When you say your audio is distorted are you saying your transmit audio or receive audio? If transmit then I would perform the carrier null/balance as a first step.

When I increase the mic gain, but this could be the said splatter. I am not going to worry about this until I can get the rig to put out more power and a proper ALC reading.

Yes you can use a DMM but it is not as good for peaking and nulling as an analog meter is. It will work if that is what you have. Also, depending on your DMM it may not be 10meg input and not good for much more than measuring things like dc power supply voltages and some of the tube dc voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A cheap Harbor Freight has an input Z of under 1 meg and some of the Lowes/Sears/Home Depot are around 2meg. They are for electricians and not electronic work.

Got it. For peaking. I had one when I was a teenager. I think I saw it at my parents house. I have not messed with it since the 80's.

Terry K9TW

Thanks,
Chris Maness

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Can I use my modern DVM in place of a VTVM? I might have an oldy at my parent's house if they have not tossed it.

Thanks,
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On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:

On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:

Chris:

I tried to respond but have not seen it yet so not sure what happened. I dont like this new format. Hard to teach old dog new tricks/.

So let me restate to make sure I fully understand.

You are telling me that you had the SG switch off, the Heaters on, in CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than at 1200 or No 5 position. When you flip to s! end and peak the Drive control thru its complete range that you get no ALC indication on any band. If that is true then most likely problem is:

Yes, you have understood me correctly I did the test 100% per your instruction. I also did the test as if I was following the tuning procedure to peak the driver as per the manual. I did this in TUN mode. Every single band showed no deflection when the CAR was at 5 and also at 10 (fully CW). I will try to get a hold of a 12BY7A and report back.

Thank you for the flow chart below.

1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder connections at tube socket.

2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
3. A bad meter position switch contacts (not very common).

I would start by replacing the 12BY7A driver tube. Make sure rig is unplugged and let it set awhile to ensure voltage discharged off HV caps. Remove rig top cover to access tube on the RF board. Sometimes the ground strap can be galled and bonded to the metal shield. There is a full length split on the shield. Use a thin flat blade screw driver to spread

the split. Carefully work the shield can off so you do not break the ground strap that is sandwiched between the glass envelope and metal can. When replacing the shield make sure the ground strap is placed back between the shield and the tube.

Here is where you need an RF Probe and VTVM. In 10 minutes you could measure the RF drive voltage at the control grids of the 6146 finals to see if you have RF drive greater than approx 39rms volts. Should be close to 46rms volts for full scale ALC deflection. If you are experienced with O-scope could use it as well. RF probe and VTVM are a must have if to service own Hybrid.

If new Driver tube doesnt help then try cleaning the Aux relay. Come back for the procedure for that.

In case you are interested for the above test to work you need the following:
1. Good 6146 final tubes. By good I mean good filament so there is cathode emission.
2. Good negative dc operating bias on the control grids of the finals. By good I mean voltage on control grids must switch from approx -100vdc cut off bias to approx -55vdc operating bias when you flip to Send. This is occurring as you stated you are able to set resting plate current to 60ma.

3. Good RF drive voltage at the control grids of the 6146 finals. By good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and -55 = approx +10 volts on positive peak of the drive envelope. This causes control grid to be positive with respect to the cathode and ! approx 40ua of grid current.

When the control grid of the 6146 final tubes becomes positive with respect to the cathode grid current will flow. When grid current flows the ALC amp transistor senses it and reduces the ALC bus voltage and reduces the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc RF-1 level the ALC meter circuit sees this and drives the meter up scale. So with any hint of grid current the ALC meter should move up scale. At approx 40ua of grid current meter should be full scale.

If the Driver tube is soft could have insufficient RF voltage swing at 6146 control grids to overcome the -55vdc bias offset. For example if Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts. So if RF drive is swinging the control grid to +55 volts on positive going peak of the drive envelope then +55 and -55 means Zero difference voltage and the control grid is not positive with respect to the cathode and there will be no grid current and no ALC indication.

Terry K9TW

73 de KQ6UP
Chris

44539. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 19:33:18 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44539

Don:

Your wife needs to talk to my wife. She has set at our dining room table many times with a spare TS830 and headphones on while I was down at the bench modulating a customers rig. She is good at tuning VFO and letting me know if the received audio sounds like me or not.

We have changed seats. I dont like doing it that way as something about a gals voice. OK sorry ladies if you are reading along. I really just worry she will get curious and stick her fingers in that 900vdc!

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Chris,

Remember, all these microphones are getting OLD and many do have bad elements. Also, "on air audio reports" are suspect. Terry or whoever mentioned it is very correct in asking you to check yourself on a monitor receiver. If you have the opportunity, try another microphone. The "treasured" MC-50 you buy may or may not be any better than what you have. I have a shelf full of good looking microphones that sound VERY bad as the elements are shot.

I have the best luck monitoring myself by transmitting into a dummy load and trailing a short piece of any wire along the shelf from the monitor receiver. ALWAYS use headphones when monitoring yourself so you can hear the signal well. Make SURE you are on the same frequency as your transmitting rig (tune through the signal and see if you can hear a "sweet spot").

The next best test is to ask a ham close to you that knows what you sound like "live" to listen and comment. This is still VERY objective, as some like really bassy sound, some like more highs for "clarity". Each will likely give you a different report. You are the chief engineer and have to decide when you sound good to yourself!! Last tip: I often ask my wife of 45 years to put on the headphones and tell me if it sounds like me on the monitor receiver. She knows what I sound like best :>).
73,
Don, WB5HAK

On 9/14/2013 12:38 PM, Chris Maness wrote:

Question. Would the fact that I am using a MC-30S mike cause an issue? I don't own the original MC-50.

Thanks,

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Chris Maness

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Thank you for the flow chart below.

1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder connections at tube socket.

2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage

44540. Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 19:34:37 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44540

Hi Terry

Don't know if you keep separate files on posters,but here goes

Were we left off was i had only a bad audio hum and no dial light on my Ebay special.
Update

I now have a good working audio board and dial light display and good audio output from the test's you last asked me to do are now fine
No meter movement,but loud.
The problems are now as follows.
Sidetone fine and good audio
Moni--i can hear it but very very low,,volume turned to full output.
Calibration,can hear it but very very low,,,volume turned to full
On my SG audio good,but only S-3 meter reading.
I can hear 40 meter strong signals at night,but very very low audio.

On transmit,i can only get the 60ma reading and that's it,no output.
All voltages on the finals are fine.
All voltages on the connector's are fine.

Don/Ve2ud

44541. RE: Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 19:58:24 UTC
From: <wagstw46@...>
Topic: 43772 Message: 44541

Well Don you are correct. I have slept since last time we talked.

Right now my rigs are all blurring together.

There may be a connection to RF output, but I would concentrate on fixing the receive first. I almost always get the receiver working first.

So what I understand is you have the Audio board working good now. I am not sure what you mean by loud but no meter movement. There will be no meter movement from Side tone or if you inject test audio into the Product detector output to the input of the Audio board. Only way to have S-,meter action is off air or marker signal that comes in front end and down the IF chain.

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

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I can hear 40 meter strong signals at night,but very very low audio.

On transmit,i can only get the 60ma reading and that's it,no output.
All voltages on the finals are fine.
All voltages on the connector's are fine.

Don/Ve2ud

On 01/08/2013 8:10 PM, Terry Wagoner wrote:

Don:

The other common thing to look at before you pull the RF board would be VCO signal level and frequency at TP-3 on RF board.

In 40 meter bandswitch position you should have close to 1.0rf volts @ 16mhz (see service manual for frequency vs VFO setting) at TP-3.

VCO is the Local Oscillator (LO) for both the Transmit Mixer and the 1st IF Mixer (RIF). NO VCO = no TX and no RX.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, Don <ve2ud@...> wrote:
>
> Terry
>
> Think it's 8mm spacing on those caps,which would be just fine.Hard to
> find a data sheet,but will keep searching.
> Yes i was on forty meters when the arching started and then the radio
> went to sleep.
> I tried my SSG on all bands,and only 40 meters did not respond.
> I will try that later or tomorrow and report back.
>
> 73
> Don/Ve2ud
>
>
>
>
>
>
>
> On 01/08/2013 4:42 PM, Terry Wagoner wrote:
> >
> > Don:
> >
> > Can you find a Phillips capacitor data sheet to see what the pin
> > spacing is?
> >
> > So you are saying no RX and no TX now on 40 meters after experiencing
> > an arc during loading the rig.
> >
> > Also tried injecting 40 meter signal (7.2mhz?) into SO-239 and no RX
> > signal.

> >
> > Would be interesting to inject 7.2mhz at TP-4 and see if you have RX.
> >
> > L15 tuned circuit is switched in by the RF board bandswitch deck S1-4
> > and is shared with the TX Mixer and RF buffer amp FET Q2.
> >
> > Absent this tuned circuit you wont be able to peak the RF drive at
> > output of the TX mixer and at gate circuit of Q2. I would think you
> > should still be able to copy sig gen signal if you injected high
> > enough level.
> >
> > If it were me I would trouble shoot via signal injection/tracing until
> > I found where losing it. However if it is easier for you to remove the
> > board and perform visual inspection go ahead. Just be careful on
> > aligning the two shafts on re-install. Have you replaced the S22 nylon
> > coupler in the PA cage? If not, then would do that at this time.
> >
> > Terry K9TW
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@> wrote:
> > >
> > > Terry
> > > No i did not bridge it,i was thinking about it.
> > > I remembered seeing a board on Ebay,so i wanted to compare it first,and
> > > then Joe confirmed it.
> > > Waiting for a answer from Jim on parts.
> > > This might do if he has none.
> > >
> > >
> > > http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X2
0MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37
> > <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X
20MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37>
> > >
> > > Might be a good time to take off the RF board and check it,as it has no
> > > forty meters signal,when i feed a signal in from my SSG.
> > > When i last loaded the rig it arched badly and then all when silent,it
> > > was on forty meters.
> > >
> > >
> > >
> > > Don/Ve2ud
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>
> [Non-text portions of this message have been removed]
>

44542. Ohms Law test

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 20:12:54 UTC
From: Mike
Topic: 44542 Message: 44542

Walt, KA2NJF, thank you for your kind and supportive comments about my basic electronic (Ohms Law) training video. I also want to thank you for taking the time to answer the 4 questions in my Ohms Law test video. You did a excellent job and your answers clearly indicates you have taken time to study. I can only hope you continue with your studies in basic electronics so as to increase you knowledge in electronics. If you have any questions, don't hesitate to ask.

73
Mike W5RKL

**

44543. Re: [TS-520_820_530_830] Re: Low output on LSB

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 20:20:00 UTC
From: Don
Topic: 43772 Message: 44543

Made these notes a few weeks ago,so i forgot what i meant by loud and no
meter movement,,think it was a test you
made me perform a way back on the audio board.
Ok printed that out and back to the bench

You will have all the rest time you want when you depart this world
unless you will come back as a Yahoo programmer!

Don/Ve2ud

On 14/09/2013 3:58 PM, wagstw46@... wrote:
>
> Well Don you are correct. I have slept since last time we talked.
>
>
> Right now my rigs are all blurring together.
>
>
> There may be a connection to RF output, but I would concentrate on
> fixing the receive first. I almost always get the receiver working first.
>
> So what I understand is you have the Audio board working good now. I
> am not sure what you mean by loud but no meter movement. There will be
> no meter movement from Side tone or if you inject test audio into the
> Product detector output to the input of the Audio board. Only way to
> have S-,meter action is off air or marker signal that comes in front
> end and down the IF chain.
>
>
> So trusting that the audio board is working as it should and can
> process the output of the Product Detector, then the problem now is
> very weak Marker and very weak off air signals and low or no S-meter
> indication. Dont worry about weak moni at this point.
>
>
> So this is place I would use RF sig generator and split the problem.
> Is it on the IF board or the RF board (or both but not likely). If you
> want to work back from the Audio Board then I would inject 8.830 mhz
> into the RIF terminal on the IF board and see if you can hear it loud
> and good S meter indication. If you can then move on to the RF board.
> If you cannot get back and we can talk about signal injection/tracing
> on the IF board.
>
>
> Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation.
> -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9.

> -33dBm/5mv should give approx +20 over.
>
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
> Hi Terry
>
> Don't know if you keep separate files on posters,but here goes
>
> Were we left off was i had only a bad audio hum and no dial light on
> my Ebay special.
> Update
>
> I now have a good working audio board and dial light display and good
> audio output from the test's you last asked me to do are now fine
> No meter movement,but loud.
> The problems are now as follows.
> Sidetone fine and good audio
> Moni--i can hear it but very very low,,volume turned to full output.
> Calibration,can hear it but very very low,,,volume turned to full
> On my SG audio good,but only S-3 meter reading.
> I can hear 40 meter strong signals at night,but very very low audio.
>
> On transmit,i can only get the 60ma reading and that's it,no output.
> All voltages on the finals are fine.
> All voltages on the connector's are fine.
>
> Don/Ve2ud
>
>
>
>
>
>
>
> On 01/08/2013 8:10 PM, Terry Wagoner wrote:
>>
>> Don:
>>
>> The other common thing to look at before you pull the RF board
>> would be VCO signal level and frequency at TP-3 on RF board.
>>
>> In 40 meter bandswitch position you should have close to 1.0rf
>> volts @ 16mhz (see service manual for frequency vs VFO setting)

>> at TP-3.
>>
>> VCO is the Local Oscillator (LO) for both the Transmit Mixer and
>> the 1st IF Mixer (RIF). NO VCO = no TX and no RX.
>>
>> Terry K9TW
>>
>> --- In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@...> wrote:
>> >
>> > Terry
>> >
>> > Think it's 8mm spacing on those caps,which would be just
>> fine.Hard to
>> > find a data sheet,but will keep searching.
>> > Yes i was on forty meters when the arching started and then the
>> radio
>> > went to sleep.
>> > I tried my SSG on all bands,and only 40 meters did not respond.
>> > I will try that later or tomorrow and report back.
>> >
>> > 73
>> > Don/Ve2ud
>> >
>> >
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>> >
>> >
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>> > >
>> > > Don:
>> > >
>> > > Can you find a Phillips capacitor data sheet to see what the pin
>> > > spacing is?
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>> > > So you are saying no RX and no TX now on 40 meters after
>> experiencing
>> > > an arc during loading the rig.
>> > >
>> > > Also tried injecting 40 meter signal (7.2mhz?) into SO-239 and
>> no RX
>> > > signal.
>> > >
>> > > Would be interesting to inject 7.2mhz at TP-4 and see if you
>> have RX.
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>> > > L15 tuned circuit is switched in by the RF board bandswitch
>> deck S1-4

>> > > and is shared with the TX Mixer and RF buffer amp FET Q2.
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>> > > Absent this tuned circuit you wont be able to peak the RF
>> drive at
>> > > output of the TX mixer and at gate circuit of Q2. I would
>> think you
>> > > should still be able to copy sig gen signal if you injected high
>> > > enough level.
>> > >
>> > > If it were me I would trouble shoot via signal
>> injection/tracing until
>> > > I found where losing it. However if it is easier for you to
>> remove the
>> > > board and perform visual inspection go ahead. Just be careful on
>> > > aligning the two shafts on re-install. Have you replaced the
>> S22 nylon
>> > > coupler in the PA cage? If not, then would do that at this time.
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>> > > Terry K9TW
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>> > > --- In TS-520_820_530_830@yahoogroups.com
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>> > > <mailto:TS-520_820_530_830%40yahoogroups.com>, Don <ve2ud@> wrote:
>> > > >
>> > > > Terry
>> > > > No i did not bridge it,i was thinking about it.
>> > > > I remembered seeing a board on Ebay,so i wanted to compare
>> it first,and
>> > > > then Joe confirmed it.
>> > > > Waiting for a answer from Jim on parts.
>> > > > This might do if he has none.
>> > > >
>> > > >
>> > >
>> http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X20
MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37
>> <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X2
0MM-AUDIO-CAPS-/140626353463?pt=LH_DefaultDomain_0&hash=item20bdfbdd37>
>>
>> > >
>> <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X2
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>> <http://www.ebay.com/itm/4PCS-25V-2200UF-BC-PHILIPS-RADIAL-ELECTROLYTIC-CAPACITORS-18X2
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>> > > >
>> > > > Might be a good time to take off the RF board and check
>> it,as it has no
>> > > > forty meters signal,when i feed a signal in from my SSG.
>> > > > When i last loaded the rig it arched badly and then all when
>> silent,it

>> > > > was on forty meters.
>> > > >
>> > > >
>> > > >
>> > > > Don/Ve2ud
>> > > >
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>> >
>> > [Non-text portions of this message have been removed]
>> >
>>
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>

44544. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 20:20:38 UTC
From: Don Cunningham
Topic: 44446 Message: 44544

Sounds like both of us have keepers, Terry. I too won't turn mine loose inside the rig AT ALL, even though she is KD5EXI. She does alright with the 2M rig, but that's enough for now. She HAS expressed a desire to learn CW, so we are going to take that on as a winter project sending to each other on 2M (using tone generators into the FM) and will include a friend in the same boat but some distance from us. Otherwise we'd just communicate with the practice oscillators. That will be a challenge, but may help my rusty CW speed some :>). She says she will go for General class if she masters CW enough to use it.

No, guys, mine has no sisters and I'm keeping her another 45 years if we make it that long, HI.
73,
Don, WB5HAK
On 9/14/2013 2:33 PM, wagstw46@... wrote:
>
> Don:
>
>
> Your wife needs to talk to my wife. She has set at our dining room
> table many times with a spare TS830 and headphones on while I was down
> at the bench modulating a customers rig. She is good at tuning VFO and
> letting me know if the received audio sounds like me or not.
>
>
> We have changed seats. I dont like doing it that way as something
> about a gals voice. OK sorry ladies if you are reading along. I really
> just worry she will get curious and stick her fingers in that 900vdc!< /p>
>
> Terry
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Chris,
>
> Remember, all these microphones are getting OLD and many do have bad
> elements. Also, "on air audio reports" are suspect. Terry or whoever
> mentioned it is very correct in asking you to check yourself on a
> monitor receiver. If you have the opportunity, try another microphone.
> The "treasured" MC-50 you buy may or may not be any better than what
> you have. I have a shelf full of good looking microphones that sound
> VERY bad as the elements are shot.

>
> I have the best luck monitoring myself by transmitting into a dummy
> load and trailing a short piece of any wire along the shelf from the
> monitor receiver. ALWAYS use headphones when monitoring yourself so
> you can hear the signal well. Make SURE you are on the same frequency
> as your transmitting rig (tune through the signal and see if you can
> hear a "sweet spot").
>
> The next best test is to ask a ham close to you that knows what you
> sound like "live" to listen and comment. This is still VERY objective,
> as some like really bassy sound, some like more highs for "clarity".
> Each will likely give you a different report. You are the chief
> engineer and have to decide when you sound good to yourself!! Last
> tip: I often ask my wife of 45 years to put on the headphones and tell
> me if it sounds like me on the monitor receiver. She knows what I
> sound like best :>).
> 73,
> Don, WB5HAK
> On 9/14/2013 12:38 PM, Chris Maness wrote:
>> Question. Would the fact that I am using a MC-30S mike cause an
>> issue? I don't own the original MC-50.
>>
>> Thanks,
>> Chris KQ6UP
>>
>>
>> On Sat, Sep 14, 2013 at 9:35 AM, Chris Maness <chris@...
>> <mailto:chris@...>> wrote:
>>
>> Another update. On air reports state my audio sounds distorted.
>> It does sound better with the ATT on my monitor radio, but I am
>> getting bad audio reports from distant stations. I am so bummed.
>> This radio has the nicest receive audio I have ever heard on
>> SSB. I hope I can get this ironed out.
>>
>> Thanks,
>> Chris KQ6UP
>>
>>
>> On Sat, Sep 14, 2013 at 8:10 AM, Chris Maness <chris@...
>> <mailto:chris@...>> wrote:
>>
>> Ok, update. I tried the 160/80/40m with the new driver. I
>> get ALC deflection in TUN finally. I get a peak of about 40%
>> of full scale in 160m. I get 20% of full scale in 80m, and
>> it just barley moves at the DRIVE peak on 40m. Not even a
>> quiver at 20m. So I am thinking my best driver is still on
>> the flat side. I think there is a problem though. I only
>> get deflection when the CAR is set to fully CCW. That makes
>> me think something is broken, and will still be an issue when

>> I get a strong driver tube.
>>
>> Chris
>>
>> Ok, I tried a couple of different driver tubes now. With on
>> RCA that appeared to be NOS, I doubled my output power to
>> 20W, but no ALC deflection in tune. With a generic tube I am
>> getting 60W out in CW. However, still no ALC deflection in
>> TUN mode. No matter what the settings. The ALC meter does
>> deflect in USB/LSB. I would say that the meter function
>> seems normal. I get very little power out in SSB, and using
>> a dummy load and my little FT-817 for a monitor, the audio
>> sounds pretty crappy.
>>
>> Hope this helps the trouble shooting process.
>> 73 de KQ6UP
>> Chris
>>
>>
>> On Wed, Sep 11, 2013 at 2:44 PM, Chris Maness <chris@...
>> <mailto:chris@...>> wrote:
>>
>>
>>
>> When you say you are getting 10 watts output in SSB
>> mode are you saying when you key the mic in SSB with
>> mic gain turned all the way down you are getting out
>> 10 watts? OR
>>
>>
>> I am getting 10W peaks. No carrier present. I think I
>> remember aligning the radio when I first got it. It is
>> pretty much working ok, but with low power.
>>
>>
>> Are you saying while modulating the rig in SSB mode
>> (speaking into the microphone with the mic gain
>> turned up to approx 1200) that you only see about 10
>> watts on voice peaks?
>>
>>
>> Yes.
>>
>>
>> These are two very different things. 10 watts on
>> voice peaks is a little low but it depends on your
>> mic, the mic gain setting, how you are talking in to
>> it and a little with the ballistic characteristics of
>> your wattmeter.
>>

>>
>> If it is the former then the Balanced Modulator
>> carrier null/balance is probably out of adjustment
>> assuming no problem with the ring diodes. You will
>> need to adjust TC-1 and VR-2 on the Generator board
>> to null and balance the carrier between LSB and USB.
>> Will need RF probe and VTVM/DMM or O-scope to do
>> this. We can help you perform this step. Another way
>> to do it is with a separate receiver sitting near the
>> 520 but not as sensitive, but probably OK at this po!
>> int to get it close.
>>
>>
>>
>> Yes, it is balanced. See above.
>>
>> If it is the later then with rig loaded to 100 watts
>> output it is normal to see peaks of no more than 25
>> to 30 watts maximum on an average reading wattmeter
>> as you modulate the rig. If you had ALC indication
>> would tell you to adjust mic gain to keep ALC
>> indication within middle of the black rectangular
>> box. Your manual will tell you to keep the peaks
>> within the upper limit of the range. This is to
>> prevent splatter to adjacent frequencies.
>>
>>
>> Yes, got it. Just like most other SSB rigs.
>>
>>
>> With the rig in LSB or USB you should be able to key
>> the mic or flip to send and have no RF output power
>> until you speak in the Mic. The Car Level pot has
>> nothing to do with this. It can be set anywhere and
>> have no effect on SSB power output.
>>
>>
>> Yes, no power unless modulation is present.
>>
>>
>> When you say your audio is distorted are you saying
>> your transmit audio or receive audio? If transmit
>> then I would perform the carrier null/balance as a
>> first step.
>>
>> When I increase the mic gain, but this could be the said
>> splatter. I am not going to worry about this until I can
>> get the rig to put out more power and a proper ALC reading.
>>
>>

>> Yes you can use a DMM but it is not as good for
>> peaking and nulling as an analog meter is. It will
>> work if that is what you have. Also, depending on
>> your DMM it may not be 10meg input and not good for
>> much more than measuring things like dc power supply
>> voltages and some of the tube dc voltages. Not good
>> for getting on grids of tubes and AGC/ALC bus work.
>> A cheap Harbor Freight has an input Z of under 1 meg
>> and some of the Lowes/Sears/Home Depot are around
>> 2meg. They are for electricians and not electronic work.
>>
>>
>> Got it. For peaking. I had one when I was a teenager.
>> I think I saw it at my parents house. I have not messed
>> with it since the 80's.
>>
>>
>> Terry K9TW
>>
>>
>> Thanks,
>> Chris Maness
>>
>>
>> 1.
>>
>>
>>
>> --- In ts-520_820_530_830@yahoogroups.com
>> <mailto:ts-520_820_530_830@yahoogroups.com>,
>> <chris@...> wrote:
>>
>> Two more questions. Why would it only put out power
>> in CW when the CAR is fully CCW (0 position)? If I
>> increase it at all I loose all power to the antenna.
>> At full CCW I get 10W out. This seems strange to
>> me. However, under NO conditions do I get an ALC
>> deflection (in TUN or CW). I have not messed with
>> the ALC in SSB. However, I only get about 10W out in
>> SSB too. Audio is also a bit on the crappy side. I
>> suppose loss in linearity of the driver tube could
>> explain the bad audio.
>>
>> Can I use my modern DVM in place of a VTVM? I might
>> have an oldy at my parent's house if they have not
>> tossed it.
>>
>> Thanks,
>> Chris
>>

>>
>> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness
>> <chris@... <mailto:chris@...>> wrote:
>>
>>
>>
>>
>> On Wed, Sep 11, 2013 at 11:49 AM,
>> <wagstw46@... <mailto:wagstw46@...>> wrote:
>>
>>
>>
>> Chris:
>>
>>
>> I tried to respond but have not seen it
>> yet so not sure what happened. I dont
>> like this new format. Hard to teach old
>> dog new tricks/.
>>
>>
>> So let me restate to make sure I fully
>> understand.
>>
>>
>> You are telling me that you had the SG
>> switch off, the Heaters on, in CW mode,
>> Meter in ALC, the CAR level pot full CW
>> or at minimum no less than at 1200 or No
>> 5 position. When you flip to s! end and
>> peak the Drive control thru its complete
>> range that you get no ALC indication on
>> any band. If that is true then most
>> likely problem is:
>>
>>
>> Yes, you have understood me correctly I did
>> the test 100% per your instruction. I also
>> did the test as if I was following the tuning
>> procedure to peak the driver as per the
>> manual. I did this in TUN mode. Every
>> single band showed no deflection when the CAR
>> was at 5 and also at 10 (fully CW). I will
>> try to get a hold of a 12BY7A and report back.
>>
>> Thank you for the flow chart below.
>>
>>
>> 1. Bad 12BY7A driver tube or bad dc
>> voltages to it or bad solder connections

>> at tube socket.
>>
>> 2. Bad/dirty contacts on Aux relay that
>> switches the ALC bus voltage
>>
>> 3. A bad meter position switch contacts
>> (not very common).
>>
>>
>> I would start by replacing the 12BY7A
>> driver tube. Make sure rig is unplugged
>> and let it set awhile to ensure voltage
>> discharged off HV caps. Remove rig top
>> cover to access tube on the RF board.
>> Sometimes the ground strap can be galled
>> and bonded to the metal shield. There is
>> a full length split on the shield. Use a
>> thin flat blade screw driver to spread
>> the split. Carefully work the shield can
>> off so you do not break the ground strap
>> that is sandwiched between the glass
>> envelope and metal can. When replacing
>> the shield make sure the ground strap is
>> placed back between the shield and the tube.
>>
>>
>> Here is where you need an RF Probe and
>> VTVM. In 10 minutes you could measure the
>> RF drive voltage at the control grids of
>> the 6146 finals to see if you have RF
>> drive greater than approx 39rms volts.
>> Should be close to 46rms volts for full
>> scale ALC deflection. If you are
>> experienced with O-scope could use it as
>> well. RF probe and VTVM are a must have
>> if to service own Hybrid.
>>
>>
>> If new Driver tube doesnt help then try
>> cleaning the Aux relay. Come back for the
>> procedure for that.
>>
>>
>> In case you are interested for the above
>> test to work you need the following:
>>
>> 1. Good 6146 final tubes. By good I mean
>> good filament so there is cathode emission.
>>
>> 2. Good negative dc operating bias on the

>> control grids of the finals. By good I
>> mean voltage on control grids must switch
>> from approx -100vdc cut off bias to
>> approx -55vdc operating bias when you
>> flip to Send. This is occurring as you
>> stated you are able to set resting plate
>> current to 60ma.
>>
>> 3. Good RF drive voltage at the control
>> grids of the 6146 finals. By good I mean
>> approx 46rms rf volts. 46 x 1.414 = 65
>> peak rf volts. +65 and -55 = approx +10
>> volts on positive peak of the drive
>> envelope. This causes control grid to be
>> positive with respect to the cathode and
>> ! approx 40ua of grid current.
>>
>>
>> When the control grid of the 6146 final
>> tubes becomes positive with respect to
>> the cathode grid current will flow. When
>> grid current flows the ALC amp transistor
>> senses it and reduces the ALC bus voltage
>> and reduces the RF drive. When the ALC
>> bus voltage is reduced from its nominal
>> 3.2vdc RF-1 level the ALC meter circuit
>> sees this and drives the meter up scale.
>> So with any hint of grid current the ALC
>> meter should move up scale. At approx
>> 40ua of grid current meter should be full
>> scale.
>>
>>
>> If the Driver tube is soft could have
>> insufficient RF voltage swing at 6146
>> control grids to overcome the -55vdc bias
>> offset. For example if Driver tube is
>> only capable of 39rms volts then 39 x
>> 1.414 = 55 peak volts. So if RF drive is
>> swinging the control grid to +55 volts on
>> positive going peak of the drive envelope
>> then +55 and -55 means Zero difference
>> voltage and the control grid is not
>> positive with respect to the cathode and
>> there will be no grid current and no ALC
>> indication.
>>
>>
>> Terry K9TW
>>

>>
>> 73 de KQ6UP
>> Chris
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44545. Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 20:24:36 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44545

Made these notes a few weeks ago,so i forgot what i meant by loud and no meter movement,,think it was a test you
made me perform a way back on the audio board.
Ok printed that out and back to the bench

You will have all the rest time you want when you depart this world unless you will come back as a Yahoo programmer!

Don/Ve2ud

44546. Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 21:04:55 UTC
From: Brian Forney
Topic: 44440 Message: 44546

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
  Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

 It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

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>
>

44547. RE: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 21:52:42 UTC
From: <pmarkavage@...>
Topic: 44489 Message: 44547

If you want more punch in your MC-50, just slide an empty toilet paper roll (or something similar) over the mike end and talk into the other end of the paper roll. Based on past technical analysis, too long of a paper roll (Reynolds foil type paper tube) and your audio will develop a severe punchy hollow sound.

Pete, wa2cwa

http://www.manualman.com (http://www.manualman.com/)

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐

Thanks for advice. Yes I have read somewhere that some folk mask some of the mic side slots, and get improvement.

Like the idea of a single transistor amp built into base. May try this over next few days.

Suppose virtually any low signal NPN will do. maybe 2N2222 would do job.

Thanks

Dave

From: Dave & Loraine <dave.crooks@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, 12 September 2013, 18:34
Subject: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Dave,

The MC50 is a 'close talk' mike. A couple of inches.

Try taping-over the front half of the side slots for better articulation.

Read previous posts in mic alc topic.

If you feel that you need an external mic amp, experiment and make notes!

I built a one-transistor amp into the base of my MC50. Current draw is <100uA so the 9v battery lasts well over a year.

73 dave f4eyk

44548. Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 22:11:06 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44548

Terry
Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6
I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44549. Re: Re: [TS-520_820_530_830] TS-830S and MC-50 Mic sensitivety

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 22:14:59 UTC
From: Dave & Loraine
Topic: 44489 Message: 44549

Thanks for responding to my question Terry.
I have the manuals for my TS-820S but not for an 830.
Your opinion on the differences in processor design and Z sensitivity is what I was looking for.
If I had an 830 I would set-up the experiment.

A few years ago I compared two different MC50 mods using FFT / subtraction using MSExcel!
It was easy to see the difference and it was repeatable. Trouble is that I've gone through a couple of computers and lost the FFT software...

Great hobby!
Thanks
Dave f4eyk

44550. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 22:47:56 UTC
From: Chris Maness
Topic: 44446 Message: 44550

Oh the humanity. My parents just gave my VTVM to the Goodwill about a week ago. Thats after being there unused for 25 years. Can any one recommend a smaller format analog meter with a high input Z. My VTVM was huge anyway. Thats why I left it at my folks house in the first place.

Thanks,
Chris KQ6UP
On Sep 11, 2013 2:44 PM, "Chris Maness" <chris@...> wrote:

>
>>
>> When you say you are getting 10 watts output in SSB mode are you saying
>> when you key the mic in SSB with mic gain turned all the way down you are
>> getting out 10 watts? OR
>>
>
> I am getting 10W peaks. No carrier present. I think I remember aligning
> the radio when I first got it. It is pretty much working ok, but with low
> power.
>
>>
>> Are you saying while modulating the rig in SSB mode (speaking into the
>> microphone with the mic gain turned up to approx 1200) that you only see
>> about 10 watts on voice peaks?
>>
>
> Yes.
>
>>
>> These are two very different things. 10 watts on voice peaks is a little
>> low but it depends on your mic, the mic gain setting, how you are talking
>> in to it and a little with the ballistic characteristics of your wattmeter.
>>
>>
>> If it is the former then the Balanced Modulator carrier null/balance is
>> probably out of adjustment assuming no problem with the ring diodes. You
>> will need to adjust TC-1 and VR-2 on the Generator board to null and
>> balance the carrier between LSB and USB. Will need RF probe and VTVM/DMM or
>> O-scope to do this. We can help you perform this step. Another way to do it
>> is with a separate receiver sitting near the 520 but not as sensitive, but
>> probably OK at this po! int to get it close.
>>
>>
>>
> Yes, it is balanced. See above.

>
>
>> If it is the later then with rig loaded to 100 watts output it is normal
>> to see peaks of no more than 25 to 30 watts maximum on an average reading
>> wattmeter as you modulate the rig. If you had ALC indication would tell you
>> to adjust mic gain to keep ALC indication within middle of the black
>> rectangular box. Your manual will tell you to keep the peaks within the
>> upper limit of the range. This is to prevent splatter to adjacent
>> frequencies.
>>
>
> Yes, got it. Just like most other SSB rigs.
>
>>
>> With the rig in LSB or USB you should be able to key the mic or flip to
>> send and have no RF output power until you speak in the Mic. The Car Level
>> pot has nothing to do with this. It can be set anywhere and have no effect
>> on SSB power output.
>>
>
> Yes, no power unless modulation is present.
>
>>
>> When you say your audio is distorted are you saying your transmit audio
>> or receive audio? If transmit then I would perform the carrier null/balance
>> as a first step.
>>
> When I increase the mic gain, but this could be the said splatter. I am
> not going to worry about this until I can get the rig to put out more power
> and a proper ALC reading.
>
>>
>> Yes you can use a DMM but it is not as good for peaking and nulling as an
>> analog meter is. It will work if that is what you have. Also, depending on
>> your DMM it may not be 10meg input and not good for much more than
>> measuring things like dc power supply voltages and some of the tube dc
>> voltages. Not good for getting on grids of tubes and AGC/ALC bus work. A
>> cheap Harbor Freight has an input Z of under 1 meg and some of the
>> Lowes/Sears/Home Depot are around 2meg. They are for electricians and not
>> electronic work.
>>
>
> Got it. For peaking. I had one when I was a teenager. I think I saw it
> at my parents house. I have not messed with it since the 80's.
>
>>
>> Terry K9TW
>>
>>
>> Thanks,

> Chris Maness
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>> 1.
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>> --- In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:
>>
>> Two more questions. Why would it only put out power in CW when the CAR
>> is fully CCW (0 position)? If I increase it at all I loose all power to
>> the antenna. At full CCW I get 10W out. This seems strange to me.
>> However, under NO conditions do I get an ALC deflection (in TUN or CW). I
>> have not messed with the ALC in SSB. However, I only get about 10W out in
>> SSB too. Audio is also a bit on the crappy side. I suppose loss in
>> linearity of the driver tube could explain the bad audio.
>>
>> Can I use my modern DVM in place of a VTVM? I might have an oldy at my
>> parent's house if they have not tossed it.
>>
>> Thanks,
>> Chris
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>> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...> wrote:
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>>> On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...> wrote:
>>>
>>>>
>>>>
>>>> Chris:
>>>>
>>>>
>>>> I tried to respond but have not seen it yet so not sure what happened.
>>>> I dont like this new format. Hard to teach old dog new tricks/.
>>>>
>>>>
>>>> So let me restate to make sure I fully understand.
>>>>
>>>>
>>>> You are telling me that you had the SG switch off, the Heaters on, in
>>>> CW mode, Meter in ALC, the CAR level pot full CW or at minimum no less than
>>>> at 1200 or No 5 position. When you flip to s! end and peak the Drive
>>>> control thru its complete range that you get no ALC indication on any band.
>>>> If that is true then most likely problem is:
>>>>
>>>
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>>> Yes, you have understood me correctly I did the test 100% per your
>>> instruction. I also did the test as if I was following the tuning
>>> procedure to peak the driver as per the manual. I did this in TUN mode.
>>> Every single band showed no deflection when the CAR was at 5 and also at
>>> 10 (fully CW). I will try to get a hold of a 12BY7A and report back.
>>>
>>> Thank you for the flow chart below.
>>>
>>>
>>>>
>>>> 1. Bad 12BY7A driver tube or bad dc voltages to it or bad solder
>>>> connections at tube socket.
>>>>
>>>> 2. Bad/dirty contacts on Aux relay that switches the ALC bus voltage
>>>>
>>>> 3. A bad meter position switch contacts (not very common).
>>>>
>>>>
>>>> I would start by replacing the 12BY7A driver tube. Make sure rig is
>>>> unplugged and let it set awhile to ensure voltage discharged off HV caps.
>>>> Remove rig top cover to access tube on the RF board. Sometimes the ground
>>>> strap can be galled and bonded to the metal shield. There is a full length
>>>> split on the shield. Use a thin flat blade screw driver to spread the
>>>> split. Carefully work the shield can off so you do not break the ground
>>>> strap that is sandwiched between the glass envelope and metal can. When
>>>> replacing the shield make sure the ground strap is placed back between the
>>>> shield and the tube.
>>>>
>>>>
>>>> Here is where you need an RF Probe and VTVM. In 10 minutes you could
>>>> measure the RF drive voltage at the control grids of the 6146 finals to see
>>>> if you have RF drive greater than approx 39rms volts. Should be close to
>>>> 46rms volts for full scale ALC deflection. If you are experienced with
>>>> O-scope could use it as well. RF probe and VTVM are a must have if to
>>>> service own Hybrid.
>>>>
>>>>
>>>> If new Driver tube doesnt help then try cleaning the Aux relay. Come
>>>> back for the procedure for that.
>>>>
>>>>
>>>> In case you are interested for the above test to work you need the
>>>> following:
>>>>
>>>> 1. Good 6146 final tubes. By good I mean good filament so there is
>>>> cathode emission.
>>>>
>>>> 2. Good negative dc operating bias on the control grids of the finals.
>>>> By good I mean voltage on control grids must switch from approx -100vdc cut
>>>> off bias to approx -55vdc operating bias when you flip to Send. This is

>>>> occurring as you stated you are able to set resting plate current to 60ma.
>>>>
>>>> 3. Good RF drive voltage at the control grids of the 6146 finals. By
>>>> good I mean approx 46rms rf volts. 46 x 1.414 = 65 peak rf volts. +65 and
>>>> -55 = approx +10 volts on positive peak of the drive envelope. This causes
>>>> control grid to be positive with respect to the cathode and ! approx 40ua
>>>> of grid current.
>>>>
>>>>
>>>> When the control grid of the 6146 final tubes becomes positive with
>>>> respect to the cathode grid current will flow. When grid current flows the
>>>> ALC amp transistor senses it and reduces the ALC bus voltage and reduces
>>>> the RF drive. When the ALC bus voltage is reduced from its nominal 3.2vdc
>>>> RF-1 level the ALC meter circuit sees this and drives the meter up scale.
>>>> So with any hint of grid current the ALC meter should move up scale. At
>>>> approx 40ua of grid current meter should be full scale.
>>>>
>>>>
>>>> If the Driver tube is soft could have insufficient RF voltage swing at
>>>> 6146 control grids to overcome the -55vdc bias offset. For example if
>>>> Driver tube is only capable of 39rms volts then 39 x 1.414 = 55 peak volts.
>>>> So if RF drive is swinging the control grid to +55 volts on positive going
>>>> peak of the drive envelope then +55 and -55 means Zero difference voltage
>>>> and the control grid is not positive with respect to the cathode and there
>>>> will be no grid current and no ALC indication.
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>>>> Terry K9TW
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>>> 73 de KQ6UP
>>> Chris
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44551. RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 22:53:11 UTC
From: <wagstw46@...>
Topic: 44540 Message: 44551

Don

I believe you are saying that when you inject 8.830 @500mv from your RF sig gen into the RIF terminal on the IF board you have a loud high frequency tone that you can vary with the audio gain pot (not tunable with the VFO), but the S-meter level is only at S1?

I think we measured RFG at Conn 8 with RF gain pot full CW? It should be 3.6vdc

I think we measured AGC bus voltage at Conn 15? .Need to use nothing less than a 10 meg DMM. It will pull the AGC bus down from 3.6 to close to 3.0vdc or slightly less.

Have you measured these two voltages? Normally if the AGC bus voltage is low the S-meter will be driven up scale with no signal applied unless the S-meter driver circuit is bad.

Have you ever performed the IFT alignment? You can perform the procedure in the maintenance section of the operating manual or the steps in the service manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6
I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

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Terry K9TW

44552. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 23:07:03 UTC
From: Chris Maness
Topic: 44446 Message: 44552

Just curious, would anyone have a clue as to why I only get CW power output at the lowest CAR (fully CCW) setting?

Regards,
Chris KQ6UP

44553. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 23:35:08 UTC
From: Wes Will
Topic: 44446 Message: 44553

On 09/14/2013 05:47 PM, Chris Maness wrote:
> Oh the humanity. My parents just gave my VTVM to the Goodwill about a
> week ago. Thats after being there unused for 25 years. Can any one
> recommend a smaller format analog meter with a high input Z. My VTVM

You can generally get an IM-18 VTVM for next to nothing (I got mine for
$15) off of E-Bay.

Have you checked with the Goodwill to see if you can buy it back? It
might still be sitting in their stock room waiting to be put on the shelf.

--
Wes Will
N9KDY

44554. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-14 23:44:49 UTC
From: Don Cunningham
Topic: 44446 Message: 44554

Chris,

You might check with Goodwill, as suggested. The "bigness" of the VTVM you will appreciate in your later years as I do NOW!!! If it's the old Eico (232??) it is a keeper as is the IM-18 that Wes suggested. I like the "under counter" ones Heathkit made so I can mount it to the shelf of the bench!!
73,
Don, WB4HAK
On 9/14/2013 5:47 PM, Chris Maness wrote:
>
> Oh the humanity. My parents just gave my VTVM to the Goodwill about a
> week ago. Thats after being there unused for 25 years. Can any one
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> Are you saying while modulating the rig in SSB mode (speaking
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> 1200) that you only see about 10 watts on voice peaks?
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> is a little low but it depends on your mic, the mic gain

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> this. We can help you perform this step. Another way to do it
> is with a separate receiver sitting near the 520 but not as
> sensitive, but probably OK at this po! int to get it close.
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> box. Your manual will tell you to keep the peaks within the
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> Yes, got it. Just like most other SSB rigs.
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> or flip to send and have no RF output power until you speak in
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> be set anywhere and have no effect on SSB power output.
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> out more power and a proper ALC reading.
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> cheap Harbor Freight has an input Z of under 1 meg and some of
> the Lowes/Sears/Home Depot are around 2meg. They are for
> electricians and not electronic work.
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> saw it at my parents house. I have not messed with it since the
> 80's.
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> Terry K9TW
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> Thanks,
> Chris Maness
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> Thanks,
> Chris
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>
> On Wed, Sep 11, 2013 at 12:10 PM, Chris Maness <chris@...
> <mailto:chris@...>> wrote:
>
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> On Wed, Sep 11, 2013 at 11:49 AM, <wagstw46@...
> <mailto:wagstw46@...>> wrote:
>
>
>
> Chris:
>
>
> I tried to respond but have not seen it yet so not
> sure what happened. I dont like this new format.
> Hard to teach old dog new tricks/.
>
>
> So let me restate to make sure I fully understand.
>
>
> You are telling me that you had the SG switch off,
> the Heaters on, in CW mode, Meter in ALC, the CAR
> level pot full CW or at minimum no less than at
> 1200 or No 5 position. When you flip to s! end and
> peak the Drive control thru its complete range
> that you get no ALC indication on any band. If
> that is true then most likely problem is:
>
>
> Yes, you have understood me correctly I did the test
> 100% per your instruction. I also did the test as if
> I was following the tuning procedure to peak the
> driver as per the manual. I did this in TUN mode.
> Every single band showed no deflection when the CAR
> was at 5 and also at 10 (fully CW). I will try to get
> a hold of a 12BY7A and report back.
>
> Thank you for the flow chart below.
>
>
> 1. Bad 12BY7A driver tube or bad dc voltages to it
> or bad solder connections at tube socket.
>
> 2. Bad/dirty contacts on Aux relay that switches
> the ALC bus voltage
>
> 3. A bad meter position switch contacts (not very
> common).
>
>
> I would start by replacing the 12BY7A driver tube.
> Make sure rig is unplugged and let it set awhile
> to ensure voltage discharged off HV caps. Remove
> rig top cover to access tube on the RF board.

> Sometimes the ground strap can be galled and
> bonded to the metal shield. There is a full length
> split on the shield. Use a thin flat blade screw
> driver to spread the split. Carefully work the
> shield can off so you do not break the ground
> strap that is sandwiched between the glass
> envelope and metal can. When replacing the shield
> make sure the ground strap is placed back between
> the shield and the tube.
>
>
> Here is where you need an RF Probe and VTVM. In 10
> minutes you could measure the RF drive voltage at
> the control grids of the 6146 finals to see if you
> have RF drive greater than approx 39rms volts.
> Should be close to 46rms volts for full scale ALC
> deflection. If you are experienced with O-scope
> could use it as well. RF probe and VTVM are a must
> have if to service own Hybrid.
>
>
> If new Driver tube doesnt help then try cleaning
> the Aux relay. Come back for the procedure for that.
>
>
> In case you are interested for the above test to
> work you need the following:
>
> 1. Good 6146 final tubes. By good I mean good
> filament so there is cathode emission.
>
> 2. Good negative dc operating bias on the control
> grids of the finals. By good I mean voltage on
> control grids must switch from approx -100vdc cut
> off bias to approx -55vdc operating bias when you
> flip to Send. This is occurring as you stated you
> are able to set resting plate current to 60ma.
>
> 3. Good RF drive voltage at the control grids of
> the 6146 finals. By good I mean approx 46rms rf
> volts. 46 x 1.414 = 65 peak rf volts. +65 and -55
> = approx +10 volts on positive peak of the drive
> envelope. This causes control grid to be positive
> with respect to the cathode and ! approx 40ua of
> grid current.
>
>
> When the control grid of the 6146 final tubes
> becomes positive with respect to the cathode grid
> current will flow. When grid current flows the ALC

> amp transistor senses it and reduces the ALC bus
> voltage and reduces the RF drive. When the ALC bus
> voltage is reduced from its nominal 3.2vdc RF-1
> level the ALC meter circuit sees this and drives
> the meter up scale. So with any hint of grid
> current the ALC meter should move up scale. At
> approx 40ua of grid current meter should be full
> scale.
>
>
> If the Driver tube is soft could have insufficient
> RF voltage swing at 6146 control grids to overcome
> the -55vdc bias offset. For example if Driver tube
> is only capable of 39rms volts then 39 x 1.414 =
> 55 peak volts. So if RF drive is swinging the
> control grid to +55 volts on positive going peak
> of the drive envelope then +55 and -55 means Zero
> difference voltage and the control grid is not
> positive with respect to the cathode and there
> will be no grid current and no ALC indication.
>
>
> Terry K9TW
>
>
> 73 de KQ6UP
> Chris
>
>
>
>
>
>

44555. RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 00:07:03 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44555

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings

on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap

and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44556. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 01:48:38 UTC
From: Chris Maness
Topic: 44446 Message: 44556

Terry, I just re-read all the emails. There's a lot in there. Thanks for the details.

A couple of things:

I do have some test gear. 1. and Oscilloscope (with probe) and a Frequency counter. I am prepared to make some measurements if you want to walk me through them.

I do somewhat understand the way forward biasing the ring modulator causes it to change its properties from a balanced modulator to an unbalanced one to produce a CW carrier. I am thinking there must be a short or a bad cap/resistor some where in that circuit. I would like to fix this first -- as this would prevent enough carrier to be present in the CW mode. Also, I need to be using a Z matched mic before I start worrying about the audio quality too. I would really like to nail down this CAR issue. I guess its time to pour over the schematic again like I did several years ago.

Thanks a ton Terry,

de KQ6UP Chris

On Sat, Sep 14, 2013 at 4:07 PM, Chris Maness <chris@...> wrote:

> Just curious, would anyone have a clue as to why I only get CW power
> output at the lowest CAR (fully CCW) setting?
>
> Regards,
> Chris KQ6UP
>

On Sat, Sep 14, 2013 at 4:07 PM, Chris Maness <chris@...> wrote:

> Just curious, would anyone have a clue as to why I only get CW power
> output at the lowest CAR (fully CCW) setting?
>
> Regards,
> Chris KQ6UP
>

44557. RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 01:51:39 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44557

Terry
Hate this new format,as i never got your reply by email
Ok will have a look at that section

73
Don/Ve2ud

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don

I believe you are saying that when you inject 8.830 @500mv from your RF sig gen into the RIF terminal on the IF board you have a loud high frequency tone that you can vary with the audio gain pot (not tunable with the VFO), but the S-meter level is only at S1?

I think we measured RFG at Conn 8 with RF gain pot full CW? It should be 3.6vdc

I think we measured AGC bus voltage at Conn 15? .Need to use nothing less than a 10 meg DMM. It will pull the AGC bus down from 3.6 to close to 3.0vdc or slightly less.

Have you measured these two voltages? Normally if the AGC bus voltage is low the S-meter will be driven up scale with no signal applied unless the S-meter driver circuit is bad.

Have you ever performed the IFT alignment? You can perform the procedure in the maintenance section of the operating manual or the steps in the service manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6
I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44558. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 02:18:00 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44558

See if you can borrow a voltmeter (DMM or VOM) and we can go over measuring the dc voltage at BM terminal on the Gen board for each position of the Car Level pot. Need to make sure you are not immediately getting enough dc bias voltage to turn on the ring diodes and produce a carrier.

If the Car Level pot and its associated circuit is working as it should then I am at a loss as to why you would have instant carrier when just cracking open the Car Level pot.

Is your receive audio clean with no hum on it?

With your scope you could look at the 9vdc regulated off the AVR board to make sure no ripple on it. The Car Level pot needs clean 9vdc applied to it.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, I just re-read all the emails. There's a lot in there. Thanks for the details.

A couple of things:

I do have some test gear. 1. and Oscilloscope (with probe) and a Frequency counter. I am prepared to make some measurements if you want to walk me through them.

I do somewhat understand the way forward biasing the ring modulator causes it to change its properties from a balanced modulator to an unbalanced one to produce a CW carrier. I am thinking there must be a short or a bad cap/resistor some where in that circuit. I would like to fix this first -- as this would prevent enough carrier to be present in the CW mode. Also, I need to be using a Z matched mic before I start worrying about the audio quality too. I would really like to nail down this CAR issue. I guess its time to pour over the schematic again like I did several years ago.

Thanks a ton Terry,

de KQ6UP Chris

On Sat, Sep 14, 2013 at 4:07 PM, Chris Maness <chris@...> wrote:

Just curious, would anyone have a clue as to why I only get CW power output at the lowest CAR (fully CCW) setting?

Regards,
Chris KQ6UP

On Sat, Sep 14, 2013 at 4:07 PM, Chris Maness <chris@...> wrote:

Just curious, would anyone have a clue as to why I only get CW power output at the lowest CAR (fully CCW) setting?

Regards,
Chris KQ6UP

44559. Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 02:19:01 UTC
From: GEAgent21@...
Topic: 44510 Message: 44559

Needle is steady until dead spot and after dead spot. Mic gain set at 3-4 normally. What do you recommend to clean the pot? Deoxit?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time, wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time, wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44560. Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 03:16:33 UTC
From: Chris Maness
Topic: 44446 Message: 44560

On Sat, Sep 14, 2013 at 7:18 PM, <wagstw46@...> wrote:

>
>
> See if you can borrow a voltmeter (DMM or VOM) and we can go over
> measuring the dc voltage at BM terminal on the Gen board for each position
> of the Car Level pot. Need to make sure you are not immediately getting
> enough dc bias voltage to turn on the ring diodes and produce a carrier.
>

I have several DMMs.

>
> If the Car Level pot and its associated circuit is working as it should
> then I am at a loss as to why you would have instant carrier when just
> cracking open the Car Level pot.
>
You have misunderstood me somewhat. If you crack the CAR pot, the CW power
drops nearly instantly. It is MAXIMUM when the CAR Pot is 100% MINIMUM
(CCW).

>
> Is y! our receive audio clean with no hum on it?
>

Receiver seems perfect. When I first got the radio I would here a small
BEAT on the wrong side of the carrier. I fixed that by balancing carrier.
I remember that much now.

>
> With your scope you could look at the 9vdc regulated off the AVR board to
> make sure no ripple on it. The Car Level pot needs clean 9vdc applied to it.
>

Ok. I will check it out. Too drained to poke at it tonight -- might blow
something up if I try to work tired :D

>
> Terry K9TW
>
>
>
>
Thanks,
Chris Maness

44561. Re: [TS-520_820_530_830] 12BY7A Brand Recommendations?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 04:35:37 UTC
From: Joseph Stiles
Topic: 44532 Message: 44561

Chris,

just about any major brand (I prefer US made) should be fine. Check out Ken Kemski's website: k4eaa.com he sells NOS & used drivers
for the KW hybrids at a fair price, and quick service. Mostly it's the "other manufactures" of the 6146's that will cause trouble.
If I may make a suggestion, get 2 driver tubes & a known good set of finals. It can help out down the road with diagnostics.

73 Joe
WB7UQU

_____
From: Chris Maness <chris@chrismaness.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 9:36 AM
Subject: [TS-520_820_530_830] 12BY7A Brand Recommendations?

I need a new driver tube, and I see that there are many brands on the auction site. What brand/brands play well with the TS-520S?

Thanks,
Chris Maness KQ6UP

44562. RE: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 11:41:22 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44562

Chris:

OK then very easy to get that DMM on the BM terminal on the Gen Board and measure what dc voltage you have with the CAR Level pot set at minimum (full CCW). Then monitor and record the dc voltage as you slowly begin to open it (CW).

As I previously cautioned be aware you are working near the HV filter caps and 900vdc. I would set the rig on its side to access BM terminal post.

I previously gave you the voltage levels for each CAR level step.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Sat, Sep 14, 2013 at 7:18 PM, <wagstw46@...> wrote:

See if you can borrow a voltmeter (DMM or VOM) and we can go over measuring the dc voltage at BM terminal on the Gen board for each position of the Car Level pot. Need to make sure you are not immediately getting enough dc bias voltage to turn on the ring diodes and produce a carrier.

I have several DMMs.

If the Car Level pot and its associated circuit is working as it should then I am at a loss as to why you would have instant carrier when just cracking open the Car Level pot.
You have misunderstood me somewhat. If you crack the CAR pot, the CW power drops nearly instantly. It is MAXIMUM when the CAR Pot is 100% MINIMUM (CCW).

Is y! our receive audio clean with no hum on it?

Receiver seems perfect. When I first got the radio I would here a small BEAT on the wrong side of the carrier. I fixed that by balancing carrier. I remember that much now.

With your scope you could look at the 9vdc regulated off the AVR board to make sure no ripple on it. The Car Level pot needs clean 9vdc applied to it.

Ok. I will check it out. Too drained to poke at it tonight -- might blow something up if I try to work tired :D

Terry K9TW

Thanks,
Chris Maness

44563. RE: Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 11:47:54 UTC
From: <wagstw46@...>
Topic: 44510 Message: 44563

Yes Deoxit spray and canned air. I also like to use some Deoxit Fader Type F lube after cleaning. It is made for carbon trace pots and it helps maintain good smooth and quiet action for longer time after pot is cleaned. If you dont have any dont worry about it at this time. Just spray and exercise pot thru its full range multiple times and blow out with canned air. Do this with power off.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Needle is steady until dead spot and after dead spot. Mic gain set at 3-4 normally. What do you recommend to clean the pot? Deoxit?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time, wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time, wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi

My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.

73

Greg

KC9VVU

44564. RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 12:10:33 UTC
From: <wagstw46@...>
Topic: 44540 Message: 44564

Don

Use a low level to inject 8.830 at RIF on IF board and couple output of sig gen thru about a .01uf cap. Nothing more than 5 mv. Also, a couple of the cans will have very little effect on signal level on the S-meter as you turn the core. Do not worry about those at this time. If you get some improvement in S-meter indication suggest you lower the sig gen level and make a 2nd pass. What you are looking for is something that has been grossly mis-tuned that will make IF chain come alive.

If doing IFT alignment does not produce significant improvement in Rx sensitivity then I think time to remove the IF board and do good visual inspection on all the molex pins under magnification and look at all the traces for damage and signs of cobbled repairs. Can have lifted pads and traces, solder bridging, wire jumpers, maybe even a blown trace etc.

I am pretty sure I had you measure Carrier Oscillator and VBT Osc previously and you reported they were to spec. I think we also measured all the DC supply voltages to the board.

We have not yet tried injecting signals in to the IF filters and measuring the output to verify filters are good.

We can do signal injection/tracing next to find where the attenuation is occurring or you can pull board and do good visual. If you have already done that then only thing left (assuming that all necessary signals and DC inputs are present on the board) is to do signal injection/tracing.

I have to trust you when you report back that you have the signals and voltages I ask you to check and that you have the test gear to detect and measure these required inputs and know how to use them. I am not there to witness any of these measurements. I can tell you however it is pretty common for me to hear back from someone I am trying to help that previously reported findings were not correct.

I mean no disrespect it is just a pretty common for this to happen.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Hate this new format,as i never got your reply by email
Ok will have a look at that section

73
Don/Ve2ud

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don

I believe you are saying that when you inject 8.830 @500mv from your RF sig gen into the RIF terminal on the IF board you have a loud high frequency tone that you can vary with the audio gain pot (not tunable with the VFO), but the S-meter level is only at S1?

I think we measured RFG at Conn 8 with RF gain pot full CW? It should be 3.6vdc

I think we measured AGC bus voltage at Conn 15? .Need to use nothing less than a 10 meg DMM. It will pull the AGC bus down from 3.6 to close to 3.0vdc or slightly less.

Have you measured these two voltages? Normally if the AGC bus voltage is low the S-meter will be driven up scale with no signal applied unless the S-meter driver circuit is bad.

Have you ever performed the IFT alignment? You can perform the procedure in the maintenance section of the operating manual or the steps in the service manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6
I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44565. RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 13:06:39 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44565

Terry

Just a follow up before i start

First the RF board i am working on is not the best,as some cans have piece's of elastic bands on them to hold the coil's in place.

I had the RF board all adjusted before the rig when puff,but was not easy to do with the resistance from those rubber bands.Three coils have the rubber band fix,so i need to recheck those coils in case they are part of the problem.

I am on the hunt for another parts radio to replace this RF board as it's cheaper to buy the whole radio.than just the boards.

I have a old Heathkit signal tracer with the green eye,would this be useful

Picked up up a VTVM IM5218 for three bucks at the local hamfest,love the big dial

I have a bid in for a 309c rf probe for it on Ebay.

I also have a Im11 with a good standard probe.

Soon as i finish having my oatmeal i will have a go at it and get back to you

73's
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--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don

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Have you measured these two voltages? Normally if the AGC bus voltage is low the S-meter will be driven up scale with no signal applied unless the S-meter driver circuit is bad.

Have you ever performed the IFT alignment? You can perform the procedure in the maintenance section of the operating manual or the steps in the service manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6
I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

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Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44566. Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 14:08:21 UTC
From: Mike
Topic: 44566 Message: 44566

Good morning everyone,

This morning I made a video showing some very basic test equipment for your shack. Although most of the test equipment shown in the video is Heathkit, anymake/model would serve the same purpose. The video is located at:

www.n6wk.com/w5rkl/basic test equipment/ folder

Take a few minutes and view the video. The video is 69.5meg so it may take a few minutes to load. Windows Media Player works fine with all my videos.

For those who have never used any test equipment before when servicing electronic equipment, I recommend start with basic test equipment first. Once you are comfortable using the basic equipment the move to more advanced/modern test equipment.

I still use all of the test equipment shown in the video. An example of how effective the old IG-102 signal generator can be, I used italong with the IM-4100 frequency counter to troubleshoot a Kenwood TS-120 that had no receive and no transmit, the digital display had only decimal points displayed. That told me the PLL Unit had changed to an "Unlocked" state. The IM-4100 was used to look for various oscillator signals applied to the PLL Unit. All were there except the 8Mhz signal. I used the IG-102 as a substitute for the 8Mhz oscillator, fed the IG-102 signal to the PLL Unit and BINGO the 120 came to life! I also used the same signal generator to troubleshoot a Collins 75A2 receiverto track down a failed PTO(VFO). I used the same technique of substituting the PTO with the IG-102. Just because the test gear shown in the video is old does not mean it cannot be used to service your hybrid. You just have to learn how to use it properly.

73
Mike W5RKL

44567. RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 14:12:09 UTC
From: <wagstw46@...>
Topic: 44540 Message: 44567

Don:

Do you mean IF board and not RF board? Bad RF board has nothing to do with weak signal when you are subing the RIF signal into the IF board.

Bob Mansker sells good IF boards pretty reasonably. Ihave purchased several from him. RF boards require 2nd mortgage from any supplier.

I have never had any luck at scoring what I would call a bargain tech special rig. Most I see on ebay never go for less than around $200 so with shipping looking at $250 for a parts rig. I have gotten couple of parts rig when the customers poorly packed the rig and sent it to me for repair and it was severely damaged in shipping. Able to buy them for cost of shipping. Dont like to get them that way.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Just a follow up before i start

First the RF board i am working on is not the best,as some cans have piece's of elastic bands on them to hold the coil's in place.

I had the RF board all adjusted before the rig when puff,but was not easy to do with the resistance from those rubber bands.Three coils have the rubber band fix,so i need to recheck those coils in case they are part of the problem.

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I have a bid in for a 309c rf probe for it on Ebay.

I also have a Im11 with a good standard probe.

Soon as i finish having my oatmeal i will have a go at it and get back to you

73's
Don/Ve2ud

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don

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Terry
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Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Terry K9TW

44568. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 15:39:08 UTC
From: Don
Topic: 44566 Message: 44568

Thanks Mike for the videos

As i am more a visual person,would like to see some videos on how to use the test equipment for troubleshooting

Only my Google chrome browser will open up the player

73's
Don/Ve2ud

On 15/09/2013 10:08 AM, Mike wrote:
> Good morning everyone,
>
> This morning I made a video showing some very basic test equipment for your shack. Although most of the test equipment shown in the video is Heathkit, any make/model would serve the same purpose. The video is located at:
>
> www.n6wk.com/w5rkl/basic test equipment/ folder
>
> Take a few minutes and view the video. The video is 69.5meg so it may take a few minutes to load. Windows Media Player works fine with all my videos.
>
> For those who have never used any test equipment before when servicing electronic equipment, I recommend start with basic test equipment first. Once you are comfortable using the basic equipment the move to more advanced/modern test equipment.
>
> I still use all of the test equipment shown in the video. An example of how effective the old IG-102 signal generator can be, I used it along with the IM-4100 frequency counter to troubleshoot a Kenwood TS-120 that had no receive and no transmit, the digital display had only decimal points displayed. That told me the PLL Unit had changed to an "Unlocked" state. The IM-4100 was used to look for various oscillator signals applied to the PLL Unit. All were there except the 8Mhz signal. I used the IG-102 as a substitute for the 8Mhz oscillator, fed the IG-102 signal to the PLL Unit and BINGO the 120 came to life! I also used the same signal generator to troubleshoot a Collins 75A2 receiver to track down a failed PTO (VFO). I used the same technique of substituting the PTO with the IG-102. Just because the test gear shown in the video is old does not mean it cannot be used to service your hybrid. You just have to learn how to use it properly.
>

> 73
> Mike W5RKL
>
>
>
>

44569. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 16:23:38 UTC
From: W LEWIS
Topic: 44566 Message: 44569

Hi Mike,
Butch Lewis (KØPSA) here. I'd like to view your videos but can't find them on Gordon's site. Can you help?
Thanks.

From: Mike <w5rkl@...>
To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, September 15, 2013 9:08 AM
Subject: [TS-520_820_530_830] Examples of basic test equipment

Good morning everyone,

This morning I made a video showing some very basic test equipment for your shack. Although most of the test equipment shown in the video is Heathkit, anymake/model would serve the same purpose. The video is located at:

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Mike W5RKL

44570. RE: Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 16:30:22 UTC
From: <n6wk@...>
Topic: 44566 Message: 44570

Hi Butch, All Mikes great videos are here: http://www.n6wk.com/w5rkl/

73,
Gordon
N6WK

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, September 15, 2013 9:08 AM
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Mike W5RKL

44571. Re: Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 17:17:27 UTC
From: W LEWIS
Topic: 44566 Message: 44571

Thanks, Gordon. You're right, it's a great video and thanks for the link. In the original message only a portion of the link appeared. Hope he does more.
Best regards,
Butch

From: "n6wk@..." <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 15, 2013 11:30 AM
Subject: RE: Re: [TS-520_820_530_830] Examples of basic test equipment

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N6WK

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Thanks.

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To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, September 15, 2013 9:08 AM
Subject: [TS-520_820_530_830] Examples of basic test equipment

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Mike W5RKL

44572. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:06:57 UTC
From: W5RKL
Topic: 44566 Message: 44572

Hi Butch,

Here is the link:

www.n6wk.com/w5rkl/

73
Mike W5RKL

On 9/15/2013 11:23 AM, W LEWIS wrote:
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> Thanks.
>
> *From:* Mike <w5rkl@...>
> *To:* Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Sunday, September 15, 2013 9:08 AM
> *Subject:* [TS-520_820_530_830] Examples of basic test equipment
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> only decimal points displayed. That told me the PLL Unit had changed
> to an "Unlocked" state. The IM-4100 was used to look for various
> oscillator signals applied to the PLL Unit. All were there except the
> 8Mhz signal. I used the IG-102 as a substitute for the 8Mhz
> oscillator, fed the IG-102 signal to the PLL Unit and BINGO the 120

> came to life! I also used the same signal generator to troubleshoot a
> Collins 75A2 receiverto track down a failed PTO(VFO). I used the same
> technique of substituting the PTO with the IG-102. Just because the
> test gear shown in the video is old does not mean it cannot be used to
> service your hybrid. You just have to learn how to use it properly.
>
> 73
> Mike W5RKL
>
>
>
>

44573. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:15:13 UTC
From: W5RKL
Topic: 44566 Message: 44573

It appears the link to my videos on Gordon's website, for some unknown reason, don't work.

Try any of the following 3 links. I've tested all 3 of them and they work.

http://www.n6wk.com/w5rkl/

www.n6wk.com/w5rkl/

or

n6wk.com/w5rkl/

and hit ENTER.

73
Mike W5RKL

On 9/15/2013 9:08 AM, Mike wrote:
>
> Good morning everyone,
>
> This morning I made a video showing some very basic test equipment for
> your shack. Although most of the test equipment shown in the video is
> Heathkit, anymake/model would serve the same purpose. The video is
> located at:
>
> www.n6wk.com/w5rkl/basic test equipment/ folder
>
> Take a few minutes and view the video. The video is 69.5meg so it may
> take a few minutes to load. Windows Media Player works fine with all
> my videos.
>
> For those who have never used any test equipment before when servicing
> electronic equipment, I recommend start with basic test equipment
> first. Once you are comfortable using the basic equipment the move to
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>
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> Mike W5RKL
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>

44574. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:38:31 UTC
From: Don
Topic: 44566 Message: 44574

Mike
SeaMonkey browser says could not locate specified clip,and Firefox says
the same
Google Chrome says attempting to play an extension [tmp] that does
not match file format.
Then say's do you want player to play this format...say yes,and then it
plays fine.

73
Don/Ve2ud

On 15/09/2013 2:15 PM, W5RKL wrote:
>
> It appears the link to my videos on Gordon's website, for some unknown
> reason, don't work.
>
> Try any of the following 3 links. I've tested all 3 of them and they work.
>
> http://www.n6wk.com/w5rkl/
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>> Mike W5RKL
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>

44575. RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:47:55 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44575

Terry
Bob wants $110 plus shipping and there is a exchange rate on top of that
That would be close to $130

I paid $90 for the that last rig that i was able to fix,,yes don't get deals like that everyday.
I will keep searching as i have learn't a long time ago in life that there is always another one

Don

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don:

Do you mean IF board and not RF board? Bad RF board has nothing to do with weak signal when you are subing the RIF signal into the IF board.

Bob Mansker sells good IF boards pretty reasonably. Ihave purchased several from him. RF boards require 2nd mortgage from any supplier.

I have never had any luck at scoring what I would call a bargain tech special rig. Most I see on ebay never go for less than around $200 so with shipping looking at $250 for a parts rig. I have gotten couple of parts rig when the customers poorly packed the rig and sent it to me for repair and it was severely damaged in shipping. Able to buy them for cost of shipping. Dont like to get them that way.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Just a follow up before i start

First the RF board i am working on is not the best,as some cans have piece's of elastic bands on them to hold the coil's in place.

I had the RF board all adjusted before the rig when puff,but was not easy to do with the resistance from those rubber bands.Three coils have the rubber band fix,so i need to recheck those coils in case they are part of the problem.

I am on the hunt for another parts radio to replace this RF board as it's cheaper to buy the whole radio.than just the boards.

I have a old Heathkit signal tracer with the green eye,would this be useful

Picked up up a VTVM IM5218 for three bucks at the local hamfest,love the big dial

I have a bid in for a 309c rf probe for it on Ebay.

I also have a Im11 with a good standard probe.

Soon as i finish having my oatmeal i will have a go at it and get back to you

73's
Don/Ve2ud

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don

Use a low level to inject 8.830 at RIF on IF board and couple output of sig gen thru about a .01uf cap. Nothing more than 5 mv. Also, a couple of the cans will have very little effect on signal level on the S-meter as you turn the core. Do not worry about those at this time. If you get some improvement in S-meter indication suggest you lower the sig gen level and make a 2nd pass. What you are looking for is something that has been grossly mis-tuned that will make IF chain come alive.

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I mean no disrespect it is just a pretty common for this to happen.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Hate this new format,as i never got your reply by email
Ok will have a look at that section

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Have you measured these two voltages? Normally if the AGC bus voltage is low the S-meter will be driven up scale with no signal applied unless the S-meter driver circuit is bad.

Have you ever performed the IFT alignment? You can perform the procedure in the maintenance section of the operating manual or the steps in the service manual.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6
I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

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Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44576. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:48:48 UTC
From: W LEWIS
Topic: 44566 Message: 44576

Thanks, Mike. Gordon sent me the link and it worked. In the original message only a portion of the link appeared. In the latest two messages the links appeared normally. By the way, Great video.
Thanks again and 73,
Butch
KØPSA

From: W5RKL <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 15, 2013 1:15 PM
Subject: Re: [TS-520_820_530_830] Examples of basic test equipment

It appears the link to my videos on Gordon's website, for some unknown reason, don't work.

Try any of the following 3 links. I've tested all 3 of them and they
work.

http://www.n6wk.com/w5rkl/

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>73
>Mike W5RKL
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>
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44577. RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:48:55 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44577

Terry
Sorry as i gave price for the RF board
Don

--- In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Don:

Do you mean IF board and not RF board? Bad RF board has nothing to do with weak signal when you are subing the RIF signal into the IF board.

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Soon as i finish having my oatmeal i will have a go at it and get back to you

73's
Don/Ve2ud

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Don

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Terry K9TW

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Terry K9TW

44578. Re: [TS-520_820_530_830] RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:56:54 UTC
From: Joe - W7RKN
Topic: 44540 Message: 44578

About of a month ago, the exchange rate was nowhere near that great..more like a Canadian dollar was worth $1.05 U.S. (If you are talking Canadian and American exchange rates!)

Joe - W7RKN
----- Original Message -----
From: ve2ud@...
Subject: [TS-520_820_530_830] RE: Ebay Special

Terry

Bob wants $110 plus shipping and there is a exchange rate on top of that

That would be close to $130

44579. RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 18:59:17 UTC
From: <ve2ud@...>
Topic: 44540 Message: 44579

Terry
I will need both boards i think
The Rf board was in bad shape when i got the rig,with elastic bands in the coils and cracked slugs

The IF board just has to be tested,as overall it looks good.

Don

--- In ts-520_820_530_830@yahoogroups.com, <ve2ud@...> wrote:

Terry
Sorry as i gave price for the RF board
Don

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Terry K9TW

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So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44580. YES!!! It's ALIVE! Real radios DO glow in the dark! Mine does, finally!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 19:27:33 UTC
From: Wes Will
Topic: 44446 Message: 44580

Can you guess that the new rectifier board, with the added 100K resistor for the missing side-tone bias connection, is working perfectly?

All voltages, 9 to 900 (well, 852, actually, but that rounds UP to Got 900!) are present and accounted for.

Fan is running, filaments are lit, lamps are lit. Low-level Brownian noise on the headphones, that nice, clean static hiss. Changes tones when going from USB to LSB to CW to Tune, too. Markers are there, clean and LOUD. Got a weak signal for WWV with just the dummy load for an antenna, too. The receiver sounds FANTASTIC. Been much too long since I had headphones on....

Now, the bad news.

The meter switch does nothing,

All settings, it just sits right at about 850 on the HV scale. It's as if it was hard-wired directly to the HV line and the switch was bypassed or something.

No, wait a minute...Now THAT'S odd.

In all meter switch positions, the RF Gain pot will move the needle up or down scale, in the INVERSE direction. Fully CCW is pegged to the right (full-scale); fully CW is near zero deflection. It's not stuck on HV at all, the 850 level on the HV scale was just a coincidence. Looks like it's measuring RF into the receiver somehow, but backwards.

This couldn't be simple. After all this fol-de-rol, it couldn't ALL just work again.

Sigh.

OK. Best get started. Advice? Where to start? Again, I have not and AM NOT GOING TO touch the transmitter section until receive and all the ancillary bits are working properly.

One Thing At A Time. (Ain't I got enough troubles??)

Just for a record of all the settings:

SG is off

REC mode
WIDE bandwidth
MAN vox setting
Noise blanker is off

AGC is off

MODE is presently in USB, but the meter doesn't change in any mode.
VFO is in the 20m band around 200 on the dial.
Function is on VFO
FIT is off, and the RIT pot is centered.
Processor is off
CAR is at 1200
AF and RF Gain at 1200

FIX CH on #1 spot, and who cares, does nothing in any but FIX Function switch settings of course.

LOAD at 1200
PLATE on the 20M mark (about 1300)
DRIVE at 1200.

Meter switch in all positions, nothing changes. Currently with RF gain at 1200 it shows about 850 on the HV scale/170 on the mA scale.

Oh, almost forgot. POWER is on (duh).

--
Wes Will
N9KDY

44581. Kenwood Hybrid Net Update (September 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 19:41:36 UTC
From: Mark Gilger
Topic: 44581 Message: 44581

The Saturday□s net on 40 meter had 17 stations
checking in under fair band conditions. There
were 7 new check-ins, KB1ZOJ, W2EWK, K2QU,
W4XRP, W4IBK, KF4UKC, KD8FPS. Out of those, there was:

3 running TS-520(x)
1running TS-530(x)
1 running TS-820(x)
3 unning TS-830S
0 running TS-900

Jimmy, WB2KNR ran the net and was running his
TS-520. The rest were running non hybrids of one model or another.

The Sunday□s 20 meter net had 15 stations
checking in under good band conditions. He had 5
new check ins, KB6TSQ, KA6OCA, WN7L, AK6E, and W5CNW. Out of those, there was:

3 running TS-520(x)
0 running TS-530(x)
4 running TS-820(x)
2 running TS-830S

I was running my TS-940. The rest were running
non hybrids of one model or another.

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 31, Sunday☐s total = 35 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44582. VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 19:44:20 UTC
From: Chris Maness
Topic: 44582 Message: 44582

Working on my TS-520s, and I was admonished to purchase a VTVM. It just so happens I came across one at an antique store. I am not sure if it's worth it though. The guy wants $30 for it. It seems to work intermittently. There is no corrosion from the Ohm scale battery and it comes with test leads. Im not sure if the probe is an RF probe or not. It has a switch that says DC on it. The model is Heathkit IM-11. What do you guys think? I am not necessarily looking to fix another piece of equipment before I get to fixing the radio.

Input appreciated.

Thanks,
Chris KQ6UP

44583. Re: [TS-520_820_530_830] YES!!! It's ALIVE! Real radios DO glow in the dark! Mine does, finally!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 19:44:53 UTC
From: Ken Winterling
Topic: 44446 Message: 44583

Will,

The meter switch doesn't function in receive mode, only when in transmit where it selects the functions listed around the switch. In receive the meter is always is an "S" meter, measuring the strength of the incoming signal. As for the RF gain, it is operating correctly. Turning the RF gain fully CW (Clock Wise) makes the receiver the most sensitive. Turning the RF control toward fully CCW (Counter Clock Wise) makes the receiver progressively less sensitive. The needle on the meter increases from zero (or near zero) indicating maximum sensitivity to the maximum on the scale as the receiver is made less sensitive by the counter clock wise rotation of the RF gain.

Have you connected an antenna (or length of wire), turned the RF gain fully CW, and tried to listen for any signals? If just using a piece of wire I suggest trying 80M, 40M, or 20M for your test since.

Let us know what you find. I believe you will be pleasantly surprised!

Ken
WA2LBI

On Sun, Sep 15, 2013 at 3:27 PM, Wes Will <wwill@...> wrote:

> **
>
>
> Can you guess that the new rectifier board, with the added 100K resistor
> for the missing side-tone bias connection, is working perfectly?
>
> All voltages, 9 to 900 (well, 852, actually, but that rounds UP to Got
> 900!) are present and accounted for.
>
> Fan is running, filaments are lit, lamps are lit. Low-level Brownian
> noise on the headphones, that nice, clean static hiss. Changes tones
> when going from USB to LSB to CW to Tune, too. Markers are there, clean
> and LOUD. Got a weak signal for WWV with just the dummy load for an
> antenna, too. The receiver sounds FANTASTIC. Been much too long since
> I had headphones on....
>
> Now, the bad news.
>
> The meter switch does nothing,
>
> All settings, it just sits right at about 850 on the HV scale. It's as

> if it was hard-wired directly to the HV line and the switch was bypassed
> or something.
>
> No, wait a minute...Now THAT'S odd.
>
> In all meter switch positions, the RF Gain pot will move the needle up
> or down scale, in the INVERSE direction. Fully CCW is pegged to the
> right (full-scale); fully CW is near zero deflection. It's not stuck on
> HV at all, the 850 level on the HV scale was just a coincidence. Looks
> like it's measuring RF into the receiver somehow, but backwards.
>
> This couldn't be simple. After all this fol-de-rol, it couldn't ALL
> just work again.
>
> Sigh.
>
> OK. Best get started. Advice? Where to start? Again, I have not and
> AM NOT GOING TO touch the transmitter section until receive and all the
> ancillary bits are working properly.
>
> One Thing At A Time. (Ain't I got enough troubles??)
>
> Just for a record of all the settings:
>
> SG is off
>
> REC mode
> WIDE bandwidth
> MAN vox setting
> Noise blanker is off
> AGC is off
>
> MODE is presently in USB, but the meter doesn't change in any mode.
> VFO is in the 20m band around 200 on the dial.
> Function is on VFO
> FIT is off, and the RIT pot is centered.
> Processor is off
> CAR is at 1200
> AF and RF Gain at 1200
>
> FIX CH on #1 spot, and who cares, does nothing in any but FIX Function
> switch settings of course.
>
> LOAD at 1200
> PLATE on the 20M mark (about 1300)
> DRIVE at 1200.
>
> Meter switch in all positions, nothing changes. Currently with RF gain
> at 1200 it shows about 850 on the HV scale/170 on the mA scale.
>

> Oh, almost forgot. POWER is on (duh).
>
> --
> Wes Will
> N9KDY
> _
>

44584. YES!!! It's ALIVE! Real radios DO glow in the dark! Mine does, finally!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 19:44:45 UTC
From: Wes Will
Topic: 44446 Message: 44584

CRAP.

Stupid me. HAD to complicate things.

Turned the radio off. Plugged in the DG-5 freq display.

Turned the radio on.

POP.

Meter light and tube filaments are all that is left. DEAD.

And I smell that something burnt.

Fuses are fine. Has to be that rectifier board again.

.
.
.

I am going to lose

what little I have left

of my mind.

--
Wes Will
N9KDY
Send Mail
C/O The Insane Asylum

44585. Re: [TS-520_820_530_830] VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 19:50:26 UTC
From: Wes Will
Topic: 44582 Message: 44585

On 09/15/2013 02:44 PM, Chris Maness wrote:
> Working on my TS-520s, and I was admonished to purchase a VTVM. It just
> so happens I came across one at an antique store. I am not sure if it's
> worth it though. The guy wants $30 for it. It seems to work
> intermittently. There is no corrosion from the Ohm scale battery and it

That's not the RF probe, most likely.

Will he sell it to you with a return option if cleaning the switches and pots inside don't fix the intermittent problem?

$30 is a bit steep, but not too far out, if it works.

Sounds (from what little info we have here) that it's mostly intact. If you can get it working briefly in the store, see if it will (with the probe in the DC setting) measure somewhere near correctly the voltage from a battery, an AA or D or 9volt cell, or whatever.

If it does, with the scale set on an appropriate level (15V or 5V or 1.5V or whatever) then it more than likely just needs a good cleaning and calibration. The manuals for that model are pretty ubiquitous, I think the BAMA archive has it. Almost positive.

--
Wes Will
N9KDY

44586. RE: VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 20:04:51 UTC
From: <ku4a@...>
Topic: 44582 Message: 44586

I would be tempted to cruise around eBay a bit just to see how their prices compare. Don't limit yourself to the IM-11. There are a bunch of different makes/models out there. I see them at flea markets a lot (and I mean general flea markets not hamfests). Plenty of them out there.

KU4A

--- In ts-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 09/15/2013 02:44 PM, Chris Maness wrote:
> Working on my TS-520s, and I was admonished to purchase a VTVM. It just
> so happens I came across one at an antique store. I am not sure if it's
> worth it though. The guy wants $30 for it. It seems to work
> intermittently. There is no corrosion from the Ohm scale battery and it

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If it does, with the scale set on an appropriate level (15V or 5V or 1.5V or whatever) then it more than likely just needs a good cleaning and calibration. The manuals for that model are pretty ubiquitous, I think the BAMA archive has it. Almost positive.

--
Wes Will
N9KDY

44587. Re: [TS-520_820_530_830] YES!!! It's ALIVE! Real radios DO glow in the dark! Mine does, finally!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 20:07:55 UTC
From: Wes Will
Topic: 44446 Message: 44587

OK. Thanks for that. Wondered if that was the way things were, though RF gain working as an attenuator is a labeling issue. Didn't know it was mis-labeled, since AF Gain works as a GAIN control (higher is louder) and not an attenuator (higher is lower).

So. It WAS working correctly. Bloody good.

But now there is nothing on the 14v output on the rectifier board (which is the one I just replaced). Bloody figures.

Got all the high voltages, just no low-voltage for biasing EVERYTHING else.

Which was the ORIGINAL problem, though the board was burned to a crisp in that area, that time. The screw which had fallen out into the chassis was shorting the 800V doubler to the 14V bias line.

This time there is nothing visibly wrong. Probably popped a diode, will be checking it soon.

And I apparently have a bad DG-5, with a dead short in the DC input lines, to work on when I get the radio going.

Oh, carp. crap. carp. I wanted to be FINISHED with this thing.

44588. Re: [TS-520_820_530_830] RE: VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 20:11:39 UTC
From: Chris Maness
Topic: 44582 Message: 44588

Yea, was thinking that was a little steep, but shipping would have to be considered with the auction site. I'm not stuck on that particular model. I do like the fact that it is small for a VTVM.

Thanks,
Chris KQ6UP

44589. Re: [TS-520_820_530_830] VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 20:22:32 UTC
From: Ken Winterling
Topic: 44582 Message: 44589

Chris,

The IM-11 is a decent VTVM. I have the IM-18, the successor to the IM-11. The probe with the switch selects between DC measurements and AC voltage/resistance. In the DC position a 1 megohm resistor is placed in series with the probe tip to provide an 11 megohm input resistance (the remaining 10 megohms is inside the meter) as well as to isolate the meter from the tested circuit. In the other position the resistor is bypassed so the meter can measure AC voltage and resistance. Those original Heathkitprobes are difficult to find separately and they often do not come with the
meter.

It seems to me that $30 is a bit much for an IM-11. I have obtained a few RCA/VIZ Senior VoltOhmyst WV-98C meters for $25 and they have a larger meter. Check QTH, QRZ, eHam, and ebay before you pluck down your money. OTOH, if the meter is in excellent physical condition and the probe is complete and working properly (as I said above, they are difficult to find) then it might be a good idea to get it. After all, you are in a position to see the meter and check it before you purchase so that is a good thing. Since you had it open to check the battery contacts you were able to inspect the build quality. Was it good? If not, I would leave it and look for another. I built my IM-18 in 1969 and it is still going strong.

You say it works "intermittently". Please explain. Is it making erratic measurements on a known, stable voltage? Are you seeing unstable ohm measurements? Are the pots "scratchy" or have dead spots? If any of these is the problem I would clean the probe jack and plug as well as apply DeoxITto the switch contacts and use
FaderLube on the pots. Regardless of what VTVM you end up with you should do this maintenance so you know you have a reliable meter. If, however, the pots have dead spots it may be a damaged section that will require that the pot be replaced. You won't be able to determine that without a bit of troubleshooting.

Ken
WA2LBI

On Sun, Sep 15, 2013 at 3:44 PM, Chris Maness <chris@...> wrote:

> **
>
>
> Working on my TS-520s, and I was admonished to purchase a VTVM. It just
> so happens I came across one at an antique store. I am not sure if it's
> worth it though. The guy wants $30 for it. It seems to work

> intermittently. There is no corrosion from the Ohm scale battery and it
> comes with test leads. Im not sure if the probe is an RF probe or not. It
> has a switch that says DC on it. The model is Heathkit IM-11. What do you
> guys think? I am not necessarily looking to fix another piece of equipment
> before I get to fixing the radio.
>
> Input appreciated.
>
> Thanks,
> Chris KQ6UP
>
> _'_·_'___
>

44590. Re: [TS-520_820_530_830] RE: VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 20:23:34 UTC
From: K5MYJ
Topic: 44582 Message: 44590

Consider that it DOES HAVE the 11M AC/DC probe. Most of the Heath meters found on eBay have the probes missing.

The IM-11 is as good as any vintage VTVM other then the HP meters. And the manual is available.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Chris Maness
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 15, 2013 1:11 PM
Subject: Re: [TS-520_820_530_830] RE: VTVM at an Antique Store?

Yea, was thinking that was a little steep, but shipping would have to be considered with the auction site. I'm not stuck on that particular model. I do like the fact that it is small for a VTVM.

Thanks,
Chris KQ6UP

44591. Re: [TS-520_820_530_830] VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 21:26:45 UTC
From: Chris Maness
Topic: 44582 Message: 44591

I went ahead and picked up the meter. The soldering in the unit looked very well done. I gave it a bath in DeoxIT. It looks like the probe was the source of the problem. Very heavy black oxidation/carbon build up on the contacts inside the probe switch. It is mostly working after cleaning. The meter itself seems to be working, but it does need to be calibrated. I now have a VTVM. I am off to calibrate it.

73 de KQ6UP
Chris

44592. Re: [TS-520_820_530_830] RE: VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 21:44:27 UTC
From: Mike
Topic: 44582 Message: 44592

The probe itself is NOT "11 meg", it's a "1 meg" resistor in series with the tip making it a "1 meg probe". The 1 meg probe is required only when measuring DC voltages. AC and Ohms, the probe has no resistor in series with the tip, it's just a wire from the tip to the input of the VTVM.

The original switchable probe had a rotating switch on the tip. Rotate the switch to "AC/Ohms" and the probe has no resistor in series with the tip. Rotate the switch to "DC" and the 1 meg resistor is in series with the tip.This is the same with ALL VTVMsthat have switchable probes.

If the VTVM does not have the probe then you can make your own probes. I found old/vintage thin diameter DC meter probes with the removal nut on the tip end. This allows you to install a 1meg resistor in series with the tip. I used RG-8X coax. You can see this type of probe on my basic test equipment video at the following link:

http://www.n6wk.com/w5rkl/Basic%20Test%20Equipment/

There are other ways to make the probes without having to search high and low for the original probe, they are difficult to find.

Actually, $30 is not a bad price for the VTVM if it working. I have 4 VTVMs andonly 1 had to be fixed, an AC volt meter. The tubes inside are usually 6AL5 dual diode and a 12AU7 dual triode. These tubes, if they glass envelope is not cracked due to abusive handling, don't need replacing. All of the tubes in my VTVMs are over 40 years old and they work just fine. You should not have to replace any of theresistors, they are typically precision resistors.

If you wait for eBay or some other auction/sales web site, you may get one cheaper but the shipping cost could easily bring the total cost upto and sometimes higher than the $30.

73
Mike W5RKL

On 9/15/2013 3:23 PM, K5MYJ wrote:
>
> Consider that it DOES HAVE the 11M AC/DC probe. Most of the Heath
> meters found on eBay have the probes missing.
> The IM-11 is as good as any vintage VTVM other then the HP meters. And
> the manual is available.
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
>

> ----- Original Message -----
> *From:* Chris Maness <mailto:chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Sunday, September 15, 2013 1:11 PM
> *Subject:* Re: [TS-520_820_530_830] RE: VTVM at an Antique Store?
>
> Yea, was thinking that was a little steep, but shipping would have
> to be considered with the auction site. I'm not stuck on that
> particular model. I do like the fact that it is small for a VTVM.
>
> Thanks,
> Chris KQ6UP
>
>

44593. Re: [TS-520_820_530_830] RE: VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 22:20:51 UTC
From: Christopher Maness
Topic: 44582 Message: 44593

On Sep 15, 2013, at 2:44 PM, Mike wrote:

>
>
> The probe itself is NOT "11 meg", it's a "1 meg" resistor in series
> with the tip making it a "1 meg probe". The 1 meg probe is required
> only when measuring DC voltages. AC and Ohms, the probe has no
> resistor in series with the tip, it's just a wire from the tip to
> the input of the VTVM.
>
> The original switchable probe had a rotating switch on the tip.
> Rotate the switch to "AC/Ohms" and the probe has no resistor in
> series with the tip. Rotate the switch to "DC" and the 1 meg
> resistor is in series with the tip. This is the same with ALL VTVMs
> that have switchable probes.
>
> If the VTVM does not have the probe then you can make your own
> probes. I found old/vintage thin diameter DC meter probes with the
> removal nut on the tip end. This allows you to install a 1meg
> resistor in series with the tip. I used RG-8X coax. You can see this
> type of probe on my basic test equipment video at the following link:
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> http://www.n6wk.com/w5rkl/Basic%20Test%20Equipment/
>
> There are other ways to make the probes without having to search
> high and low for the original probe, they are difficult to find.
>
> Actually, $30 is not a bad price for the VTVM if it working. I have
> 4 VTVMs and only 1 had to be fixed, an AC volt meter. The tubes
> inside are usually 6AL5 dual diode and a 12AU7 dual triode. These
> tubes, if they glass envelope is not cracked due to abusive
> handling, don't need replacing. All of the tubes in my VTVMs are
> over 40 years old and they work just fine. You should not have to
> replace any of the resistors, they are typically precision resistors.
>
> If you wait for eBay or some other auction/sales web site, you may
> get one cheaper but the shipping cost could easily bring the total
> cost up to and sometimes higher than the $30.
>
>
> 73
> Mike W5RKL
>
>

I went ahead and picked it up. It is working 100% now and also calibrated. It looks like the issue with the probe is that high current went through it it at some point and deeply pitted the switch contact inside the probe. It is mostly working now, but can be a bit finicky. The meter is very accurate across different ranges now that it is calibrated. I am quite impressed with it.

Thanks, guys
Chris KQ6UP
>

44594. Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 23:29:30 UTC
From: Chris Maness
Topic: 44446 Message: 44594

On Sun, Sep 15, 2013 at 4:41 AM, <wagstw46@...> wrote:

>
>
> Chris:
>
>
> OK then very easy to get that DMM on the BM terminal on the Gen Board and
> measure what dc voltage you have with the CAR Level pot set at minimum
> (full CCW). Then monitor and record the dc voltage as you slowly begin to
> open it (CW).
>

Here is the table of data:
CAR= | V=
0 | .360V
1 | .365V
2 | 1.26V
3 | 2.20V
4 | 3.45V
5 | 4.60V
6 | 5.50V
7 | 7.00V
8 | 8.00V
9 | 9.00V
10 | 9.00V

Something aint right in paradise. A strange thing that happens is I get no voltage in REC at CAR=0 (that seems normal). However, once I get to setting 2, this crazy high voltage shows up weather I am in REC or SEND. Measured with a VTVM I found at an antique store this afternoon on my way home from church. I cleaned and calibrated it. I don't have an RF probe for it yet.

It looks like the voltage divider es no dividing.

>
> As I previously cautioned be aware you are working near the HV filter caps
> and 900vdc. I would set the rig on its side to access BM terminal post.
>
Roger that. I only connect the leads with it on its side and the power OFF.

>
> I previously gave you the voltage levels for each CAR level step.

>

Yes, thank you. Houston we have a problem.

>
> Terry K9TW
>
>
Thanks, Terry.
Chris Maness KQ6UP

44595. Re: Re: [TS-520_820_530_830] New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-15 23:43:51 UTC
From: Brian Forney
Topic: 44440 Message: 44595

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@yahoo.com" <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
  Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>

To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

>
>
>

44596. Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 00:01:41 UTC
From: Chris Maness
Topic: 44446 Message: 44596

p.s. The AVR board is putting out dead on 9V, and it is clean as a whistle
-- no ripple.

Chris

On Sun, Sep 15, 2013 at 4:29 PM, Chris Maness <chris@...> wrote:

>
>
>
> On Sun, Sep 15, 2013 at 4:41 AM, <wagstw46@...> wrote:
>
>>
>>
>> Chris:
>>
>>
>> OK then very easy to get that DMM on the BM terminal on the Gen Board and
>> measure what dc voltage you have with the CAR Level pot set at minimum
>> (full CCW). Then monitor and record the dc voltage as you slowly begin to
>> open it (CW).
>>
>
> Here is the table of data:
> CAR= | V=
> 0 | .360V
> 1 | .365V
> 2 | 1.26V
> 3 | 2.20V
> 4 | 3.45V
> 5 | 4.60V
> 6 | 5.50V
> 7 | 7.00V
> 8 | 8.00V
> 9 | 9.00V
> 10 | 9.00V
>
> Something aint right in paradise. A strange thing that happens is I get
> no voltage in REC at CAR=0 (that seems normal). However, once I get to
> setting 2, this crazy high voltage shows up weather I am in REC or SEND.
> Measured with a VTVM I found at an antique store this afternoon on my way
> home from church. I cleaned and calibrated it. I don't have an RF probe
> for it yet.
>

> It looks like the voltage divider es no dividing.
>
>>
>> As I previously cautioned be aware you are working near the HV filter
>> caps and 900vdc. I would set the rig on its side to access BM terminal
>> post.
>>
> Roger that. I only connect the leads with it on its side and the power
> OFF.
>
>>
>> I previously gave you the voltage levels for each CAR level step.
>>
>
> Yes, thank you. Houston we have a problem.
>
>>
>> Terry K9TW
>>
>>
> Thanks, Terry.
> Chris Maness KQ6UP
>

44597. V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 01:36:42 UTC
From: Wes Will
Topic: 44446 Message: 44597

I have found a source for them in the U.K. Some guy has a bunch of NOS V06B's, and they're rather low cost. I'm going to place an order with this guy, and I would like to know if anyone wants a few for their junkbox or to repair a radio. They're going to cost me less than a quarter each. More like a dime, actually, before postage. That's going to cost more than the parts, I guess.

IF THE GUY RESPONDS, I don't want to get just ten of them (minimum quantity), if anyone else can use some.

Let me know how many you'd like, and I'll add them to the order. When they get here I'll mail them to whomever says they want some. U.S. postage will be just a first-class stamp. Other countries will be whatever it comes to, they're tiny and will go in an envelope. Maybe a buck for most places, buck and a half at the outside.

I'll divide the total cost when they get here. and let you know how much each precisely, but figure on a quarter or less each, and the price of a postage stamp.

--
Wes Will
N9KDY

44598. V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 02:09:57 UTC
From: Wes Will
Topic: 44446 Message: 44598

Dumb question. I know, I'm full of those.

I've looked at the spec sheet for the V06B. I know the other diodes and even some of the resistors in these radios were chosen for very specific reasons: to act as fuses, in the case of some of the resistors; for their switching characteristics, and so on.

Is there ANY such reason of which I am unaware which would make replacing these with just about ANY 100 volt PIV (or higher) silicon diode a bad idea?

I'm not talking about slapping a kilovolt PIV high-power rectifier in there, just something easily available so I don't have to wait for postage from London, England.

44599. Re: [TS-520_820_530_830] V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 03:04:59 UTC
From: Mike
Topic: 44446 Message: 44599

The NTE-116 is an NTE replacement for the VO6B.

73
Mike W5RKL

On 9/15/2013 8:36 PM, Wes Will wrote:
>
> I have found a source for them in the U.K. Some guy has a bunch of NOS
> V06B's, and they're rather low cost. I'm going to place an order with
> this guy, and I would like to know if anyone wants a few for their
> junkbox or to repair a radio. They're going to cost me less than a
> quarter each. More like a dime, actually, before postage. That's going
> to cost more than the parts, I guess.
>
> IF THE GUY RESPONDS, I don't want to get just ten of them (minimum
> quantity), if anyone else can use some.
>
> Let me know how many you'd like, and I'll add them to the order. When
> they get here I'll mail them to whomever says they want some. U.S.
> postage will be just a first-class stamp. Other countries will be
> whatever it comes to, they're tiny and will go in an envelope. Maybe a
> buck for most places, buck and a half at the outside.
>
> I'll divide the total cost when they get here. and let you know how much
> each precisely, but figure on a quarter or less each, and the price of a
> postage stamp.
>
> --
> Wes Will
> N9KDY
>
>

44600. Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 04:28:00 UTC
From: GEAgent21@...
Topic: 44510 Message: 44600

Terry
I have worked the last two days so not much time to work on radio. I did get in to shack long enough to see that I have bigger problems than I thought. Today I could not get any needle movement when peaking drive control. Yesterday I could not get to 200 ma, today nothing. Sound like a tube going south?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time, wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time,
wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while
adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot
as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you
are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com,
<ts-520_820_530_830@yahoogroups.com> wrote:

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead
spot is where I would like to set ALC. Probably in the mic adj . I turn
the mic control clockwise and the meter needle moves to the right to a point
where it drops back to zero. If I continue to turn clockwise the needle
will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44601. Re: [TS-520_820_530_830] VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 06:53:34 UTC
From: William Houghton
Topic: 44582 Message: 44601

I think $30 is reasonable for a unit that basically works and comes with the probe. You will find that the circuits for the various HK models that use the 6AL5 and the 12AU7 are almost identical. There should be a filter cap in there of 16uF@150V. I would replace that one. I don't think 16uF is common any more but a 22uF should be fine.

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 15, 2013 2:26 PM
Subject: Re: [TS-520_820_530_830] VTVM at an Antique Store?

I went ahead and picked up the meter. The soldering in the unit looked very well done. I gave it a bath in DeoxIT. It looks like the probe was the source of the problem. Very heavy black oxidation/carbon build up on the contacts inside the probe switch. It is mostly working after cleaning. The meter itself seems to be working, but it does need to be calibrated. I now have a VTVM. I am off to calibrate it.

73 de KQ6UP
Chris

44602. RE: [TS-520_820_530_830] Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 09:40:57 UTC
From: fpath fpath
Topic: 44446 Message: 44602

Mike,

Great work on the basic\essential service equipment. I think a lot of the guys getting into the hybirds will appreciate your time and effort.

BTW nice shack is that the little portable room?

73's

Dave

VK5PDL

44603. RE: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 10:57:26 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44603

You should never have more than approx 0.50vdc at BM terminal. The Bal Mod diodes are germanium so turn on is around 0.25 to 0.30vdc for them.

Need to look at Resistor R21 18k close to the CW terminal post. You can use a straight pin. I use 2 inch corsage pins or floral arrangement pins with heat shrink over most of the pin. These have a pearl ball on the top of them to make handling good. I then clip a mini-grabbber test lead near the head and to the plus lead of my DMM or VTVM test leads. This allows you to probe at the hole where resistor leads enter the component side of the board.

You should find on one side of R21 you have variable voltage from 0 to 9vdc and on the other side from 0 to 0.50vdc. It appears that R21 is shorted which is very unusual.

You will have to fold the Gen Board over to replace R21 so at that time I would also check the balanced modulator diodes D1, D2, D3, D4 given you have reported distorted audio.

Since you have to lift one lead of each diode to check them I would just go ahead and replace all 4 of them. Do not use Silicon switchers like 1N914 diodes. 1n60s and 1n270s are fine. Mouser will have and Scotts Electronics who sells Crystal radio parts is a good supplier of the germanium signal diodes.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Sun, Sep 15, 2013 at 4:41 AM, <wagstw46@...> wrote:

Chris:

OK then very easy to get that DMM on the BM terminal on the Gen Board and measure what dc voltage you have with the CAR Level pot set at minimum (full CCW). Then monitor and record the dc voltage as you slowly begin to open it (CW).

Here is the table of data:

CAR=	V=
0	.360V
1	.365V
2	1.26V
3	2.20V
4	3.45V
5	4.60V
6	5.50V
7	7.00V
8	8.00V
9	9.00V

10 | 9.00V

Something aint right in paradise. A strange thing that happens is I get no voltage in REC at CAR=0 (that seems normal). However, once I get to setting 2, this crazy high voltage shows up weather I am in REC or SEND. Measured with a VTVM I found at an antique store this afternoon on my way home from church. I cleaned and calibrated it. I don't have an RF probe for it yet.

It looks like the voltage divider es no dividing.

As I previously cautioned be aware you are working near the HV filter caps and 900vdc. I would set the rig on its side to access BM terminal post.
Roger that. I only connect the leads with it on its side and the power OFF.

I previously gave you the voltage levels for each CAR level step.

Yes, thank you. Houston we have a problem.

Terry K9TW

Thanks, Terry.
Chris Maness KQ6UP

44604. RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 10:57:30 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44604

I know of no resistors designed to act as fuses? A resistor makes a very poor fuse.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dumb question. I know, I'm full of those.

I've looked at the spec sheet for the V06B. I know the other diodes and
even some of the resistors in these radios were chosen for very specific
reasons: to act as fuses, in the case of some of the resistors; for
their switching characteristics, and so on.

Is there ANY such reason of which I am unaware which would make
replacing these with just about ANY 100 volt PIV (or higher) silicon
diode a bad idea?

I'm not talking about slapping a kilovolt PIV high-power rectifier in
there, just something easily available so I don't have to wait for
postage from London, England.

44605. RE: Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 11:14:19 UTC
From: <wagstw46@...>
Topic: 44510 Message: 44605

Greg

Not trying to be too picky but you are not getting 200ma. None of the meter scales mean anything when peaking the Drive control. Just want to make sure you dont think you are reading Ip at this step. What you are seeing it that you are getting the meter indicator to deflect and peak at a little more than 1/2 scale for the particular Car Level pot setting you are using. This is essentially relative RF drive level. Any place on the meter where you can peak it with the Drive control means you have maximum RF drive voltage swing at the control grids of the 6146 finals.

No this does not sound like a Driver tube problem.

It is possible the 12BY7A tube failed completely, but typically the emission just falls off gradually. This sounds more like an intermittent. Maybe bad solder connection at tube socket or bad band switch contacts.

If you have no indication on one or two bands and good indications on other bands then it is not the tube or the tube socket solder connections. It is most likely band switch contacts problem.

Yesterday did you have good ALC indication while peaking the Drive control on all bands?

Today are you saying you now have no ALC indication on any bands even with the CAR Level pot full CW?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

I have worked the last two days so not much time to work on radio. I did get in to shack long enough to see that I have bigger problems than I thought. Today I could not get any needle movement when peaking drive control. Yesterday I could not get to 200 ma, today nothing. Sound like a tube going south?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time, wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

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Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time, wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

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Terry K9TW

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Hi

My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.

73

Greg

KC9VVU

44606. Re: [TS-520_820_530_830] Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 12:31:18 UTC
From: Mike
Topic: 44446 Message: 44606

Hi Dave,

Thank you for your supportive comments on the videos. I enjoy making them and hopefully the members are learning something from them.

I wouldn't call the room "portable" (see my qrz.com bio page). The shack is a 10' x 20'separate building in the back yard. The operating position at one end while the service benches are along the back wall and opposite end. The shack is a mess at the moment, needs a thorough cleaning.

73
Mike W5RKL

On 9/16/2013 4:40 AM, fpath fpath wrote:
>
>
> Mike,
>
> Great work on the basic\essential service equipment. I think a lot of
> the guys getting into the hybirds will appreciate your time and effort.
>
> BTW nice shack is that the little portable room?
>
> 73's
> Dave
> VK5PDL
>

44607. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 12:52:28 UTC
From: Mike
Topic: 44566 Message: 44607

Thank you Don for the supportive comments on the videos.

You can download the videos by "right clicking" on the video link then select "Save Link as...". When the save window opens, select a location to save the video then click the "SAVE" button on the bottom right of the window. The basic test equipment video is 62meg so it will take some time to download onto your computer.

Once the video is saved to your computer, simply double click on the video icon or right click on the video icon and select Play. Windows Media Player should open and play the video for you.

I don't use Google's Chrome so I can't comment on that browser (I used Firefox).

You can change the video viewer used by your browser by changing the browser's application options for different types of files. As I said, I don't use Google Chrome so I can't comment how to do this in Chrome. However, Firefox file types can be changed in the Firefox Option's "Application" tab.

You can also determine what video viewer your operating system is using to display video files by right clicking on the video file's icon then select "Properties". When the properties window opens look for the "Open with" statement at the top of the properties window. That tells you what the operating system's video player is using to view video files saved on your computer. It may not be the same video viewer your browser is using.

73
Mike W5RKL

On 9/15/2013 10:39 AM, Don wrote:
>
> Thanks Mike for the videos
>
> As i am more a visual person,would like to see some videos on how to
> use the test equipment for troubleshooting
>
> Only my Google chrome browser will open up the player
>
> 73's
> Don/Ve2ud
>
>
>
> On 15/09/2013 10:08 AM, Mike wrote:
>

>> Good morning everyone,
>>
>> This morning I made a video showing some very basic test equipment
>> for your shack. Although most of the test equipment shown in the
>> video is Heathkit, anymake/model would serve the same purpose. The
>> video is located at:
>>
>> www.n6wk.com/w5rkl/basic test equipment/ folder
>>
>> Take a few minutes and view the video. The video is 69.5meg so it may
>> take a few minutes to load. Windows Media Player works fine with all
>> my videos.
>>
>> For those who have never used any test equipment before when
>> servicing electronic equipment, I recommend start with basic test
>> equipment first. Once you are comfortable using the basic equipment
>> the move to more advanced/modern test equipment.
>>
>> I still use all of the test equipment shown in the video. An example
>> of how effective the old IG-102 signal generator can be, I used
>> italong with the IM-4100 frequency counter to troubleshoot a Kenwood
>> TS-120 that had no receive and no transmit, the digital display had
>> only decimal points displayed. That told me the PLL Unit had changed
>> to an "Unlocked" state. The IM-4100 was used to look for various
>> oscillator signals applied to the PLL Unit. All were there except the
>> 8Mhz signal. I used the IG-102 as a substitute for the 8Mhz
>> oscillator, fed the IG-102 signal to the PLL Unit and BINGO the 120
>> came to life! I also used the same signal generator to troubleshoot a
>> Collins 75A2 receiverto track down a failed PTO(VFO). I used the same
>> technique of substituting the PTO with the IG-102. Just because the
>> test gear shown in the video is old does not mean it cannot be used
>> to service your hybrid. You just have to learn how to use it properly.
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>
>

44608. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 13:44:17 UTC
From: Mike
Topic: 44566 Message: 44608

Don, you can duplicate the video voltage calculations AND the voltage
and current measurements yourself. I highly recommend youdo that. You
don't need the $85 self power breadboard I used. Acouple of 6 volt
lantern batteries connected in series will give you 12VDCas a power
source. A few resistors, they are cheap, and a simple digital volt
meterwill do fine. You said you are a "visual" person. Well if that's
true then I recommend you do the samething I did by obtaining the simple
components and do the experiment yourself! Change the resistor values,
add resistance to the circuit, so you will see what happens. Change
voltage levels by using one battery to see what changes occur by
lowering the DC voltage!This is how you learn!

73
Mike W5RKL

On 9/15/2013 10:39 AM, Don wrote:
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>
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>

44609. RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 14:33:21 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44609

Wes

Not trying to give you a hard time. I suspect you are just repeating what you have heard or read. Many people believe that the 5 ohm cathode resistors are fuses. No amount of logic will change their minds.

They are meter shunts used for measuring plate current and not fuses. You never want to open circuit the cathode of your final tubes. You would see cathode potential rise which could damage your panel meter if the moment of the fault had not already done so.

Couple of common ways to measure plate current:
1. Cut the 900vdc final tube anode B+ line and insert a 500ma meter in series. This will work just fine but is not a safe option. You would have 900vdc in the meter and would never want anyone to be able to touch the face of the meter. Manufacturers who used this method back in the day used special designed meters with high dielectric strength and/or placed the meter movement behind a glass plate on the rigs front panel. Can you imagine a linear amp with 2800vdc on the IP meter within your reach on front panel! Well it was done.

2. Install a low value of resistance in the final tube cathode circuit to ground. Take a dc current meter and place a meter multiplier resistor in series with it and use the voltmeter method to measure current. The value of this cathode meter shunt typically will range from 0.10 ohm, .50 ohm, 1.0 ohm, 2.0 ohms to 5 ohms we see in our hybrids. Yaesu, Heath, Drake, Kenwood and others use this method.
A ma or ua dc current meter with appropriate sized series resistor is then used to measure the IR drop across this cathode resistor that occurs when plate current flows thru it. The higher end rigs use a ua meter movement that cost a little more. Your meter is a 500ua movement that will see 0.40vdc full scale deflection. This corresponds to 1.75vdc drop across the 5 ohm cathode resistors at 350ma of plate current. Of course will never see 350 ma. At 225ma Ip your meter will be measuring approx. 1.125vdc.

So what about the cathode resistors also serving as fuses? First of all you never want these resistor to blow open. To do so puts your panel meter at great risk of damage.
If Kenwood wanted them to act as fuses and blow open under some fault condition they would have installed some meter protection. There is no meter protection.

1. Why would they blow open? If you loaded rig to 350ma and put brick on the key the 5 ohm cathode resistors could dissipate this load for hours on end with no ill effect. These are 2 watt rating. P= I squared R so P= .350 x .350 x 5 = 0.61 watts. Carbon resistors can withstand many many times over current for a long time before the value will change or resistor fails. They can get so hot you cant touch them and still suffer no ill effects.

2. So what other fault condition would cause them to blow? If a S2001 or 6146 final tube was to arc over and apply 900vdc to the cathode then the resistors would blow instantly and violently. The closest element to the anode is the suppressor grid and it is connected to the cathode so if there is an arc over it is possible to see 900vdc on the cathode for a brief moment. I = E/R or I = 900/5 = 160amps! So ignoring the transformer ESR if a final tube arcs over the cathode resistors will be the only thing limiting the fault current. P=

I squared R. So P = 160 x 160 X 5 = 128,000 watts! So a 2 watt resistor is not going to be able to dissipate this level of power for very long!

3. Back when Kenwood was building these radios they had at their disposal new S2001 and 6146 final tubes. The 900vdc anode voltage that Kenwood employs is more than other rigs typically employ, but a good new 6146 can easily hold off around 2000vdc during a DC hi-pot leakage test. In RF service the anode sees approx 1600 volts P-P swing. So never in their wildest dreams did they envision tube arc overs that would result in 900vdc being applied to the cathode of the tubes. As I said had they projected this type of failure they would have installed meter protection in the radios or perhaps fast blow fuses in the B+ rail.

At the moment of the tube arc over the meter in the IP position would see 900vdc across the cathode resistors. The meter is designed to measure a maximum of 1.75vdc configured as a voltmeter.

If the meter survived the blowing of the cathode meter shunt resistors then there is further risk to it after the resistors are gone. Once the resistors blow open you now have a final tube with an open cathode. At this point the cathode will immediately and quickly start to rise toward the screen grid potential and in a matter of seconds the cathode is now at over 100vdc to gound. So now your 1.75vdc panel meter is trying to measure over 100vdc.

The only thing that prevents damage is the operator on hearing the big bang will unkey the rig and the Aux relay now changes the meter over to the S-meter function and it is no longer looking at this high cathode voltage. However, if the Op tries to key the rig again and flips to send and places meter in Ip position for an instant the meter is again exposed to over 100 vdc. Once meter is connected it closes the path from cathode to grd and the 100 vdc is pulled down by the series combo of the 3k multiplier and the 800 ohms of the meter movement. All of this is very hard on the meter.

So cathode meter shunt resistors are just that.... resistors. They are meter shunts and not fuses..

If you were thinking of other resistors acting as fuses be curious which ones you have in mind.

For more on this see W8JI website where he discusses the subject more in depth. .

Terry
K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I know of no resistors designed to act as fuses? A resistor makes a very poor fuse.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dumb question. I know, I'm full of those.

I've looked at the spec sheet for the V06B. I know the other diodes and
even some of the resistors in these radios were chosen for very specific
reasons: to act as fuses, in the case of some of the resistors; for
their switching characteristics, and so on.

Is there ANY such reason of which I am unaware which would make replacing these with just about ANY 100 volt PIV (or higher) silicon diode a bad idea?

I'm not talking about slapping a kilovolt PIV high-power rectifier in there, just something easily available so I don't have to wait for postage from London, England.

44610. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 05:06:10 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44610

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there

something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44611. Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 14:49:28 UTC
From: Chris Maness
Topic: 44446 Message: 44611

On Mon, Sep 16, 2013 at 3:57 AM, <wagstw46@...> wrote:

>
>
> You should never have more than approx 0.50vdc at BM terminal. The Bal Mod
> diodes are germanium so turn on is around 0.25 to 0.30vdc for them.
>

Yes, I think herin lies the problem.

>
> Need to look at Resistor R21 18k close to the CW terminal post. You can
> use a straight pin. I use 2 inch corsage pins or floral arrangement pins
> with heat shrink over most of the pin. These have a pearl ball on the top
> of them to make handling good. I then clip a mini-grabbber test lead near
> the head and to the plus lead of my DMM or VTVM test leads. This allows
> you to probe at the hole where resistor leads enter the component side of
> the board.
>
>
> Nice touch with the pins. That is a great tip.

Is measuring across CM and CV equivalent? I did that yesterday and got
exactly 18k.

Are you referring to R21 on the GEN board? That is a 10k resistor not
directly connected to the modulator bridge. It connects to Q7 on my
schematic. Yesterday afternoon I measured R53 to be 18k exactly since it is
part of the voltage divider circuit that unbalances the balanced modulator.
I don't see a CW terminal that yo referred to, so maybe referring to a
board other than the GEN board.

> You should find on one side of R21 you have variable voltage from 0 to
> 9vdc and on the other side from 0 to 0.50vdc. It appears that R21 is
> shorted which is very unusual.
>
This should be the same voltage at the BM terminal, correct? Is it also
possible that one of the BM diodes is open since without a load the voltage
divider should go high? I am thinking an open circuit in the BM (one of
the diodes not conducting) would have the same effect as R53 shorting.
Since the diodes conduct at .25V that would load the 18k resistor and
cause a voltage drop across it. If that diode was not conducting the BM
side of the 18k resistor would go high -- especially since I am measuring
18k across that resistor.

>
> You will have to fold the Gen Board over to replace R21 so at that time I
> would also check the balanced modulator diodes D1, D2, D3, D4 given you
> have reported distorted audio.
>
>
> My guess is that one of the diodes that is supposed to conduct to
unbalance the modulator either has a bad solder joint or has gone open.
However, I am going to defer to you on this since you have far more
experience with this radio.

> Since! you have to lift one lead of each diode to check them I would just
> go ahead and replace all 4 of them. Do not use Silicon switchers like 1N914
> diodes. 1n60s and 1n270s are fine. Mouser will have and Scotts Electronics
> who sells Crystal radio parts is a good supplier of the germanium signal
> diodes.
>
>
> I have an old school electronics store one town over so I think I am going
to stop in and check to see if they have them.

> Terry K9TW
>
>
>
>

Hopefully I am not missing something with R21. If that is the resistor you
intended or maybe you were referring to a different board.

Thanks a Ton Terry,
Chris Maness KQ6UP

44612. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 15:39:05 UTC
From: Mike
Topic: 44566 Message: 44612

Some of the links on thewww.n6wk.com/w5rkl/ page are "folders". If the link has a "/" at the "right end" of the link, that indicates a "folder" so don't try to download from that link. Click on the link and the next page willshow the video files.

As I said before, DOWNLOADING the videos to your computer will take some time, it's not instantaneous as some may think. It all depends on your service provider and how busy Gordon's web server is.

I have not experienced the problems you have. I honestly don't know why so many people have these problems with their computers viewing files. I don't have those problems and I use Firefox.

73
Mike W5RKL

On 9/15/2013 1:38 PM, Don wrote:
>
> Mike
> SeaMonkey browser says could not locate specified clip,and Firefox
> says the same
> Google Chrome says attempting to play an extension [tmp] that does
> not match file format.
> Then say's do you want player to play this format...say yes,and then
> it plays fine.
>
> 73
> Don/Ve2ud
>
>
>
>
> On 15/09/2013 2:15 PM, W5RKL wrote:
>
>> It appears the link to my videos on Gordon's website, for some
>> unknown reason, don't work.
>>
>> Try any of the following 3 links. I've tested all 3 of them and they
>> work.
>>
>> http://www.n6wk.com/w5rkl/
>>
>> www.n6wk.com/w5rkl/
>>
>> or
>>

>> n6wk.com/w5rkl/
>>
>> and hit ENTER.
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>> 73
>> Mike W5RKL
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>>> 73
>>> Mike W5RKL
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>

>

44613. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 15:39:43 UTC
From: Don
Topic: 44566 Message: 44613

Mike

I totally agree the best way to learn is by doing.Hands on.
My biggest problem is remembering or retaining what i have learnt,so, i put a lot on paper so i can refer back to it.
I think understanding is more important than remembering.
Maybe i have a lazy mind[bit dyslexia too] as i love books,but after reading a few pages i lose my concentration.
I love Youtube as like i said i am more of a visual person and this has opened up the door for me in my learning curve.Show me. :-)

https://www.youtube.com/watch?v=ZBbgiBU96mM

http://www.youtube.com/channel/UC2DjFE7Xf11URZqWBigcVOQ/videos

I have a NRI Electronic design Laboratory trainer i picked up real cheap.It has no manual,but pretty straight forward on it's functions
It has +12/15 volts and minus 12/15 volts plus 5 volts
It also has 5 vpp sine wave,square wave and triangle 8vpp.plus a IC holder on the breadboard.
I plan to do your experiment's and many others over the winter months.
I do appreciate your videos and looking forward to many more.Now if you can just get Terry
making a few.
I am getting a nice assortment of test equipment, but it's not much good if you don't know how to use it,so that's my goal right now.
Hybrids Rule!

73's
Don/Ve2ud

On 16/09/2013 9:44 AM, Mike wrote:
>
> Don, you can duplicate the video voltage calculations AND the voltage
> and current measurements yourself. I highly recommend you do that. You
> don't need the $85 self power breadboard I used. A couple of 6 volt
> lantern batteries connected in series will give you 12VDC as a power
> source. A few resistors, they are cheap, and a simple digital volt
> meter will do fine. You said you are a "visual" person. Well if that's
> true then I recommend you do the same thing I did by obtaining the
> simple components and do the experiment yourself! Change the resistor
> values, add resistance to the circuit, so you will see what happens.
> Change voltage levels by using one battery to see what changes occur
> by lowering the DC voltage! This is how you learn!
>
>

> 73
> Mike W5RKL
>
>
>
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>
>
>
>
> On 9/15/2013 10:39 AM, Don wrote:
>>
>> Thanks Mike for the videos
>>
>> As i am more a visual person,would like to see some videos on how to
>> use the test equipment for troubleshooting
>>
>> Only my Google chrome browser will open up the player
>>
>> 73's
>> Don/Ve2ud
>>
>>
>>
>> On 15/09/2013 10:08 AM, Mike wrote:
>>
>>> Good morning everyone,
>>>
>>> This morning I made a video showing some very basic test equipment
>>> for your shack. Although most of the test equipment shown in the
>>> video is Heathkit, any make/model would serve the same purpose. The
>>> video is located at:
>>>
>>> www.n6wk.com/w5rkl/basic test equipment/ folder
>>>
>>> Take a few minutes and view the video. The video is 69.5meg so it
>>> may take a few minutes to load. Windows Media Player works fine with
>>> all my videos.
>>>
>>> For those who have never used any test equipment before when
>>> servicing electronic equipment, I recommend start with basic test
>>> equipment first. Once you are comfortable using the basic equipment
>>> the move to more advanced/modern test equipment.
>>>
>>> I still use all of the test equipment shown in the video. An example
>>> of how effective the old IG-102 signal generator can be, I used it
>>> along with the IM-4100 frequency counter to troubleshoot a Kenwood
>>> TS-120 that had no receive and no transmit, the digital display had

>>> only decimal points displayed. That told me the PLL Unit had changed
>>> to an "Unlocked" state. The IM-4100 was used to look for various
>>> oscillator signals applied to the PLL Unit. All were there except
>>> the 8Mhz signal. I used the IG-102 as a substitute for the 8Mhz
>>> oscillator, fed the IG-102 signal to the PLL Unit and BINGO the 120
>>> came to life! I also used the same signal generator to troubleshoot
>>> a Collins 75A2 receiver to track down a failed PTO (VFO). I used the
>>> same technique of substituting the PTO with the IG-102. Just because
>>> the test gear shown in the video is old does not mean it cannot be
>>> used to service your hybrid. You just have to learn how to use it
>>> properly.
>>>
>>> 73
>>> Mike W5RKL
>>>
>>>
>>>
>>
>
>

44614. Re: [TS-520_820_530_830] RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 15:44:37 UTC
From: Wes Will
Topic: 44446 Message: 44614

On 09/16/2013 09:33 AM, wagstw46@... wrote:
> Wes
>
>
> Not trying to give you a hard time. I suspect you are just repeating
> what you have heard or read.

Yup.

http://www.k4eaa.com/supersize.htm

Kind of like from Ken K4EAA? Third section / paragraph at the above link?

So Ken is giving out false propaganda? Whodathunkit.

"Kenwood purposely selected these wattages to act as "fuses" in the
event someone did not properly tune and load their rig, and then keyed
it for an extended period. Better to lose a 20 or 40 cent resistor,
than a $125 power transformer!"

So this is precisely where I got my "misinformation."

Now I -am- confused. And I still do not know for certain if a stock
silicon diode is an acceptable replacement for the V06B.

From the look of the schematic you ought to be able to just throw a
one-piece bridge in there instead of four diodes (in bridge
configuration), modulo there being some specific design criterion that
makes discrete diodes, and that particular discrete diode type, a necessity.

--
Wes Will
N9KDY

44615. Re: [TS-520_820_530_830] Examples of basic test equipment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 16:20:26 UTC
From: Don
Topic: 44566 Message: 44615

Mike

Suggestion that maybe you or Terry make a video on
how to neutralize the finals.What to do and what not to do and
the different methods or equipment to use.
We need our own Youtube channel just for the hybrids?

73
Don/Ve2ud

On 16/09/2013 9:44 AM, Mike wrote:
>
> Don, you can duplicate the video voltage calculations AND the voltage
> and current measurements yourself. I highly recommend you do that. You
> don't need the $85 self power breadboard I used. A couple of 6 volt
> lantern batteries connected in series will give you 12VDC as a power
> source. A few resistors, they are cheap, and a simple digital volt
> meter will do fine. You said you are a "visual" person. Well if that's
> true then I recommend you do the same thing I did by obtaining the
> simple components and do the experiment yourself! Change the resistor
> values, add resistance to the circuit, so you will see what happens.
> Change voltage levels by using one battery to see what changes occur
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>>> the test gear shown in the video is old does not mean it cannot be
>>> used to service your hybrid. You just have to learn how to use it
>>> properly.
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>>> 73
>>> Mike W5RKL
>>>
>>>
>>>
>>
>
>

44616. RE: Re: [TS-520_820_530_830] RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 17:15:05 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44616

Wes

I knew where this was going when I responded.

Ken is a nice man, a very smart, and talented man. Certainly far more Kenwood Hybrid repair experience under his belt than me. I have sat in his living room on more than one occasion.

On this matter he and I will have to just agree to disagree. I just dont think he has thought this out very well. I mean no disrespect to him, but on this matter yes I believe he is wrong.

Take a poll on this forum of all owners who bought there hybrids new in the 70s and still have them today and many with the original S2001 finals. Ask them how many have ever had a cathode resistor blow open. I think you will find very few if any have ever experienced this failure. I just dont believe there was any common Final Tube fault anticipated at day one that would cause Kenwood to put fuses in the cathode path.

It was not until the rest of us who were not fortunate enough to be able to buy a new Hybrid started reaching for 35 year old 6146 pulls and nos tubes that have been sitting around off gassing on the shelf did we start to see multiple cathode resistor failures.

So my friend your dilemma is which "guru" to follow. Fortunately you are not asking about Prostrate cancer treatment. Hope you never have to. That will really be maddening and frustrating for you and possibly a matter of life or death and not a hobby issue. Like most Google searches on any topic you will find a wide variety of opinions and some cases passionate debate on any technical topic. The challenge then becomes for each of us which "guru" to believe.

Since I am not a "guru" it make no difference to me which belief you espouse. I should have kept my big mouth shut. It was just hard to sit on sideline and see what I consider to be a myth perpetuated and have the new kids run with it. It is of no operational concern to me as I have taken these "fuses" out of the equation for my personal rigs by shunting diodes across them so they should never blow again and my panel meter is protected.

Last word on the subject ask the Heathkit or Drake or Yaesu folks how often their cathode resistor "fuses" blow?

OK there is nothing special about a V06B diode.

Yes I always recommend that you use original replacement parts when you can. I try to do that myself on all customer rigs. I do that because I believe that Kenwood design engineers had a reason for specing each and every component in the radio. For the most part unless there has been an official service bulletin about a component related design error or long field experience has proven other wise so I try to go with original parts.

However as we all know not always possible. Power supply diodes is one area where there is no reason to worry about it. Very easy for us to figure out what goes there. Two main parameters to concern yourself with and they are PIV and Forward Current. So we know the PIV and unless we measure the load on the 14vdc supply we dont know what the current is but I can tell you it is not anywhere close to 1 amp. Something very easy for you to measure when you get if fired back up and put in your notes. Would you guess 200ma or 300 ma or ????

You have to understand the configuration to select the proper diode and folks like NTE have done the work for you. So for the 14vdc bridge rectifier a general purpose 1000piv 1 amp silicon rectifier or a 600piv 1amp silicon rectifier will work just fine. Also as you state a packaged bridge rectifier will work. Sometimes you do have to consider the package when subbing due to space constraints on the board.

So you dont need any fast recovery HV rectifier diodes here or anything else exotic. Just plain old 1n4006 or 1n4007 or NTE 116 or NTE125. Even Radio Shack should have them. Check with Mike W5RKL for confirmation of what I am telling you. RIght now I have too many rigs spinning in my head!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 09/16/2013 09:33 AM, wagstw46@... wrote:
> Wes
>
>
> Not trying to give you a hard time. I suspect you are just repeating
> what you have heard or read.

Yup.

http://www.k4eaa.com/supersize.htm

Kind of like from Ken K4EAA? Third section / paragraph at the above link?

So Ken is giving out false propaganda? Whodathunkit.

"Kenwood purposely selected these wattages to act as "fuses" in the
event someone did not properly tune and load their rig, and then keyed
it for an extended period. Better to lose a 20 or 40 cent resistor,
than a $125 power transformer!"

So this is precisely where I got my "misinformation."

Now I -am- confused. And I still do not know for certain if a stock
silicon diode is an acceptable replacement for the V06B.

From the look of the schematic you ought to be able to just throw a
one-piece bridge in there instead of four diodes (in bridge
configuration), modulo there being some specific design criterion that
makes discrete diodes, and that particular discrete diode type, a necessity.

--
Wes Will

N9KDY

44617. RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 17:33:25 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44617

I am sorry too many rigs. I thought we were talking a TS520?

On a TS520S which has a very different Gen board we are talking R53 18k at CV and CM terminals.

At CV you should see 0 to 9vdc. If you do that is good as it means 9vdc is available and that Car level pot is smooth. At CM you should be seeing this problem with high voltage as you rotate the Car pot if R53 18k is shorted.

You could lift the CM lead wire off the terminal post and insert a 18k resistor between the CM post and free end of the lifted wire and see if problem is fixed and run temporarily this way to see if audio problem is cleared up as well. If it is and you dont want to pull the Gen board at this time just to replace R53 could run with temporary R53. Just have to insulate it.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Mon, Sep 16, 2013 at 3:57 AM, <wagstw46@...> wrote:

You should never have more than approx 0.50vdc at BM terminal. The Bal Mod diodes are germanium so turn on is around 0.25 to 0.30vdc for them.

Yes, I think herin lies the problem.

Need to look at Resistor R21 18k close to the CW terminal post. You can use a straight pin. I use 2 inch corsage pins or floral arrangement pins with heat shrink over most of the pin. These have a pearl ball on the top of them to make handling good. I then clip a mini-grabbber test lead near the head and to the plus lead of my DMM or VTVM test leads. This allows you to probe at the hole where resistor leads enter the component side of the board.

Nice touch with the pins. That is a great tip.

Is measuring across CM and CV equivalent? I did that yesterday and got exactly 18k.

Are you referring to R21 on the GEN board? That is a 10k resistor not directly connected to the modulator bridge. It connects to Q7 on my schematic. Yesterday afternoon I measured R53 to be 18k exactly since it is part of the voltage divider circuit that unbalances the balanced modulator. I don't see a CW terminal that yo referred to, so maybe referring to a board other than the GEN board.

You should find on one side of R21 you have variable voltage from 0 to 9vdc and on the other side from 0 to 0.50vdc. It appears that R21 is shorted which is very unusual. This should be the same voltage at the BM terminal, correct? Is it also possible that one of the BM diodes is open since without a load the voltage divider should go high? I am

thinking an open circuit in the BM (one of the diodes not conducting) would have the same effect as R53 shorting. Since the diodes conduct at .25V that would load the 18k resistor and cause a voltage drop across it. If that diode was not conducting the BM side of the 18k resistor would go high -- especially since I am measuring 18k across that resistor.

You will have to fold the Gen Board over to replace R21 so at that time I would also check the balanced modulator diodes D1, D2, D3, D4 given you have reported distorted audio.

My guess is that one of the diodes that is supposed to conduct to unbalance the modulator either has a bad solder joint or has gone open. However, I am going to defer to you on this since you have far more experience with this radio.

Since! you have to lift one lead of each diode to check them I would just go ahead and replace all 4 of them. Do not use Silicon switchers like 1N914 diodes. 1n60s and 1n270s are fine. Mouser will have and Scotts Electronics who sells Crystal radio parts is a good supplier of the germanium signal diodes.

I have an old school electronics store one town over so I think I am going to stop in and check to see if they have them.

Terry K9TW

Hopefully I am not missing something with R21. If that is the resistor you intended or maybe you were referring to a different board.

Thanks a Ton Terry,
Chris Maness KQ6UP

44618. Re: [TS-520_820_530_830] RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 17:43:36 UTC
From: Wes Will
Topic: 44446 Message: 44618

On 09/16/2013 12:15 PM, wagstw46@... wrote:
> Wes
>
>
> I knew where this was going when I responded.

I was kind of figuring this was one of "those" sorts of disagreements. His is the only place for that particular bit of 'information' that is of any size or popularity.

I will take it under advisement. In the mean time I will try using same-size / same type parts as often as possible.

I have even found a London-based source for the V06B diodes, and I am going to order a few. (Looks like thirty at least, from the people who have contacted me to get added to the order. Need any? Going to cost me about a quarter each. My price = your price, to within a penny or so. Rounding errors. No risk, no cost, until they arrive. And if you stiff me (as if!) I've learned more than that much from your posts to the list.)

But I'm not going to wait a month or six weeks to get those diodes. Local-procured, I've got a friend in the radio repair business, mostly puts radios and radars in squad cars for the area PDs and Sheriffs departments) who likely has four diodes in his parts bin.

Now, a question, or a request for a quick measurement would be more like it. Humour me here, please.

I am very chary of powering this 520SE back on if there is a short somewhere in the system. It failed when I had plugged in the DG-5 freq counter. Flipped the switch and smelled silicon burning. It actually burned off two traces on the underside of the board, one on each side of the diode bridge. AND ate the diodes, they were brown and shattered when I touched them to desolder. I've repaired the traces with wire and solder.

But the counter, when powered from my bench supply, seems to be working fine, used as a frequency meter with my old Eico generator as a signal source.

The request is for a simple resistance measurement across the 12V power socket where you would plug in that freq counter. Positive side to chassis ground. I get 60 ohms, slowly rising as a capacitor (obviously) charges through. Starts at 58.8 on the digital meter, the ~60% charge

happens in about three seconds, and it continues, slowing of course, to just over 60.3 ohms. After that it takes most of a minute to get to 60.4.

Is that the typical resistance there, power off and just sitting? I know it's a meaningless measurement for most purposes, but I was looking for a short or close to it on that line, and it seems quite a bit low. If that were the actual live circuit resistance, that's nearly 5 amps (E/R, R being assumed to be around 14 VDC).

Oh, and one other thing. Is there ANYWHERE, in any format, documentation for the colour code used in this thing? Besides the missing side-tone bias line on an identically-numbered board (that's shoddy engineering management in my opinion - change the board, change the number), the colour scheme on the the replacement board was totally different with the exception of a few (mostly the red, black, and green) wires. Fully half of the connections were to white-with-coloured-stripe wires, which were totally absent on the replacement part.

I'm annotating my working copy of the schematic, and the copies of the circuit board layout drawings, with the colours as I touch things, but that's going to take a LONG time to complete. And I am not a fan of recreating wheels, so if that information already exists somewhere I would sure appreciate knowing about it.

Thanks for taking the time for the email. It's appreciated. And by the way, one sure sign of "guru-hood" is saying you're not one in the face of convincing evidence to the contrary, Sensei.

...__ __...

--
Wes
N9KDY

44619. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 17:44:19 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44619

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to

the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44620. Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 17:52:00 UTC
From: Chris Maness
Topic: 44446 Message: 44620

> You could lift the CM lead wire off the terminal post and insert a 18k
> resistor between the CM post and free end of the lifted wire and see if
> problem is fixed and run temporarily this way to see if audio problem is
> cleared up as well. If it is and you dont want to pull the Gen board at
> this time just to replace R53 could run with temporary R53. Just have to
> insulate it.
>

I measured R53 yesterday as I thought the same thing. However, it is reading EXACTLY 18k. I redrew that section of the schematic, and it seems like the next culprit would be an open diode or a bad solder connection. If no diode is conducting the current from the voltage divider, the voltage would go high on both sides of R53 since there would be no current flow. That is where the VTVM comes in handy. No perceived drop with 18k. As a matter of fact -- I can measure the voltage of a 9V battery as it passes through both arms with only a 2V drop. That impressed me :D

Having an open diode would also explain the bad audio. I will go pick up some diodes on my lunch break. Not sure if I will have time to replace them after work today. I have a busy evening.

>
> Terry K9TW
>
>
>
Thanks, Chris KQ6UP

>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>
>
> On Mon, Sep 16, 2013 at 3:57 AM, <wagstw46@...> wrote:
>
>>
>>
>> You should never have more than approx 0.50vdc at BM terminal. The Bal
>> Mod diodes are germanium so turn on is around 0.25 to 0.30vdc for them.
>>
>

> Yes, I think herin lies the problem.
>
>>
>> Need to look at Resistor R21 18k close to the CW terminal post. You can
>> use a straight pin. I use 2 inch corsage pins or floral arrangement pins
>> with heat shrink over most of the pin. These have a pearl ball on the top
>> of them to make handling good. I then clip a mini-grabbber test lead near
>> the head and to the plus lead of my DMM or VTVM test leads. This allows
>> you to probe at the hole where resistor leads enter the component side of
>> the board.
>>
>>
>> Nice touch with the pins. That is a great tip.
>
> Is measuring across CM and CV equivalent? I did that yesterday and got
> exactly 18k.
>
> Are you referring to R21 on the GEN board? That is a 10k resistor not
> directly connected to the modulator bridge. It connects to Q7 on my
> schematic. Yesterday afternoon I measured R53 to be 18k exactly since it is
> part of the voltage divider circuit that unbalances the balanced modulator.
> I don't see a CW terminal that yo referred to, so maybe referring to a
> board other than the GEN board.
>
>> You should find on one side of R21 you have variable voltage from 0 to
>> 9vdc and on the other side from 0 to 0.50vdc. It appears that R21 is
>> shorted which is very unusual.
>>
> This should be the same voltage at the BM terminal, correct? Is it also
> possible that one of the BM diodes is open since without a load the voltage
> divider should go high? I am thinking an open circuit in the BM (one of
> the diodes not conducting) would have the same effect as R53 shorting.
> Since the diodes conduct at .25V that would load the 18k resistor and
> cause a voltage drop across it. If that diode was not conducting the BM
> side of the 18k resistor would go high -- especially since I am measuring
> 18k across that resistor.
>
>>
>> You will have to fold the Gen Board over to replace R21 so at that time I
>> would also check the balanced modulator diodes D1, D2, D3, D4 given you
>> have reported distorted audio.
>>
>>
>> My guess is that one of the diodes that is supposed to conduct to
> unbalance the modulator either has a bad solder joint or has gone open.
> However, I am going to defer to you on this since you have far more
> experience with this radio.
>
>> Since! you have to lift one lead of each diode to check them I would just
>> go ahead and replace all 4 of them. Do not use Silicon switchers like 1N914

>> diodes. 1n60s and 1n270s are fine. Mouser will have and Scotts Electronics
>> who sells Crystal radio parts is a good supplier of the germanium signal
>> diodes.
>>
>>
>> I have an old school electronics store one town over so I think I am
> going to stop in and check to see if they have them.
>
>
>> Terry K9TW
>>
>>
>>
> Hopefully I am not missing something with R21. If that is the resistor
> you intended or maybe you were referring to a different board.
>
> Thanks a Ton Terry,
> Chris Maness KQ6UP
>
>
>
>

44621. RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 18:02:59 UTC
From: <paw_paw44036@...>
Topic: 44446 Message: 44621

Ken K4EAA speaks of the cathode resistors as acting as fuses due to miss tuning the finals.
It is in the article "Why Not Supersize"
bill
WD8OSJ

--- In ts-520_820_530_830@yahoogroups.com, <> wrote:

44622. RE: RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 18:25:32 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44622

There is no way you can mis- tune the finals and blow a cathode resistor.

I showed the math to you. If it was possible to see 350ma in a mis-tuning event then P = I squared R.

.350 x .350 x 5 = 0.61 watts.

A 2 watt resistor can run dissipating .61 watts forever.

What plate current level do you think could be attained in a mis-tuning event? What happens to the HV power supply voltage at that current level? What is the transformer Secondary power and what is the Primary power at that current level? What happens to the transformer primary fuse?

Even if it was possible to see a 700ma event then .700 x .700 x 5 = 2.45 watts. A 2 watt resistor will run a very very long time dissipating 2.45 watts.

Cathode resistors never blow due to mis-tuning of any kind. They blow most certainly from tube arc over.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ken K4EAA speaks of the cathode resistors as acting as fuses due to miss tuning the finals. It is in the article "Why Not Supersize"
bill
WD8OSJ

--- In ts-520_820_530_830@yahoogroups.com, <> wrote:

44623. RE: Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 18:35:50 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44623

Yes not likely bad R53. As I previously noted I have never seen this happen.

I guess should have been more emphatic to look for open ring diodes. After all I think I did the "admonishment" regards the need for a VTVM.

" I do not know why Car Pot is behaving this way. Perhaps you have bad Balanced Modulator ring diodes................."

I like it when the student graduates and flies the nest!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

You could lift the CM lead wire off the terminal post and insert a 18k resistor between the CM post and free end of the lifted wire and see if problem is fixed and run temporarily this way to see if audio problem is cleared up as well. If it is and you dont want to pull the Gen board at this time just to replace R53 could run with temporary R53. Just have to insulate it.

I measured R53 yesterday as I thought the same thing. However, it is reading EXACTLY 18k. I redrew that section of the schematic, and it seems like the next culprit would be an open diode or a bad solder connection. If no diode is conducting the current from the voltage divider, the voltage would go high on both sides of R53 since there would be no current flow. That is where the VTVM comes in handy. No perceived drop with 18k. As a matter of fact -- I can measure the voltage of a 9V battery as it passes through both arms with only a 2V drop. That impressed me :D

Having an open diode would also explain the bad audio. I will go pick up some diodes on my lunch break. Not sure if I will have time to replace them after work today. I have a busy evening.

Terry K9TW

Thanks, Chris KQ6UP

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Mon, Sep 16, 2013 at 3:57 AM, <wagstw46@...> wrote:

You should never have more than approx 0.50vdc at BM terminal. The Bal Mod diodes are germanium so turn on is around 0.25 to 0.30vdc for them.

Yes, I think herin lies the problem.

Need to look at Resistor R21 18k close to the CW terminal post. You can use a straight pin. I use 2 inch corsage pins or floral arrangement pins with heat shrink over most of the pin.

These have a pearl ball on the top of them to make handling good. I then clip a mini-grabbber test lead near the head and to the plus lead of my DMM or VTVM test leads. This allows you to probe at the hole where resistor leads enter the component side of the board.

Nice touch with the pins. That is a great tip.

Is measuring across CM and CV equivalent? I did that yesterday and got exactly 18k.

Are you referring to R21 on the GEN board? That is a 10k resistor not directly connected to the modulator bridge. It connects to Q7 on my schematic. Yesterday afternoon I measured R53 to be 18k exactly since it is part of the voltage divider circuit that unbalances the balanced modulator. I don't see a CW terminal that yo referred to, so maybe referring to a board other than the GEN board.

You should find on one side of R21 you have variable voltage from 0 to 9vdc and on the other side from 0 to 0.50vdc. It appears that R21 is shorted which is very unusual. This should be the same voltage at the BM terminal, correct? Is it also possible that one of the BM diodes is open since without a load the voltage divider should go high? I am thinking an open circuit in the BM (one of the diodes not conducting) would have the same effect as R53 shorting. Since the diodes conduct at .25V that would load the 18k resistor and cause a voltage drop across it. If that diode was not conducting the BM side of the 18k resistor would go high -- especially since I am measuring 18k across that resistor.

You will have to fold the Gen Board over to replace R21 so at that time I would also check the balanced modulator diodes D1, D2, D3, D4 given you have reported distorted audio.

My guess is that one of the diodes that is supposed to conduct to unbalance the modulator either has a bad solder joint or has gone open. However, I am going to defer to you on this since you have far more experience with this radio.

Since! you have to lift one lead of each diode to check them I would just go ahead and replace all 4 of them. Do not use Silicon switchers like 1N914 diodes. 1n60s and 1n270s are fine. Mouser will have and Scotts Electronics who sells Crystal radio parts is a good supplier of the germanium signal diodes.

I have an old school electronics store one town over so I think I am going to stop in and check to see if they have them.

Terry K9TW

Hopefully I am not missing something with R21. If that is the resistor you intended or maybe you were referring to a different board.

Thanks a Ton Terry,
Chris Maness KQ6UP

44624. Re: [TS-520_820_530_830] RE: RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 18:55:24 UTC
From: n6wk@...
Topic: 44446 Message: 44624

Terrry,
The cathode resistors are only 1/2 watt aren't they ?

On 9/16/2013 11:25 AM, wagstw46@... wrote:
>
> There is no way you can mis- tune the finals and blow a cathode resistor.
>
>
> I showed the math to you. If it was possible to see 350ma in a
> mis-tuning event then P = I squared R.
>
>
> .350 x .350 x 5 = 0.61 watts.
>
>
> A 2 watt resistor can run dissipating .61 watts forever.
>
>
> What plate current level do you think could be attained in a
> mis-tuning event? What happens to the HV power supply voltage at that
> current level? What is the transformer Secondary power and what is the
> Primary power at that current level? What happens to the transformer
> primary fuse?
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>
> Even if it was possible to see a 700ma event then .700 x .700 x 5 =
> 2.45 watts. A 2 watt resistor will run a very very long time
> dissipating 2.45 watts.
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> Cathode resistors never blow due to mis-tuning of any kind. They blow
> most certainly from tube arc over.
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>
> Terry K9TW
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> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
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> Ken K4EAA speaks of the cathode resistors as acting as fuses due to
> miss tuning the finals. It is in the article "Why Not Supersize"
>

> bill
>
> WD8OSJ
>
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>
> --- In ts-520_820_530_830@yahoogroups.com, <> wrote:
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>

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44625. RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 19:01:34 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44625

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then

have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load

and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44626. Re: Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 19:03:53 UTC
From: Chris Maness
Topic: 44446 Message: 44626

>
>
>
> I like it when the student graduates and flies the nest!
>

I am glad you have a good attitude about this. I have had some arrogant elmers in the past that would get all pissy when I questioned their reasoning. I don't have a ton of electronics experience, but I am a physics instructor. This means I have a lot of practice breaking down and analyzing problems. I try to be as gentle at presenting my disagreements, but I have learned that I do need to speak up to avoid going down the rabbit hole fixing things that are not broken. :D

Also, do the diodes need to match since it is a balanced bridge type of circuit? I notice VR1 should cancel some differences, but maybe not all of the diode properties. I bought four Ge diodes (1n60 equivalent) just in case, but I am a cheap skate and would like to take back what I don't use. I imagine I will have to balance the modulator again to get rid of any carrier, or would these be close enough to still balance? I hope at some point to have a working radio. I do really like its looks and receiver. My only gripe is that the dial spins backwards compared to any other rig I have used.

I am wondering if this radio died very early on in its career because it is a very pristine example of a TS-520S.

>
> Terry K9TW
>
>
>
73 de KQ6UP
Chris Maness

44627. Re: [TS-520_820_530_830] VTVM at an Antique Store?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 19:16:57 UTC
From: W5RKL
Topic: 44582 Message: 44627

What type of probe did you use to calibrate DC? If you used a straight through probe, without a 1meg resistor in series with the probe's tip, then the DC calibration will be wrong.

The 1 meg resistor is not required for ohms and AC volts so you can calibrate AC with a straight through probe.

I think you will enjoy the VTVM, especially once you get use to the scales. It will give you years of service.

73
Mike W5RKL

On 9/15/2013 4:26 PM, Chris Maness wrote:
> I went ahead and picked up the meter. The soldering in the unit
> looked very well done. I gave it a bath in DeoxIT. It looks like the
> probe was the source of the problem. Very heavy black
> oxidation/carbon build up on the contacts inside the probe switch. It
> is mostly working after cleaning. The meter itself seems to be
> working, but it does need to be calibrated. I now have a VTVM. I am
> off to calibrate it.
>
> 73 de KQ6UP
> Chris
>

44628. RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 19:10:41 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44628

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

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Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

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Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

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Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

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Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

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Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

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To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

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This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

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the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

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Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

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44629. RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 21:20:54 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44629

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

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Terry K9TW

44630. RE: Re: Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 21:59:52 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44630

If I mis-speak or am flat wrong I want people to speak up. Worse thing we can do is bum-dope anyone and they run with that info. I am performing a juggling act here and can get in trouble relying mostly on memory and my notes (which frankly are not very well organized).

I am also pretty astute at telling who the people are who think they have all the answers and pretty quickly move on as they surely dont need anything this old man has to offer.

A purist would say yes you need to use a matched set both for the Balanced Mod and the Product detector, but in practice not likely you will notice the difference.

Also, today they would use Schottky (hot carrier) diodes. Some on the forum have installed them and report improved performance, but suspect much of this is anecdotal and not based on before and after measurements. Cant hurt to try them, but if you are frugal then the germaniums will be cheaper. 1N5711 was the diode of choice in recent past. .

May be able to match your diodes using the Diode test position of your DMM, but better way is to use regulated power supply or battery and build a test circuit.

1. Place diode under test in series with around 4.7k resistor.
2. Connect regulated 9vdc or 12vdc power supply across the series combo (absent bench power supply could use the 9vdc from your rigs AVR board or fresh 6 volt lantern batteries)
3. Place DMM leads across the diode.and place on 2vdc range
4/ Let the diode warm up maybe 30 seconds.
5. Read and record the voltage to 3 decimal places.

Remove diode and place another in series and repeat. Select 4 diodes that have as close to same recorded voltage as you can.

4.7k @ 9vdc = 2ma of current flowing thru the forward biased diode.
4,7k @ 12vdc = 2.5ma current

Problem with many DMM diode test positions is that they dont push much current. As a Physics major you will have studied the barrier voltage and temperature effect.

Terry K9TW.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I like it when the student graduates and flies the nest!

I am glad you have a good attitude about this. I have had some arrogant elmers in the past that would get all pissy when I questioned their reasoning. I don't have a ton of electronics experience, but I am a physics instructor. This means I have a lot of practice breaking down and analyzing problems. I try to be as gentle at presenting my disagreements, but I have learned that I do need to speak up to avoid going down the rabbit hole fixing

things that are not broken. :D

Also, do the diodes need to match since it is a balanced bridge type of circuit? I notice VR1 should cancel some differences, but maybe not all of the diode properties. I bought four Ge diodes (1n60 equivalent) just in case, but I am a cheap skate and would like to take back what I don't use. I imagine I will have to balance the modulator again to get rid of any carrier, or would these be close enough to still balance? I hope at some point to have a working radio. I do really like its looks and receiver. My only gripe is that the dial spins backwards compared to any other rig I have used.

I am wondering if this radio died very early on in its career because it is a very pristine example of a TS-520S.

Terry K9TW

73 de KQ6UP
Chris Maness

44631. RE: RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 22:02:32 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44631

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

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I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send

and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44632. RE: Re: [TS-520_820_530_830] RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 22:10:17 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44632

Wes:

Keep me in mind for the V06B diodes. I have a large number of 1N4006 and 4007 and other diodes around here. I guess my only interest might be in testing them. Let me know when you get them.

Yes approx 60 ohms is good. I just measured a TS520 here with new caps and it settled out pretty quickly at 59.43 ohms. I=E/R = I = 14/59.43 = 236ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 09/16/2013 12:15 PM, wagstw46@... wrote:
> Wes
>
>
> I knew where this was going when I responded.

I was kind of figuring this was one of "those" sorts of disagreements. His is the only place for that particular bit of 'information' that is of any size or popularity.

I will take it under advisement. In the mean time I will try using same-size / same type parts as often as possible.

I have even found a London-based source for the V06B diodes, and I am going to order a few. (Looks like thirty at least, from the people who have contacted me to get added to the order. Need any? Going to cost me about a quarter each. My price = your price, to within a penny or so. Rounding errors. No risk, no cost, until they arrive. And if you stiff me (as if!) I've learned more than that much from your posts to the list.)

But I'm not going to wait a month or six weeks to get those diodes. Local-procured, I've got a friend in the radio repair business, mostly puts radios and radars in squad cars for the area PDs and Sheriffs departments) who likely has four diodes in his parts bin.

Now, a question, or a request for a quick measurement would be more like it. Humour me here, please.

I am very chary of powering this 520SE back on if there is a short somewhere in the system. It failed when I had plugged in the DG-5 freq counter. Flipped the switch and smelled silicon burning. It actually burned off two traces on the underside of the board, one on each side of

the diode bridge. AND ate the diodes, they were brown and shattered when I touched them to desolder. I've repaired the traces with wire and solder.

But the counter, when powered from my bench supply, seems to be working fine, used as a frequency meter with my old Eico generator as a signal source.

The request is for a simple resistance measurement across the 12V power socket where you would plug in that freq counter. Positive side to chassis ground. I get 60 ohms, slowly rising as a capacitor (obviously) charges through. Starts at 58.8 on the digital meter, the ~60% charge happens in about three seconds, and it continues, slowing of course, to just over 60.3 ohms. After that it takes most of a minute to get to 60.4.

Is that the typical resistance there, power off and just sitting? I know it's a meaningless measurement for most purposes, but I was looking for a short or close to it on that line, and it seems quite a bit low. If that were the actual live circuit resistance, that's nearly 5 amps (E/R, R being assumed to be around 14 VDC).

Oh, and one other thing. Is there ANYWHERE, in any format, documentation for the colour code used in this thing? Besides the missing side-tone bias line on an identically-numbered board (that's shoddy engineering management in my opinion - change the board, change the number), the colour scheme on the the replacement board was totally different with the exception of a few (mostly the red, black, and green) wires. Fully half of the connections were to white-with-coloured-stripe wires, which were totally absent on the replacement part.

I'm annotating my working copy of the schematic, and the copies of the circuit board layout drawings, with the colours as I touch things, but that's going to take a LONG time to complete. And I am not a fan of recreating wheels, so if that information already exists somewhere I would sure appreciate knowing about it.

Thanks for taking the time for the email. It's appreciated. And by the way, one sure sign of "guru-hood" is saying you're not one in the face of convincing evidence to the contrary, Sensei.

...__ __...

--
Wes
N9KDY

44633. Re: Re: Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-16 23:27:26 UTC
From: Chris Maness
Topic: 44446 Message: 44633

Yaaaaay! Best feeling in the world. It works!

1. 100W out on CW and solid SSB peaks.

2. Great punchy and clean audio.

3. The CAR control now works in the correct direction.

Some tidying up to do:

1. I only replaced two of the four diodes. The bad one was actually physically broken. It fell apart as I took it out. I noticed there was a very thin piece of wire that had fallen from somewhere across the trace by the diodes -- maybe this killed the diode. I am debating replacing the other two for a matched set. However, I am strongly tempted to leave well enough alone.

2. I now need to rebalance the modulator -- there is carrier present. However, I figured as much.

Thanks for all of the help!

Chris Maness KQ6UP

44634. RE: Re: Re: Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 00:34:06 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44634

That is great. You will never forget this one if ever see it again.

I think I would just null the carrier and operate as is for now.

Have fun.

73s
Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yaaaaay! Best feeling in the world. It works!

1. 100W out on CW and solid SSB peaks.

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3. The CAR control now works in the correct direction.

Some tidying up to do:

1. I only replaced two of the four diodes. The bad one was actually physically broken. It fell apart as I took it out. I noticed there was a very thin piece of wire that had fallen from somewhere across the trace by the diodes -- maybe this killed the diode. I am debating replacing the other two for a matched set. However, I am strongly tempted to leave well enough alone.

2. I now need to rebalance the modulator -- there is carrier present. However, I figured as much.

Thanks for all of the help!

Chris Maness KQ6UP

44635. Re: Re: Re: Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 01:30:28 UTC
From: Chris Maness
Topic: 44446 Message: 44635

The carrier is not nulling out with VR2 and TC1. I am thinking the other two diodes need to be replaced for the circuit to balance. They have a slightly different forward voltage drop than the new Ge diodes. What do you think?

Thanks,
Chris Maness

44636. Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 03:26:38 UTC
From: Barry
Topic: 44437 Message: 44636

Looks like the relay was not the problem - the Function switch is the trouble. I twisted the Function switch several times while the VFO was powered on, and I found out letting the switch seat normally it would not work.

It does work, though, by ALMOST letting it seat but resting on the notch just before seating properly. It's not easy to let the switch sit on that edge, but it works that way on all 4 points of the switch.

I cleaned the switch before with DeOxit so it should be clean.

Any ideas? Does the switch have to be replaced?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44637. hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 03:52:48 UTC
From: km5wx@bellsouth.net
Topic: 9016 Message: 44637

I'm looking for a hand mic for my 530 and 820. Does anyone know if the Motorola business band mics are compatible? There are a lot of them around cheap. Also how about the mic from a Kenwood tm-261? Should anyone have a good compatible hand mic they want to sell or trade for I would be very interested. Thanks in advance. Richard KM5WX

44638. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 03:56:40 UTC
From: Wes Will
Topic: 44446 Message: 44638

On 09/16/2013 08:30 PM, Chris Maness wrote:
> The carrier is not nulling out with VR2 and TC1. I am thinking the
> other two diodes need to be replaced for the circuit to balance. They
> have a slightly different forward voltage drop than the new Ge diodes.
> What do you think?

NOT being the Kenwood guru, but having built home-brew and kits back in the 70's and 80's, and having a bunch of papers on the wall (well, in a box, I'm not a 'wall' kind of person) saying I'm supposed to know something about this stuff,

YES, match the diodes. The old ones will be rather different than the new ones. If you had one of each old and new in each side of the ring, it might balance. But since I suspect the new ones are on one half, the old ones on the other, you are going to have a 'lop-sided' frequency response.

If making all four equivalent doesn't fix the problem, I will be rather amazed. And it cannot hurt to make them equivalent types.

(Besides, I've found those glass diodes to be much too fragile all around for my tastes. Physically. Just desoldering them can break the package.)

If nobody else has better information then from what I know and what I see in the schematic, they need to be close (not exactly matched) to the same values for it to balance and null properly. (Come on, gurus, if I'm wrong, please say so. I do NOT mind being told I'm wrong. It's how I learn.)

--
Wes Will
N9KDY

44639. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 04:06:19 UTC
From: Chris Maness
Topic: 44446 Message: 44639

On Mon, Sep 16, 2013 at 8:56 PM, Wes Will <wwill@...> wrote:

> On 09/16/2013 08:30 PM, Chris Maness wrote:
> > The carrier is not nulling out with VR2 and TC1. I am thinking the
> > other two diodes need to be replaced for the circuit to balance. They
> > have a slightly different forward voltage drop than the new Ge diodes.
> > What do you think?
>
> NOT being the Kenwood guru, but having built home-brew and kits back in
> the 70's and 80's, and having a bunch of papers on the wall (well, in a
> box, I'm not a 'wall' kind of person) saying I'm supposed to know
> something about this stuff,
>
> YES, match the diodes. The old ones will be rather different than the
> new ones. If you had one of each old and new in each side of the ring,
> it might balance. But since I suspect the new ones are on one half, the
> old ones on the other, you are going to have a 'lop-sided' frequency
> response.
>
> If making all four equivalent doesn't fix the problem, I will be rather
> amazed. And it cannot hurt to make them equivalent types.
>
> (Besides, I've found those glass diodes to be much too fragile all
> around for my tastes. Physically. Just desoldering them can break the
> package.)
>
> If nobody else has better information then from what I know and what I
> see in the schematic, they need to be close (not exactly matched) to the
> same values for it to balance and null properly. (Come on, gurus, if I'm
> wrong, please say so. I do NOT mind being told I'm wrong. It's how I
> learn.)
>
> --
> Wes Will
> N9KDY
>
>
>

You were definitely 100% on point. I replaced all four and she is 100%
operational. I am getting good audio reports and CW RSTs. I was able to
balance the modulator with no carrier. Full power out, and the CAR is
behaving the way it should.

Thanks,
Chris Maness KQ6UP

44640. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 04:08:02 UTC
From: Chris Maness
Topic: 44446 Message: 44640

The CAL frequency is off a scosh. Just a minor tweak from what I have
read. All else is go!

Chris KQ6UP

On Mon, Sep 16, 2013 at 9:06 PM, Chris Maness <chris@...> wrote:

>
>
>
> On Mon, Sep 16, 2013 at 8:56 PM, Wes Will <wwill@...> wrote:
>
>> On 09/16/2013 08:30 PM, Chris Maness wrote:
>> > The carrier is not nulling out with VR2 and TC1. I am thinking the
>> > other two diodes need to be replaced for the circuit to balance. They
>> > have a slightly different forward voltage drop than the new Ge diodes.
>> > What do you think?
>>
>> NOT being the Kenwood guru, but having built home-brew and kits back in
>> the 70's and 80's, and having a bunch of papers on the wall (well, in a
>> box, I'm not a 'wall' kind of person) saying I'm supposed to know
>> something about this stuff,
>>
>> YES, match the diodes. The old ones will be rather different than the
>> new ones. If you had one of each old and new in each side of the ring,
>> it might balance. But since I suspect the new ones are on one half, the
>> old ones on the other, you are going to have a 'lop-sided' frequency
>> response.
>>
>> If making all four equivalent doesn't fix the problem, I will be rather
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>> (Besides, I've found those glass diodes to be much too fragile all
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>> package.)
>>
>> If nobody else has better information then from what I know and what I
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>> same values for it to balance and null properly. (Come on, gurus, if I'm
>> wrong, please say so. I do NOT mind being told I'm wrong. It's how I
>> learn.)
>>
>> --
>> Wes Will
>> N9KDY
>>

>>
>>
> You were definitely 100% on point. I replaced all four and she is 100%
> operational. I am getting good audio reports and CW RSTs. I was able to
> balance the modulator with no carrier. Full power out, and the CAR is
> behaving the way it should.
>
> Thanks,
> Chris Maness KQ6UP
>
>

44641. TS511 Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 04:24:33 UTC
From: <stever1k@...>
Topic: 44641 Message: 44641

While the 511 is not a 20 or 820 it is a Kenwood Hybrid and I am hoping someone knows the answer to this question... I have a 511 and have a 500 hz filter from a 520 and my understanding is that it should work fine in a TS511...So the question is does any one have instructions for installing the filter into a TS511, the manual is silent on installation. The 520 requires you to move a jumper. I can not find any service manual that address this either. I beleive you must also change one of the carrier oscillator crystals but am not sure. The manual talks about a different carrier freq when you have a CW filter installed as opposed to when you do not. It does not say you have to change the crystal..Any information about this is appreciated. I think you have to change the crystal from 3395.0 to 3394.3. The 3395.0 is the I have in the radio.

Thanks Steve

44642. Re: [TS-520_820_530_830] Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 04:28:13 UTC
From: Wes Will
Topic: 44437 Message: 44642

On 09/16/2013 10:26 PM, Barry wrote:
>
> Looks like the relay was not the problem - the Function switch is the
> trouble. I twisted the Function switch several times while the VFO was
> powered on, and I found out letting the switch seat normally it would
> not work.
>
> It does work, though, by ALMOST letting it seat but resting on the notch

I'm looking at my rig, and I would like an opinion on this from them
what knows.

Could it be a problem with the pressure of the copper contact 'fingers'
on the wafers of the band switch? Can they sort of relax over time and
not make firm connection any more?

If this is a possibility, is it not possible, therefore, to take a probe
or something blunt (fingers? fingernail?) and gently bend them in tight
against the wafer again?

Would that be a possible fix, and could that be the base problem here?

It might also be corrosion on the spot the finger has been "seating" all
these years, or even may be the copper there is worn off or almost off.
If that is the case, can it be repaired with something like
silver-bearing trace paint? I doubt this, highly, but if it would work
it might save a LOT of tedious work replacing a band switch.

Might make better connections to the wires leading OFF of the switch,
those rivet dealy-bobs look like a failure point waiting to happen to
me. I think solder there would be better than silver paint, if done
VERY carefully. Wouldn't want to damage the foil traces on the wafers
with too much heat.

Or is this a "new bandswitch" fix only??

Enlightenment, anyone?

--
Wes Will
N9KDY

44643. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 04:56:11 UTC
From: Chris Maness
Topic: 44446 Message: 44643

I'm just giddy like a little school girl over fixing this radio. And the receiver audio is so nice. Just the best feeling basking in the dial light of a radio you just fixed :D

73 de KQ6UP
Chris

44644. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 05:00:29 UTC
From: Wes Will
Topic: 44446 Message: 44644

On 09/16/2013 11:56 PM, Chris Maness wrote:
> I'm just giddy like a little school girl over fixing this radio. And
> the receiver audio is so nice. Just the best feeling basking in the
> dial light of a radio you just fixed :D
>
> 73 de KQ6UP
> Chris

LOLOL Yes, a lack of smoke and sparks when you flip the switch, and a working gadget in front of you where it wasn't before, it's a good feeling.

When I got the 520SE to work the other day (before the freq counter took it back down), I let out a whoop that startled my dogs, and brought SWMBO out of her homework-grading trance. She laughed at me, doing a little dance around the workbench....

And laughed at me some more when all the lights went back out about half an hour later.

(I thought that was rather mean of her, but I suspect the crest-fallen look on my face as the little wisp of smoke from the toasted diodes and that bit of foil on the circuit board rose into the air, well, it must have been rather amusing to see.)

Enjoy the radio. You've earned the right to that feeling.

--
Wes Will
N9KDY

44645. Re: [TS-520_820_530_830] Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 05:56:06 UTC
From: Don Cunningham
Topic: 44437 Message: 44645

Wes,

He is saying "function switch", not bandswitch. The bandswitch could be
a coupler off just a bit, but I'm not sure about the function switch. I
too am curious as to thoughts.
73,
Don, WB5HAK
On 9/16/2013 11:28 PM, Wes Will wrote:
>
> On 09/16/2013 10:26 PM, Barry wrote:
> >
> > Looks like the relay was not the problem - the Function switch is the
> > trouble. I twisted the Function switch several times while the VFO was
> > powered on, and I found out letting the switch seat normally it would
> > not work.
> >
> > It does work, though, by ALMOST letting it seat but resting on the notch
>
> I'm looking at my rig, and I would like an opinion on this from them
> what knows.
>
> Could it be a problem with the pressure of the copper contact 'fingers'
> on the wafers of the band switch? Can they sort of relax over time and
> not make firm connection any more?
>
> If this is a possibility, is it not possible, therefore, to take a probe
> or something blunt (fingers? fingernail?) and gently bend them in tight
> against the wafer again?
>
> Would that be a possible fix, and could that be the base problem here?
>
> It might also be corrosion on the spot the finger has been "seating" all
> these years, or even may be the copper there is worn off or almost off.
> If that is the case, can it be repaired with something like
> silver-bearing trace paint? I doubt this, highly, but if it would work
> it might save a LOT of tedious work replacing a band switch.
>
> Might make better connections to the wires leading OFF of the switch,
> those rivet dealy-bobs look like a failure point waiting to happen to
> me. I think solder there would be better than silver paint, if done
> VERY carefully. Wouldn't want to damage the foil traces on the wafers
> with too much heat.
>
> Or is this a "new bandswitch" fix only??

>
> Enlightenment, anyone?
>
> --
> Wes Will
> N9KDY
>
>

44646. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 05:58:02 UTC
From: Don Cunningham
Topic: 44446 Message: 44646

Proud as you should well be, Chris. That IS an accomplishment!!!
Congratulations.
73,
Don, WB5HAK
On 9/16/2013 11:56 PM, Chris Maness wrote:
>
> I'm just giddy like a little school girl over fixing this radio. And
> the receiver audio is so nice. Just the best feeling basking in the
> dial light of a radio you just fixed :D
>
> 73 de KQ6UP
> Chris
>
>

44647. RE: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 08:22:17 UTC
From: <jwarner1@...>
Topic: 44446 Message: 44647

Test - this is a test of reply under the new Yahoo format.
Sorry for any inconvenience. Thanks! KG0EI

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Proud as you should well be, Chris. That IS an accomplishment!!! Congratulations.
73,
Don, WB5HAK

On 9/16/2013 11:56 PM, Chris Maness wrote:

I'm just giddy like a little school girl over fixing this radio. And the receiver audio is so nice. Just the best feeling basking in the dial light of a radio you just fixed :D

73 de KQ6UP
Chris

44648. RE: Re: [TS-520_820_530_830] RE: RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 10:34:24 UTC
From: <wagstw46@...>
Topic: 44446 Message: 44648

Remember depending on the radio that you have four 1/2 watt or two 1 watt in parallel for 2 watts dissipation.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terrry,
The cathode resistors are only 1/2 watt aren't they ?

On 9/16/2013 11:25 AM, wagstw46@... wrote:

There is no way you can mis- tune the finals and blow a cathode resistor.

I showed the math to you. If it was possible to see 350ma in a mis-tuning event then P = I squared R.

.350 x .350 x 5 = 0.61 watts.

A 2 watt resistor can run dissipating .61 watts forever.

What plate current level do you think could be attained in a mis-tuning event? What happens to the HV power supply voltage at that current level? What is the transformer Secondary power and what is the Primary power at that current level? What happens to the transformer primary fuse?

Even if it was possible to see a 700ma event then .700 x .700 x 5 = 2.45 watts. A 2 watt resistor will run a very very long time dissipating 2.45 watts.

Cathode resistors never blow due to mis-tuning of any kind. They blow most certainly from tube arc over.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ken K4EAA speaks of the cathode resistors as acting as fuses due to miss tuning the finals. It is in the article "Why Not Supersize"

bill

WD8OSJ

--- In ts-520_820_530_830@yahoogroups.com, <> wrote:

--

44649. Re: [TS-520_820_530_830] hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 12:07:38 UTC
From: Don Allen
Topic: 9016 Message: 44649

The best hand mic in my experience for the 530 and 820, as well as the
520 and 830, is the Shure 414. A bit hard to find these days, but it's
an excellent mic and its element is very similar to the Shure 444 desk mic.

73
Don W9CW

On 9/16/2013 10:52 PM, km5wx@... wrote:
>
> I'm looking for a hand mic for my 530 and 820. Does anyone know if the
> Motorola business band mics are compatible? There are a lot of them
> around cheap. Also how about the mic from a Kenwood tm-261? Should
> anyone have a good compatible hand mic they want to sell or trade for
> I would be very interested. Thanks in advance. Richard KM5WX
>
>

44650. Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 13:32:26 UTC
From: Barry
Topic: 44437 Message: 44650

Yes - the Function switch on the external VFO is the culprit. It works when sitting on the edge as I mentioned, but it doesn't work when it seats completely where it's supposed to.

Any ideas from anyone?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...> wrote:
>
> Wes,
>
> He is saying "function switch", not bandswitch. The bandswitch could be
> a coupler off just a bit, but I'm not sure about the function switch. I
> too am curious as to thoughts.
> 73,
> Don, WB5HAK

44651. New video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 14:01:29 UTC
From: Mike
Topic: 44651 Message: 44651

Good morning,

I uploaded a new video to my folder on Gordon's webserver. The following link will take you to the video:

http://www.n6wk.com/w5rkl/Grid%20Voltage/Grid%20voltage%20changes%20based%20on%20sine%20wave%20voltage%20levels.wmv

This video briefly explains a sine wave, what a sine wave looks like, the positive half and the negative half segment of the sine wave, and the different degrees throughout the sine wave cycle.

The video also shows/discusses what the terms "Peak Voltage" AND "Peak to Peak" voltages are when referenced to a sine wave cycle and what each term means. These are terms that you need to know and what they mean so you will understand what a discussion is about when the terms are used.

The remainder of the video discusses how the GRID voltage changes based on the sine wave cycle voltages that occur throughout the sine wave cycle.The video also explains that the GRID BIAS voltage applied to the grid, -4 volts in the example shown in the video, DOES NOT CHANGE throughout the entire applied signal's sine wave cycle!!! This is important to fully understand!!

73
Mike W5RKL

44652. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 14:01:26 UTC
From: Joseph Stiles
Topic: 44446 Message: 44652

Chris,

  I have been following along.....frustrating at times..but that final satisfaction...it's worth it! Good job

  You got the bug now

73 Joe
WB7UQU

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 16, 2013 9:56 PM
Subject: Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

I'm just giddy like a little school girl over fixing this radio. And the receiver audio is so nice. Just the best feeling basking in the dial light of a radio you just fixed :D
73 de KQ6UP
Chris

44653. RE: Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 14:11:01 UTC
From: <wagstw46@...>
Topic: 44437 Message: 44653

Go to ebay and search on 3 pole 4 position (3P4T) rotory switches (non-shorting).

Should find a lot of phenolic, ceramic and enclose styles at low prices.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes - the Function switch on the external VFO is the culprit. It works when sitting on the edge as I mentioned, but it doesn't work when it seats completely where it's supposed to.

Any ideas from anyone?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...> wrote:
>
> Wes,
>
> He is saying "function switch", not bandswitch. The bandswitch could be
> a coupler off just a bit, but I'm not sure about the function switch. I
> too am curious as to thoughts.
> 73,
> Don, WB5HAK

44654. Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier Control?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:05:36 UTC
From: Chris Maness
Topic: 44446 Message: 44654

The funny thing is I purchased an FT-107M to have a great sounding vintage rig. I had gave up on the TS-520s way back in 2009 according to the old threads in this group. Since I purchased the, 107 I decided to sell the old TS-520S. I brought in the shack to jog my memory as to what was wrong with it so that I could list the problem in the add. I instantly fell in love again with the receiver audio. The only option was a renewed effort to fix the old gal. Looking at the old thread I had previously noted how nice the radio was, and saw that I had resolved other alignment related issues. The ironic thing is that the thread is titled almost exactly the same as this one, and their is a fair degree of wild goose chasing in that thread too hi hi.

73 de KQ6UP
Chris Maness

On Tue, Sep 17, 2013 at 7:01 AM, Joseph Stiles <stilesjoseph@...>wrote:

>
>
> Chris,
>
> I have been following along.....frustrating at times..but that final
> satisfaction...it's worth it! Good job
>
> You got the bug now
>
>
> 73 Joe
> WB7UQU
>
> ------------------------------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, September 16, 2013 9:56 PM
> *Subject:* Re: [TS-520_820_530_830] RE: Strange Behavior of the Carrier
> Control?
>
>
> I'm just giddy like a little school girl over fixing this radio. And the
> receiver audio is so nice. Just the best feeling basking in the dial light
> of a radio you just fixed :D
> 73 de KQ6UP
> Chris
>
>
>

>
>
>

44655. Re: [TS-520_820_530_830] RE: RE: RE: V06B Diodes - for the rectifier board and similar bits.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:07:39 UTC
From: n6wk@...
Topic: 44446 Message: 44655

Yes,
I knew that, but I was talking about "Resistor" as you, when you
said 2 watt resistor.
I wouldn't want some one to put in two or four "2 Watt" resistors.
Just keeping the info clear.

73,
Gordon

On 9/17/2013 3:34 AM, wagstw46@... wrote:
>
> Remember depending on the radio that you have four 1/2 watt or two 1
> watt in parallel for 2 watts dissipation.
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Terrry,
> The cathode resistors are only 1/2 watt aren't they ?
>
>
> On 9/16/2013 11:25 AM, wagstw46@... wrote:
>>
>> There is no way you can mis- tune the finals and blow a cathode resistor.
>>
>>
>> I showed the math to you. If it was possible to see 350ma in a
>> mis-tuning event then P = I squared R.
>>
>>
>> .350 x .350 x 5 = 0.61 watts.
>>
>>
>> A 2 watt resistor can run dissipating .61 watts forever.
>>
>>
>> What plate current level do you think could be attained in a
>> mis-tuning event? What happens to the HV power supply voltage at that
>> current level? What is the transformer Secondary power and what is
>> the Primary power at that current level? What happens to the
>> transformer primary fuse?
>>

>>
>> Even if it was possible to see a 700ma event then .700 x .700 x 5 =
>> 2.45 watts. A 2 watt resistor will run a very very long time
>> dissipating 2.45 watts.
>>
>>
>> Cathode resistors never blow due to mis-tuning of any kind. They blow
>> most certainly from tube arc over.
>>
>>
>> Terry K9TW
>>
>>
>>
>> --- In TS-520_820_530_830@yahoogroups.com,
>> <ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> Ken K4EAA speaks of the cathode resistors as acting as fuses due to
>> miss tuning the finals. It is in the article "Why Not Supersize"
>>
>> bill
>>
>> WD8OSJ
>>
>>
>>
>> --- In ts-520_820_530_830@yahoogroups.com, <> wrote:
>>
>
> --
>
>
>
>

--

44656. Re: [TS-520_820_530_830] New video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:31:10 UTC
From: Ken MacLeod
Topic: 44651 Message: 44656

Excellent presentation Mike. Thanks for the great refresher course. I'm from the tube days but spent most or my career in the solid state arena before retirement. I look forward to your future presentations. I'm sure the hams that are interested in learning all about the Hybrids appreciate you spending your time providing this education . What's interesting, especially to the new people, is that we need only learn about three tubes. The driver tube and two output tubes. Again great job!

73,
Ken - KI5PM

----- Original Message -----
From: Mike
To: Yahoo Kenwood Group
Sent: Tuesday, September 17, 2013 9:01 AM
Subject: [TS-520_820_530_830] New video

Good morning,

I uploaded a new video to my folder on Gordon's webserver. The following link will take you to the video:

http://www.n6wk.com/w5rkl/Grid%20Voltage/Grid%20voltage%20changes%20based%20on%20sine%20wave%20voltage%20levels.wmv

This video briefly explains a sine wave, what a sine wave looks like, the positive half and the negative half segment of the sine wave, and the different degrees throughout the sine wave cycle.

The video also shows/discusses what the terms "Peak Voltage" AND "Peak to Peak" voltages are when referenced to a sine wave cycle and what each term means. These are terms that you need to know and what they mean so you will understand what a discussion is about when the terms are used.

The remainder of the video discusses how the GRID voltage changes based on the sine wave cycle voltages that occur throughout the sine wave cycle. The video also explains that the GRID BIAS voltage applied to the grid, -4 volts in the example shown in the video, DOES NOT CHANGE throughout the entire applied signal's sine wave cycle!!! This is important to fully understand!!

73
Mike W5RKL

44657. Re: [TS-520_820_530_830] Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:39:49 UTC
From: Mike
Topic: 44437 Message: 44657

Itappears, based on your comments, the problem is not dirty switch wafer contacts but rather the problem could quite possibly be a "mechanical" problem with the switch assembly.

I would look at the "mechanics" of the switch.Don't just look at the switch's mounting, look closer at the switch wafer while rotating the switch knob/shaft very slow. Use a magnifying glass if you have to. I've found AND fixed many "mechanical" problems with switch wafers by simply taking some time, look very close at the switch through a magnifying glass, and rotating the switch shaft very slow. Not all mechanical issues with switch wafers can be fixed. I had a multi-position switch on my DX-40 that had a "mechanical" problem that effected the TUNE position, the switch was damaged after close inspection with a magnifying glass. I had to replace the switchbut I could easily see the mechanical damage that occurred with the switch using a magnifying glass that I could NOT see with the naked eye.

73
Mike W5RKL

On 9/17/2013 8:32 AM, Barry wrote:
>
> Yes - the Function switch on the external VFO is the culprit. It works
> when sitting on the edge as I mentioned, but it doesn't work when it
> seats completely where it's supposed to.
>
> Any ideas from anyone?
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> --- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@...>
> wrote:
> >
> > Wes,
> >
> > He is saying "function switch", not bandswitch. The bandswitch could be
> > a coupler off just a bit, but I'm not sure about the function switch. I
> > too am curious as to thoughts.
> > 73,
> > Don, WB5HAK
>
>

44658. Re: [TS-520_820_530_830] hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:45:03 UTC
From: John Davidson
Topic: 9016 Message: 44658

Most of the Motorola mics are low Z and must have a bias voltage on them from the mic High line in the radio to run the mic/s internal.amp circuit. !
 Sorry no go with the Kenwood Hybrids !

From: "km5wx@..." <km5wx@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 16, 2013 11:52 PM
Subject: [TS-520_820_530_830] hand mic question

I'm looking for a hand mic for my 530 and 820. Does anyone know if the Motorola business band mics are compatible? There are a lot of them around cheap. Also how about the mic from a Kenwood tm-261? Should anyone have a good compatible hand mic they want to sell or trade for I would be very interested. Thanks in advance. Richard KM5WX

44659. Re: [TS-520_820_530_830] hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:48:40 UTC
From: John Davidson
Topic: 9016 Message: 44659

Most of the commercial Motorola mics are low Z and require a DC bias voltage supplied by the radio on the mic hi line for the internal amp circuit to work.
. Sorry no match to the Kenwood hybrids.

From: "km5wx@..." <km5wx@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 16, 2013 11:52 PM
Subject: [TS-520_820_530_830] hand mic question

I'm looking for a hand mic for my 530 and 820. Does anyone know if the Motorola business band mics are compatible? There are a lot of them around cheap. Also how about the mic from a Kenwood tm-261? Should anyone have a good compatible hand mic they want to sell or trade for I would be very interested. Thanks in advance. Richard KM5WX

44660. Re: [TS-520_820_530_830] hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 16:53:08 UTC
From: Ken Winterling
Topic: 9016 Message: 44660

I used the Shure 404C. It is high impedance and a good match for either rig.

Ken
WA2LBI

On Tue, Sep 17, 2013 at 12:48 PM, John Davidson <k8jd@...> wrote:

> **
>
>
> Most of the commercial Motorola mics are low Z and require a DC bias
> voltage supplied by the radio on the mic hi line for the internal amp
> circuit to work.
> . Sorry no match to the Kenwood hybrids.
>
> ------------------------------
> *From:* "km5wx@..." <km5wx@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, September 16, 2013 11:52 PM
> *Subject:* [TS-520_820_530_830] hand mic question
>
>
> I'm looking for a hand mic for my 530 and 820. Does anyone know if the
> Motorola business band mics are compatible? There are a lot of them around
> cheap. Also how about the mic from a Kenwood tm-261? Should anyone have a
> good compatible hand mic they want to sell or trade for I would be very
> interested. Thanks in advance. Richard KM5WX
>
>
>

44661. Re: [TS-520_820_530_830] New video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 17:10:46 UTC
From: Mike
Topic: 44651 Message: 44661

Thank you Ken, you're welcome. I enjoy making the videos.

While the video used a Pentode as the subject tube, the exact same variations in sine wave voltages that are added to the fixed bias voltage resulting in variation in "grid voltage" also applies to the Kenwood Hybrid driver and final tubes!The driver and final tubes operate the same way.

I decided to make it a 2 part video so I renamed that video as:

"Grid voltage changes based on sine wave voltage levels part 1.wmv".

I am working on "part 2" which will expand on part 1, showing how variations in grid voltage causes variations in plate and screencurrent and voltagewhich is basically how a vacuum tube amplifies.

Backto the video production.

Again, thank you for your support and I'm glad thevideos served as a refresher for you. Hopefully they will help those who want to learn how a vacuum tube works.

73
Mike W5RKL

On 9/17/2013 11:31 AM, Ken MacLeod wrote:
>
> Excellent presentation Mike. Thanks for the great refresher course.
> I'm from the tube days but spent most or my career in the solid state
> arena before retirement. I look forward to your future
> presentations. I'm sure the hams that are interested in learning all
> about the Hybrids appreciate you spending your time providing this
> education . What's interesting, especially to the new people, is that
> we need only learn about three tubes. The driver tube and two output
> tubes. Again great job!
> 73,
> Ken - KI5PM
>
> ----- Original Message -----
> *From:* Mike <mailto:w5rkl@...>
> *To:* Yahoo Kenwood Group <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Tuesday, September 17, 2013 9:01 AM
> *Subject:* [TS-520_820_530_830] New video
>
> Good morning,
>
> I uploaded a new video to my folder on Gordon's webserver. The

> following link will take you to the video:
>
> http://www.n6wk.com/w5rkl/Grid%20Voltage/Grid%20voltage%20changes%20based%20on%20sine%20wave%20voltage%20levels.wmv
>
> This video briefly explains a sine wave, what a sine wave looks
> like, the positive half and the negative half segment of the sine
> wave, and the different degrees throughout the sine wave cycle.
>
> The video also shows/discusses what the terms "Peak Voltage" AND
> "Peak to Peak" voltages are when referenced to a sine wave cycle
> and what each term means. These are terms that you need to know
> and what they mean so you will understand what a discussion is
> about when the terms are used.
>
> The remainder of the video discusses how the GRID voltage changes
> based on the sine wave cycle voltages that occur throughout the
> sine wave cycle.The video also explains that the GRID BIAS voltage
> applied to the grid, -4 volts in the example shown in the video,
> DOES NOT CHANGE throughout the entire applied signal's sine wave
> cycle!!! This is important to fully understand!!
>
> 73
> Mike W5RKL
>
>

44662. Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 17:44:21 UTC
From: Barry
Topic: 44437 Message: 44662

Yeah, I bet you're right. Hopefully it won't be a hard thing to fix for me, but I'm going to take Terry's advice and buy one of these:

http://www.ebay.com/itm/1x-Rotary-Switch-3-Pole-4-Position-3P4T-Non-Shorting-4P-/270743901923?pt=LH_DefaultDomain_0&hash=item3f099816e3

For $3.45 I'm sure it'll be worth it. Is it hard to do the replacement?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
>
>
> Itappears, based on your comments, the problem is not dirty switch wafer
> contacts but rather the problem could quite possibly be a "mechanical"
> problem with the switch assembly.
>
> I would look at the "mechanics" of the switch.Don't just look at the
> switch's mounting, look closer at the switch wafer while rotating the
> switch knob/shaft very slow. Use a magnifying glass if you have to. I've
> found AND fixed many "mechanical" problems with switch wafers by simply
> taking some time, look very close at the switch through a magnifying
> glass, and rotating the switch shaft very slow. Not all mechanical
> issues with switch wafers can be fixed. I had a multi-position switch on
> my DX-40 that had a "mechanical" problem that effected the TUNE
> position, the switch was damaged after close inspection with a
> magnifying glass. I had to replace the switchbut I could easily see the
> mechanical damage that occurred with the switch using a magnifying glass
> that I could NOT see with the naked eye.
>
> 73
> Mike W5RKL
>
> On 9/17/2013 8:32 AM, Barry wrote:
> >
> > Yes - the Function switch on the external VFO is the culprit. It works
> > when sitting on the edge as I mentioned, but it doesn't work when it
> > seats completely where it's supposed to.
> >
> > Any ideas from anyone?
> >
> > Barry
> > KK4RXN
> > Jeremiah 29:11-13 / John 3:16

> >
> > --- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@>
> > wrote:
> > >
> > > Wes,
> > >
> > > He is saying "function switch", not bandswitch. The bandswitch could be
> > > a coupler off just a bit, but I'm not sure about the function switch. I
> > > too am curious as to thoughts.
> > > 73,
> > > Don, WB5HAK
> >
> >
>

44663. Re: [TS-520_820_530_830] Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 18:25:06 UTC
From: Mike
Topic: 44437 Message: 44663

I can't say whether it's going to be easy for you or not.Only you can
answer that question. I also don't have a VFO-820 to even look closely
at the switch assemblyto tell whether it's going to be easy or
difficultto replace.

Mike

On 9/17/2013 12:44 PM, Barry wrote:
>
> Yeah, I bet you're right. Hopefully it won't be a hard thing to fix
> for me, but I'm going to take Terry's advice and buy one of these:
>
> http://www.ebay.com/itm/1x-Rotary-Switch-3-Pole-4-Position-3P4T-Non-Shorting-4P-/270743901923?pt=LH_DefaultDomain_0&hash=item3f099816e3
>
> For $3.45 I'm sure it'll be worth it. Is it hard to do the replacement?
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
> --- In TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
> >
> >
> > Itappears, based on your comments, the problem is not dirty switch
> wafer
> > contacts but rather the problem could quite possibly be a "mechanical"
> > problem with the switch assembly.
> >
> > I would look at the "mechanics" of the switch.Don't just look at the
> > switch's mounting, look closer at the switch wafer while rotating the
> > switch knob/shaft very slow. Use a magnifying glass if you have to.
> I've
> > found AND fixed many "mechanical" problems with switch wafers by simply
> > taking some time, look very close at the switch through a magnifying
> > glass, and rotating the switch shaft very slow. Not all mechanical
> > issues with switch wafers can be fixed. I had a multi-position
> switch on
> > my DX-40 that had a "mechanical" problem that effected the TUNE
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> > magnifying glass. I had to replace the switchbut I could easily see the
> > mechanical damage that occurred with the switch using a magnifying
> glass
> > that I could NOT see with the naked eye.

> >
> > 73
> > Mike W5RKL
> >
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> > > Yes - the Function switch on the external VFO is the culprit. It
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> > > seats completely where it's supposed to.
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> > > KK4RXN
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> > > --- In TS-520_820_530_830@yahoogroups.com, Don Cunningham <donc@>
> > > wrote:
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> > > > Wes,
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> could be
> > > > a coupler off just a bit, but I'm not sure about the function
> switch. I
> > > > too am curious as to thoughts.
> > > > 73,
> > > > Don, WB5HAK
> > > >
> > > >
> > >
> >
>
>

44664. RE: Re: [TS-520_820_530_830] Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 18:37:29 UTC
From: <wagstw46@...>
Topic: 44437 Message: 44664

Mike:

You are in the same boat I am in. Very unusual for a remote VFO selector switch to be bad as these things get about 10% of the cycles of the rigs switches. Could be an easy mechanical fix. I have no idea of physical size or if it is a hermetically sealed type. Just wanted him to know that he might be able to find a sub on ebay.

If it was on my bench here would look at it and see if can be adjusted. If a phenolic wafer with ball bearing detent and riveted construction probably not. But first need to look at it and then you have an idea as to size etc. I have had a 820 remote here in past but could not tell you what the switch looks like.

Attempt fix 1st and then find a sub. I checked Kenwood East and West and listed as discontinued.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I can't say whether it's going to be easy for you or not. Only you can answer that question. I also don't have a VFO-820 to even look closely at the switch assembly to tell whether it's going to be easy or difficult to replace.

Mike

On 9/17/2013 12:44 PM, Barry wrote:

Yeah, I bet you're right. Hopefully it won't be a hard thing to fix for me, but I'm going to take Terry's advice and buy one of these:

http://www.ebay.com/itm/1x-Rotary-Switch-3-Pole-4-Position-3P4T-Non-Shorting-4P-/270743901923?pt=LH_DefaultDomain_0&hash=item3f099816e3

For $3.45 I'm sure it'll be worth it. Is it hard to do the replacement?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
>
>
> Itappears, based on your comments, the problem is not dirty switch wafer
> contacts but rather the problem could quite possibly be a "mechanical"
> problem with the switch assembly.
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> I would look at the "mechanics" of the switch.Don't just look at the

> switch's mounting, look closer at the switch wafer while rotating the
> switch knob/shaft very slow. Use a magnifying glass if you have to. I've
> found AND fixed many "mechanical" problems with switch wafers by simply
> taking some time, look very close at the switch through a magnifying
> glass, and rotating the switch shaft very slow. Not all mechanical
> issues with switch wafers can be fixed. I had a multi-position switch on
> my DX-40 that had a "mechanical" problem that effected the TUNE
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> > Yes - the Function switch on the external VFO is the culprit. It works
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> > KK4RXN
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> > > He is saying "function switch", not bandswitch. The bandswitch could be
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> > > too am curious as to thoughts.
> > > 73,
> > > Don, WB5HAK
> >
> >
>

44665. Re: [TS-520_820_530_830] Re: Trouble with external VFO-820; same relay as in TS-820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 19:15:45 UTC
From: Mike
Topic: 44437 Message: 44665

I had a problem with the VFO-820 Function switch when I had my TS-820/VFO-820 a few years ago. The problem turned out to be a very dirty wafer switch. Once I cleaned it, everything was fine.

I just looked at the VFO-820 schematic and the Function switch has 3 sections, each having 4 non-shortingpositions. Having done that I still can't say if the eBay replacement switch will work. I don't know how big the VFO-820 switch is nor the size and depth of the eBay switch. I also don't know the eBay switch's terminal mapping. The seller does not say if he includes a schematic diagram of the switch so Barry would have to make his own using an Ohm meter.

The important thing if Barry buys the switch, is for Barry to "map" out the switch contacts using an Ohm meter so he would know which is the wiper on all 3 sections and which pins each section's wiper makes contact with. He would then have to match each terminal and wiper section with the VFO-820's schematic so he wires it correctly and the proper Functions works as the switch is rotated. If all this isnot done then it would be very easy wire the switch wrong even if the switch fits fine in the VFO. Another thing is the replacement switch appears to have "splines" and a "split" shaft for the knob. The split shaft allows the shaft to be spread apart to provide "friction" to hold the knob on the shaft without set screws. The VFO-820 shaft is solid and the VFO knob uses set screws. I've tried using set screw knobs with splines/split shaft switches before. Some work but then again some don't. Those that don't work tend to "appear to work" but sooner rather than later, the knob wobbles and comes lose since the set screw can't hold the knob firmly to the shaft due to the splines and split shaft.

Just my 2 cents.

Mike

On 9/17/2013 1:37 PM, wagstw46@... wrote:
>
> Mike:
>
>
> You are in the same boat I am in. Very unusual for a remote VFO
> selector switch to be bad as these things get about 10% of the cycles
> of the rigs switches. Could be an easy mechanical fix. I have no idea
> of physical size or if it is a hermetically sealed type. Just wanted
> him to know that he might be able to find a sub on ebay.
>
>

> If it was on my bench here would look at it and see if can be
> adjusted. If a phenolic wafer with ball bearing detent and riveted
> construction probably not. But first need to look at it and then you
> have an idea as to size etc. I have had a 820 remote here in past but
> could not tell you what the switch looks like.
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> Attempt fix 1st and then find a sub. I checked Kenwood East and West
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>
>
> Terry K9TW
>
>
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> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I can't say whether it's going to be easy for you or not.Only you can
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> difficultto replace.
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> Mike
>
>
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901923?pt=LH_DefaultDomain_0&hash=item3f099816e3
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>> For $3.45 I'm sure it'll be worth it. Is it hard to do the
>> replacement?
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>> Barry
>> KK4RXN
>> Jeremiah 29:11-13 / John 3:16
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>> --- In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>, Mike <w5rkl@...>
>> <mailto:w5rkl@...> wrote:
>> >
>> >
>> > Itappears, based on your comments, the problem is not dirty
>> switch wafer

>> > contacts but rather the problem could quite possibly be a
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>> > > --- In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>, Don Cunningham <donc@>
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>> > > > Wes,
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>> > > > a coupler off just a bit, but I'm not sure about the
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>> > > > too am curious as to thoughts.
>> > > > 73,
>> > > > Don, WB5HAK
>> > >
>> > >
>> >
>>
>
>

44666. Need: main dial for 520 & battery cover for 930

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 20:05:58 UTC
From: Walter Treftz
Topic: 44666 Message: 44666

OK, 2 problems here.
 One, I need to know a source for the tuning dial
(the 0-100 dial behind the main tuning knob (mine is bent)
and two, a source for the small top cover plate over the memory battery
compartment on the 930SAT.
Also, is the 520 tuning dial supposed to be loose (slip) on the shaft that
mounts on the main tuning shaft? Mine does (can always put a dab of
epoxy if its supposed to be rigid). Otherwise want to just replace the entire
tuning scale plate.
     Anyone got a junker that they're parting out would solve both my problems.
73
Walt (N4GL)

From: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 17, 2013 10:47 AM
Subject: [TS-520_820_530_830] Digest Number 4451

KENWOOD TS-520_820_530_830

KENWOOD TS-520_820_530_830 Group
9 New Messages
Digest #4451

1a
Re: Trouble with external VFO-820; same relay as in TS-820? by "Don Cunningham"
taffycandyparadise
1b
Re: Trouble with external VFO-820; same relay as in TS-820? by "Barry" bonnevilleblb
1c
Re: Trouble with external VFO-820; same relay as in TS-820? by wagstw46
2.1
Re: Strange Behavior of the Carrier Control? by "Don Cunningham" taffycandyparadise
2.2
Re: Strange Behavior of the Carrier Control? by jwarnerr
2.3
Re: Strange Behavior of the Carrier Control? by "Joseph Stiles" wb7uqu
3.1
Re: V06B Diodes - for the rectifier board and similar bits. by wagstw46
4a
Re: hand mic question by "Don Allen" w9cw
5
New video by "Mike" w5rkl
Messages
1a

Re: Trouble with external VFO-820; same relay as in TS-820?
Mon Sep 16, 2013 10:56 pm (PDT) . Posted by:
"Don Cunningham" taffycandyparadise
Wes,

He is saying "function switch" , not bandswitch. The bandswitch could be
a coupler off just a bit, but I'm not sure about the function switch. I
too am curious as to thoughts.
73,
Don, WB5HAK
On 9/16/2013 11:28 PM, Wes Will wrote:
>
> On 09/16/2013 10:26 PM, Barry wrote:
> >
> > Looks like the relay was not the problem - the Function switch is the
> > trouble. I twisted the Function switch several times while the VFO was
> > powered on, and I found out letting the switch seat normally it would
> > not work.
> >
> > It does work, though, by ALMOST letting it seat but resting on the notch
>
> I'm looking at my rig, and I would like an opinion on this from them
> what knows.
>
> Could it be a problem with the pressure of the copper contact 'fingers'
> on the wafers of the band switch? Can they sort of relax over time and
> not make firm connection any more?
>
> If this is a possibility, is it not possible, therefore, to take a probe
> or something blunt (fingers? fingernail?) and gently bend them in tight
> against the wafer again?
>
> Would that be a possible fix, and could that be the base problem here?
>
> It might also be corrosion on the spot the finger has been "seating" all
> these years, or even may be the copper there is worn off or almost off.
> If that is the case, can it be repaired with something like
> silver-bearing trace paint? I doubt this, highly, but if it would work
> it might save a LOT of tedious work replacing a band switch.
>
> Might make better connections to the wires leading OFF of the switch,
> those rivet dealy-bobs look like a failure point waiting to happen to
> me. I think solder there would be better than silver paint, if done
> VERY carefully. Wouldn't want to damage the foil traces on the wafers
> with too much heat.
>
> Or is this a "new bandswitch" fix only??
>
> Enlightenment, anyone?
>

> --
> Wes Will
> N9KDY
>
>

Reply to sender . Reply to group . Reply via Web Post . All Messages (12) . Top ^
1b
Re: Trouble with external VFO-820; same relay as in TS-820?
Tue Sep 17, 2013 6:32 am (PDT) . Posted by:
"Barry" bonnevilleblb
Yes - the Function switch on the external VFO is the culprit. It works when sitting on the edge as I mentioned, but it doesn't work when it seats completely where it's supposed to.

Any ideas from anyone?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_ 830@yahoogroups. com, Don Cunningham <donc@... > wrote:
>
> Wes,
>
> He is saying "function switch" , not bandswitch. The bandswitch could be
> a coupler off just a bit, but I'm not sure about the function switch. I
> too am curious as to thoughts.
> 73,
> Don, WB5HAK

Reply to sender . Reply to group . Reply via Web Post . All Messages (12) . Top ^
1c
Re: Trouble with external VFO-820; same relay as in TS-820?
Tue Sep 17, 2013 7:11 am (PDT) . Posted by:
wagstw46

Go to ebay and search on 3 pole 4 position (3P4T) rotory switches
(non-shorting).

Should find a lot of phenolic, ceramic and enclose styles at low
prices.

Terry K9TW

--- In TS-520_820_530_ 830@yahoogroups. com,
<ts-520_820_530_ 830@yahoogroups. com> wrote:

Yes - the Function switch on the external VFO is the culprit. It
works when sitting on the edge as I mentioned, but it doesn't
work when it seats completely where it's supposed to.

Any ideas from anyone?

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

--- In TS-520_820_530_ 830@yahoogroups. com
<mailto:TS-520_820_530_ 830@yahoogroups. com> , Don Cunningham
<donc@... > wrote:
>
> Wes,
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> He is saying "function switch" , not bandswitch. The bandswitch
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> 73,
> Don, WB5HAK
Reply to sender . Reply to group . Reply via Web Post . All Messages (12) . Top ^
2.1
Re: Strange Behavior of the Carrier Control?
Mon Sep 16, 2013 10:58 pm (PDT) . Posted by:
"Don Cunningham" taffycandyparadise
Proud as you should well be, Chris. That IS an accomplishment! !!
Congratulations.
73,
Don, WB5HAK
On 9/16/2013 11:56 PM, Chris Maness wrote:
>
> I'm just giddy like a little school girl over fixing this radio. And
> the receiver audio is so nice. Just the best feeling basking in the
> dial light of a radio you just fixed :D
>
> 73 de KQ6UP
> Chris
>
>

Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
2.2
Re: Strange Behavior of the Carrier Control?
Tue Sep 17, 2013 1:22 am (PDT) . Posted by:
jwarnerr

Test - this is a test of reply under the new Yahoo format.

Sorry for any inconvenience. Thanks! KG0EI

--- In TS-520_820_530_ 830@yahoogroups. com,
<ts-520_820_530_ 830@yahoogroups. com> wrote:

Proud as you should well be, Chris. That IS an accomplishment! !!
Congratulations.
73,

Don, WB5HAK
On 9/16/2013 11:56 PM, Chris Maness wrote:

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Just the best feeling basking in the dial light of a radio
you just fixed :D

73 de KQ6UP
Chris

Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
2.3
Re: Strange Behavior of the Carrier Control?
Tue Sep 17, 2013 7:04 am (PDT) . Posted by:
"Joseph Stiles" wb7uqu
Chris,

  I have been following along.....frustrati ng at times..but that final satisfaction. ..it'
s worth it! Good job

  You got the bug now

73 Joe
WB7UQU

---------- --------- --------- --
From: Chris Maness <chris@chrismaness. com>
To: TS-520_820_530_ 830@yahoogroups. com
Sent: Monday, September 16, 2013 9:56 PM
Subject: Re: [TS-520_820_ 530_830] RE: Strange Behavior of the Carrier Control?

I'm just giddy like a little school girl over fixing this radio. And the receiver audio is
so nice. Just the best feeling basking in the dial light of a radio you just fixed :D
73 de KQ6UP
Chris

Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
3.1
Re: V06B Diodes - for the rectifier board and similar bits.
Tue Sep 17, 2013 3:34 am (PDT) . Posted by:
wagstw46

Remember depending on the radio that you have four 1/2 watt or
two 1 watt in parallel for 2 watts dissipation.

--- In TS-520_820_530_ 830@yahoogroups. com,
<ts-520_820_530_ 830@yahoogroups. com> wrote:

Terrry,
The cathode resistors are only 1/2 watt aren't they ?

On 9/16/2013 11:25 AM, wagstw46@... <mailto:wagstw46 @...>
wrote:

There is no way you can mis- tune the finals and blow a
cathode resistor.

I showed the math to you. If it was possible to see
350ma in a mis-tuning event then P = I squared R.

.350 x .350 x 5 = 0.61 watts.

A 2 watt resistor can run dissipating .61 watts
forever.

What plate current level do you think could be
attained in a mis-tuning event? What happens to the
HV power supply voltage at that current level? What
is the transformer Secondary power and what is the
Primary power at that current level? What happens
to the transformer primary fuse?

Even if it was possible to see a 700ma event then
.700 x .700 x 5 = 2.45 watts. A 2 watt resistor
will run a very very long time dissipating 2.45
watts.

Cathode resistors never blow due to mis-tuning of
any kind. They blow most certainly from tube arc
over.

Terry K9TW

--- In TS-520_820_530_ 830@yahoogroups. com
<mailto:TS-520_820_530_ 830@yahoogroups. com> ,
<ts-520_820_530_ 830@yahoogroups. com>
<mailto:ts-520_820_530_ 830@yahoogroups. com> wrote:

Ken K4EAA speaks of the cathode resistors as acting
as fuses due to miss tuning the finals. It is in the
article "Why Not Supersize"

bill

WD8OSJ

--- In ts-520_820_530_ 830@yahoogroups. com
<mailto:ts-520_820_530_ 830@yahoogroups. com> ,
<> wrote:

--
Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
4a
Re: hand mic question
Tue Sep 17, 2013 5:07 am (PDT) . Posted by:
"Don Allen" w9cw

The best hand mic in my experience for the 530 and 820, as well as the
520 and 830, is the Shure 414. A bit hard to find these days, but it's
an excellent mic and its element is very similar to the Shure 444 desk mic.

73
Don W9CW

On 9/16/2013 10:52 PM, km5wx@bellsouth. net wrote:
>
> I'm looking for a hand mic for my 530 and 820. Does anyone know if the
> Motorola business band mics are compatible? There are a lot of them
> around cheap. Also how about the mic from a Kenwood tm-261? Should
> anyone have a good compatible hand mic they want to sell or trade for
> I would be very interested. Thanks in advance. Richard KM5WX
>
>

Reply to sender . Reply to group . Reply via Web Post . All Messages (14) . Top ^
5
New video
Tue Sep 17, 2013 7:01 am (PDT) . Posted by:
"Mike" w5rkl
Good morning,

I uploaded a new video to my folder on Gordon's webserver. The following
link will take you to the video:

http://www.n6wk. com/w5rkl/ Grid%20Voltage/ Grid%20voltage% 20changes% 20based%20on%
20sine%20wave% 20voltage% 20levels. wmv

This video briefly explains a sine wave, what a sine wave looks like,
the positive half and the negative half segment of the sine wave, and
the different degrees throughout the sine wave cycle.

The video also shows/discusses what the terms "Peak Voltage" AND "Peak
to Peak" voltages are when referenced to a sine wave cycle and what each
term means. These are terms that you need to know and what they mean so
you will understand what a discussion is about when the terms are used.

The remainder of the video discusses how the GRID voltage changes based
on the sine wave cycle voltages that occur throughout the sine wave
cycle.The video also explains that the GRID BIAS voltage applied to the
grid, -4 volts in the example shown in the video, DOES NOT CHANGE
throughout the entire applied signal's sine wave cycle!!! This is
important to fully understand!!

73
Mike W5RKL

Reply to sender . Reply to group . Reply via Web Post . All Messages (1) . Top ^
Visit Your Group
>
View All Topics

>
Create New Topic
>
4 New Members
>
We are making changes based on your feedback, Thank you !
Submit Feedback
>
The Yahoo! Groups Product Blog
Check it out!
>

CHANGE SETTINGS
>
TERMS OF USE
>
UNSUBSCRIBE
>

44667. RE: Need: main dial for 520 & battery cover for 930

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 21:50:26 UTC
From: <dlbowders@...>
Topic: 44666 Message: 44667

Walt,
I have a dial. It is metal with a brass insert in the center. Is this the dial that is loose? It should have 2 screws in it to tighten to the outer shaft. That shaft turns to adjust center of freq. Send me an Email off group with your mailing address and I will send the dial. dlbowders (at) nepower (dot) coop. I am not sure about this new format. I hope this posts.

Don K5HFG

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK, 2 problems here.
One, I need to know a source for the tuning dial
(the 0-100 dial behind the main tuning knob (mine is bent)
and two, a source for the small top cover plate over the memory battery
compartment on the 930SAT.
Also, is the 520 tuning dial supposed to be loose (slip) on the shaft that
mounts on the main tuning shaft? Mine does (can always put a dab of
epoxy if its supposed to be rigid). Otherwise want to just replace the entire
tuning scale plate.
Anyone got a junker that they're parting out would solve both my problems.
73
Walt (N4GL)

From: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 17, 2013 10:47 AM
Subject: [TS-520_820_530_830] Digest Number 4451

KENWOOD TS-520_820_530_830

(http://groups.yahoo.com/;_ylc=X3oDMTJkcW11OWJlBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA2dmcARzdGltZQMxMzc5NDI5Mjcw)

KENWOOD TS-520_820_530_830 Group (http://groups.yahoo.com/group/TS-520_820_530_830;_ylc=X3oDMTJkZ2Ewc3BpBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNoZHIEc2xrA2hwaARzdGltZQMxMzc5NDI5Mjcw)

9 New Messages

Digest #4451

1a

Re: Trouble with external VFO-820; same relay as in TS-820?
(http://us-mg5.mail.yahoo.com/neo/#1a) by "Don Cunningham" taffycandyparadise

1b

Re: Trouble with external VFO-820; same relay as in TS-820?
(http://us-mg5.mail.yahoo.com/neo/#1b) by "Barry" bonnevilleblb

1c

Re: Trouble with external VFO-820; same relay as in TS-820?
(http://us-mg5.mail.yahoo.com/neo/#1c) by wagstw46

2.1

Re: Strange Behavior of the Carrier Control? (http://us-mg5.mail.yahoo.com/neo/#2.1) by
"Don Cunningham" taffycandyparadise

2.2

Re: Strange Behavior of the Carrier Control? (http://us-mg5.mail.yahoo.com/neo/#2.2) by
jwarnerr

2.3

Re: Strange Behavior of the Carrier Control? (http://us-mg5.mail.yahoo.com/neo/#2.3) by
"Joseph Stiles" wb7uqu

3.1

Re: V06B Diodes - for the rectifier board and similar bits.
(http://us-mg5.mail.yahoo.com/neo/#3.1) by wagstw46

4a

Re: hand mic question (http://us-mg5.mail.yahoo.com/neo/#4a) by "Don Allen" w9cw

5

New video (http://us-mg5.mail.yahoo.com/neo/#5) by "Mike" w5rkl

Messages

1a

Re: Trouble with external VFO-820; same relay as in TS-820? (http://groups.yahoo.com/group
/TS-520_820_530_830/message/44645;_ylc=X3oDMTJyc2loa2FkBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjE
EZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjQ1BHNlYwNkbXNnBHNsawN2bXNnBHN0aW1lAzEzNzk0MjkyNzA-)

Mon Sep 16, 2013 10:56 pm (PDT) . Posted by:

"Don Cunningham" taffycandyparadise

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> me. I think solder there would be better than silver paint, if done
> VERY carefully. Wouldn't want to damage the foil traces on the wafers
> with too much heat.
>
> Or is this a "new bandswitch" fix only??
>
> Enlightenment, anyone?
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> --
> Wes Will
> N9KDY
>
>

Reply to sender . Reply to group . Reply via Web Post (http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJycDhpYmd2BF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjQ1BHNlYwNkbXNnBHNsawNycGx5BHN0aW1lAzEzNzk0MjkyNzA-?act=reply&messageNum=44645) . All Messages (12) (http://groups.yahoo.com/group/TS-520_820_530_830/message/44437;_ylc=X3oDMTM3YmV0NW52BF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG

1zZ0lkAzQ0NjQ1BHNlYwNkbXNnBHNsawN2dHBjBHN0aW1lAzEzNzk0MjkyNzAEdHBjSWQDNDQ0Mzc-) . Top ^
(http://us-mg5.mail.yahoo.com/neo/#toc)

1b

Re: Trouble with external VFO-820; same relay as in TS-820? (http://groups.yahoo.com/group
/TS-520_820_530_830/message/44650;_ylc=X3oDMTJycXE5dnV1BF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjE
EZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjUwBHNlYwNkbXNnBHNsawN2bXNnBHN0aW1lAzEzNzk0MjkyNzA-)

Tue Sep 17, 2013 6:32 am (PDT) . Posted by:

"Barry" bonnevilleblb

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Any ideas from anyone?

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KK4RXN
Jeremiah 29:11-13 / John 3:16

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Reply to sender . Reply to group . Reply via Web Post (http://groups.yahoo.com/group/TS-52
0_820_530_830/post;_ylc=X3oDMTJycWY5OWcyBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNz
A1MDYzMTA4BG1zZ0lkAzQ0NjUwBHNlYwNkbXNnBHNsawNycGx5BHN0aW1lAzEzNzk0MjkyNzA-?act=reply&messa
geNum=44650) . All Messages (12) (http://groups.yahoo.com/group/TS-520_820_530_830/message
/44437;_ylc=X3oDMTM3ZmRtNGFkBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG
1zZ0lkAzQ0NjUwBHNlYwNkbXNnBHNsawN2dHBjBHN0aW1lAzEzNzk0MjkyNzAEdHBjSWQDNDQ0Mzc-) . Top ^
(http://us-mg5.mail.yahoo.com/neo/#toc)

1c

Re: Trouble with external VFO-820; same relay as in TS-820? (http://groups.yahoo.com/group
/TS-520_820_530_830/message/44653;_ylc=X3oDMTJybHUzNnJkBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjE
EZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjUzBHNlYwNkbXNnBHNsawN2bXNnBHN0aW1lAzEzNzk0MjkyNzA-)

Tue Sep 17, 2013 7:11 am (PDT) . Posted by:

wagstw46

Go to ebay and search on 3 pole 4 position (3P4T) rotory switches
(non-shorting).

Should find a lot of phenolic, ceramic and enclose styles at low
prices.

Terry K9TW

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A1MDYzMTA4BG1zZ0lkAzQ0NjUzBHNlYwNkbXNnBHNsawNycGx5BHN0aW1lAzEzNzk0MjkyNzA-?act=reply&messa
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(http://us-mg5.mail.yahoo.com/neo/#toc)

2.1

Re: Strange Behavior of the Carrier Control? (http://groups.yahoo.com/group/TS-520_820_530
_830/message/44646;_ylc=X3oDMTJyaWZvZmNxBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNz
A1MDYzMTA4BG1zZ0lkAzQ0NjQ2BHNlYwNkbXNnBHNsawN2bXNnBHN0aW1lAzEzNzk0MjkyNzA-)

Mon Sep 16, 2013 10:58 pm (PDT) . Posted by:

"Don Cunningham" taffycandyparadise

Proud as you should well be, Chris. That IS an accomplishment! !!
Congratulations.
73,
Don, WB5HAK
On 9/16/2013 11:56 PM, Chris Maness wrote:
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> I'm just giddy like a little school girl over fixing this radio. And

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> dial light of a radio you just fixed :D
>
> 73 de KQ6UP
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>
>

Reply to sender . Reply to group . Reply via Web Post (http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJybDZ0MjJpBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjQ2BHNlYwNkbXNnBHNsawNycGx5BHN0aW1lAzEzNzk0MjkyNzA-?act=reply&messageNum=44646) . All Messages (70) (http://groups.yahoo.com/group/TS-520_820_530_830/message/44446;_ylc=X3oDMTM3ZHAybXQwBF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjQ2BHNlYwNkbXNnBHNsawN2dHBjBHN0aW1lAzEzNzk0MjkyNzAEdHBjSWQDNDQ0NDY-) . Top ^ (http://us-mg5.mail.yahoo.com/neo/#toc)

2.2

Re: Strange Behavior of the Carrier Control? (http://groups.yahoo.com/group/TS-520_820_530_830/message/44647;_ylc=X3oDMTJyazhrZDJ0BF9TAzk3MzU5NzE1BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NjQ3BHNlYwNkbXNnBHNsawN2bXNnBHN0aW1lAzEzNzk0MjkyNzA-)

Tue Sep 17, 2013 1:22 am (PDT) . Posted by:

jwarnerr

Test - this is a test of reply under the new Yahoo format.

Sorry for any inconvenience. Thanks! KG0EI

--- In TS-520_820_530_ 830@yahoogroups. com,
<ts-520_820_530_ 830@yahoogroups. com> wrote:

Proud as you should well be, Chris. Tc ?Oz?□? □??fy

44668. Re: [TS-520_820_530_830] RE: Need: main dial for 520 & battery cover for 930

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 22:24:18 UTC
From: Joseph Stiles
Topic: 44666 Message: 44668

Walt,

The 520(S) silver dial right behind the main VFO knob..should slip only when moved by hand...it is used along
with the "calibrator signal" to get correct frequency reading across the dials range...as it is not totally linear from
one end of its range to the other. The "other" one...white...with numbers from "0 to 600" should NOT slip. It is held to the
gear train by one screw.

73 Joe
WB7UQU

From: "dlbowders@..." <dlbowders@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 17, 2013 2:50 PM
Subject: [TS-520_820_530_830] RE: Need: main dial for 520 & battery cover for 930

Walt,
I have a dial. It is metal with a brass insert in the center. Is this the dial that is loose? It should have 2 screws in it to tighten to the outer shaft. That shaft turns to adjust center of freq. Send me an Email off group with your mailing address and I will send the dial. dlbowders (at) nepower (dot) coop. I am not sure about this new format. I hope this posts.

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To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 17, 2013 10:47 AM
Subject: [TS-520_820_530_830] Digest Number 4451

KENWOOD TS-520_820_530_830

KENWOOD TS-520_820_530_830 Group
9 New Messages
Digest #4451

1a
Re: Trouble with external VFO-820; same relay as in TS-820? by "Don Cunningham" taffycandyparadise
1b
Re: Trouble with external VFO-820; same relay as in TS-820? by "Barry" bonnevilleblb
1c
Re: Trouble with external VFO-820; same relay as in TS-820? by wagstw46
2.1
Re: Strange Behavior of the Carrier Control? by "Don Cunningham" taffycandyparadise
2.2
Re: Strange Behavior of the Carrier Control? by jwarnerr
2.3
Re: Strange Behavior of the Carrier Control? by "Joseph Stiles" wb7uqu
3.1
Re: V06B Diodes - for the rectifier board and similar bits. by wagstw46
4a
Re: hand mic question by "Don Allen" w9cw
5
New video by "Mike" w5rkl
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Reply to sender . Reply to group . Reply via Web Post . All Messages (12) . Top ^
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> Chris
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Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
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73 de KQ6UP
Chris

Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
2.3
Re: Strange Behavior of the Carrier Control?
Tue Sep 17, 2013 7:04 am (PDT) . Posted by:
"Joseph Stiles" wb7uqu
Chris,

I have been following along.....frustrati ng at times..but that final satisfaction. ..it's worth it! Good job

You got the bug now

73 Joe
WB7UQU

---------- --------- --------- --
From: Chris Maness <chris@chrismaness. com>
To: TS-520_820_530_ 830@yahoogroups. com
Sent: Monday, September 16, 2013 9:56 PM
Subject: Re: [TS-520_820_ 530_830] RE: Strange Behavior of the Carrier Control?

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73 de KQ6UP
Chris

Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
3.1
Re: V06B Diodes - for the rectifier board and similar bits.
Tue Sep 17, 2013 3:34 am (PDT) . Posted by:
wagstw46

Remember depending on the radio that you have four 1/2 watt or
two 1 watt in parallel for 2 watts dissipation.

--- In TS-520_820_530_ 830@yahoogroups. com,
<ts-520_820_530_ 830@yahoogroups. com> wrote:

Terrry,
The cathode resistors are only 1/2 watt aren't they ?

On 9/16/2013 11:25 AM, wagstw46@... <mailto:wagstw46 @...>
wrote:

There is no way you can mis- tune the finals and blow a
cathode resistor.

I showed the math to you. If it was possible to see
350ma in a mis-tuning event then P = I squared R.

.350 x .350 x 5 = 0.61 watts.

A 2 watt resistor can run dissipating .61 watts
forever.

What plate current level do you think could be
attained in a mis-tuning event? What happens to the
HV power supply voltage at that current level? What
is the transformer Secondary power and what is the
Primary power at that current level? What happens
to the transformer primary fuse?

Even if it was possible to see a 700ma event then
.700 x .700 x 5 = 2.45 watts. A 2 watt resistor
will run a very very long time dissipating 2.45
watts.

Cathode resistors never blow due to mis-tuning of
any kind. They blow most certainly from tube arc
over.

Terry K9TW

--- In TS-520_820_530_ 830@yahoogroups. com
<mailto:TS-520_820_530_ 830@yahoogroups. com> ,
<ts-520_820_530_ 830@yahoogroups. com>
<mailto:ts-520_820_530_ 830@yahoogroups. com> wrote:

Ken K4EAA speaks of the cathode resistors as acting
as fuses due to miss tuning the finals. It is in the
article "Why Not Supersize"

bill

WD8OSJ

--- In ts-520_820_530_ 830@yahoogroups. com
<mailto:ts-520_820_530_ 830@yahoogroups. com> ,
<> wrote:

--
Reply to sender . Reply to group . Reply via Web Post . All Messages (70) . Top ^
4a
Re: hand mic question
Tue Sep 17, 2013 5:07 am (PDT) . Posted by:
"Don Allen" w9cw
The best hand mic in my experience for the 530 and 820, as well as the
520 and 830, is the Shure 414. A bit hard to find these days, but it's
an excellent mic and its element is very similar to the Shure 444 desk mic.

73
Don W9CW

On 9/16/2013 10:52 PM, km5wx@bellsouth. net wrote:
>
> I'm looking for a hand mic for my 530 and 820. Does anyone know if the
> Motorola business band mics are compatible? There are a lot of them
> around cheap. Also how about the mic from a Kenwood tm-261? Should
> anyone have a good compatible hand mic they want to sell or trade for
> I would be very interested. Thanks in advance. Richard KM5WX
>
>

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5
New video

Tue Sep 17, 2013 7:01 am (PDT) . Posted by:
"Mike" w5rkl
Good morning,

I uploaded a new video to my folder on Gordon's webserver. The following link will take you to the video:

http://www.n6wk. com/w5rkl/ Grid%20Voltage/ Grid%20voltage% 20changes% 20based%20on% 20sine%20wave% 20voltage% 20levels. wmv

This video briefly explains a sine wave, what a sine wave looks like, the positive half and the negative half segment of the sine wave, and the different degrees throughout the sine wave cycle.

The video also shows/discusses what the terms "Peak Voltage" AND "Peak to Peak" voltages are when referenced to a sine wave cycle and what each term means. These are terms that you need to know and what they mean so you will understand what a discussion is about when the terms are used.

The remainder of the video discusses how the GRID voltage changes based on the sine wave cycle voltages that occur throughout the sine wave cycle.The video also explains that the GRID BIAS voltage applied to the grid, -4 volts in the example shown in the video, DOES NOT CHANGE throughout the entire applied signal's sine wave cycle!!! This is important to fully understand!!

73
Mike W5RKL

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Visit Your Group
>
View All Topics
>
Create New Topic
>
4 New Members
>
We are making changes based on your feedback, Thank you !
Submit Feedback
>
The Yahoo! Groups Product Blog
Check it out!
>

CHANGE SETTINGS
>
TERMS OF USE
>
UNSUBSCRIBE
>

44669. Re: hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 01:23:59 UTC
From: <km5wx@...>
Topic: 9016 Message: 44669

Thanks for the info guys. I guess I have to just keep trying to find one. How do I go about checking the mic impedance? I have several old 11 meter mics but no idea what the z is. They're not marked. I looked for a heil element to put in one but they're also hard to find. Thanks again Richard KM5WX

44670. Four 1N4004 diodes, five minutes soldering, and a little hope later...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 03:03:03 UTC
From: Wes Will
Topic: 9016 Message: 44670

And once again the TS-520SE is back up and running just fine.

The DG-5 freq counter is still inoperative, when plugged in to the radio. I did a fast on-off and in the fraction of a second heard the 14V section of the power supply board start to sizzle. I cannot figure what could be wrong with that thing. YET.

The modification of the odd rectifier board, to add the side-tone bias connection via a 100K ohm resistor tacked to R9 worked a treat. (? Pretty sure it's R9, and the new resistor would be what should have been there as R10.)

The 300 PIV / 1 A 1N4004 diodes are a perfect replacement for the V06B diodes originally in there. Possibly better, since the same on/off of the rig with the DG-5 on it and V06B original diodes in there resulted in four bad diodes, and two burned traces on the rectifier board. The 1N4004 units held their own, and didn't blow or take anything out with themselves, unlike the OEM parts.

I'll be tuning up the transmitter into the dummy load tomorrow, when I'm less fatigued. Been a bit of a day for me, all around, and I didn't think I was even going to be able to snatch the five minutes for this repair. Tomorrow is smarter for working with an unfamiliar transmitter. I've got to try to remember how to load a tube rig, using the instructions from here. Don't want to blow a final now that I'm >this< close to having a working rig.

--
Wes Will
N9KDY

44671. Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 05:16:00 UTC
From: GEAgent21@...
Topic: 44510 Message: 44671

Thanks Terry
I have the next two days off from work so I will dig into the TS 520 to see what I can find. I also have purchased a VTVM as I know I will need it sooner or later. I will get back to you with an update as soon as I know what is going on.

73
Greg
KC9VVU

In a message dated 9/16/2013 4:36:02 A.M. Eastern Daylight Time, wagstw46@... writes:

Yes Deoxit spray and canned air. I also like to use some Deoxit Fader Type F lube after cleaning. It is made for carbon trace pots and it helps maintain good smooth and quiet action for longer time after pot is cleaned. If you dont have any dont worry about it at this time. Just spray and exercise pot thru its full range multiple times and blow out with canned air. Do this with power off.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Needle is steady until dead spot and after dead spot. Mic gain set at 3-4 normally. What do you recommend to clean the pot? Deoxit?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time, wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time, wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44672. QST ts-820 WARC upgrade errata.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 04:18:31 UTC
From: clifford wright
Topic: 44672 Message: 44672

Has any kind ham got these errata notices which would be in 1983 and 1984 QST? The original article is available te OK.
I did this mod 3 years ago and there are one or two minor problems I would like to sort out.
Mainly with the poor Pi network on certain bands. It can be very tough on the 6146B's hat I use even with an upgraded fan and better air flow around the final.
I simply cannot be satisfied with a 50% final amp efficiency.
I am still looking for ideas to improve the front end S/N ratio. It is definitely noisier than my home brew RX on 14 MHz and I am a bit suspicious of the Rf stage source follower as a potential noise source and cross mod inducer.
Has anyone tried one of QST's hybrid cascodes as an RF stage upgrade?
Zl1BDA ex G3NIA.

44673. TS820 CW filter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 08:11:48 UTC
From: <gd1mip@...>
Topic: 44673 Message: 44673

Hi all. I am posting this because I can find no way to search old posts now the Yahoo look has changed.

Anyway I have just accquired a TS820. A previous owner has removed the YG-88C CW filter, Looking on the WWW has drawn a blank. Can anyone please suggest a replacement filter?

Thanks Andy GD1MIP

44674. Re: [TS-520_820_530_830] hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 12:33:46 UTC
From: kenny
Topic: 9016 Message: 44674

300965511345
eBay item number:
----- Original Message -----
From: Don Allen
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 17, 2013 1:07 PM
Subject: Re: [TS-520_820_530_830] hand mic question

The best hand mic in my experience for the 530 and 820, as well as the 520 and 830, is the Shure 414. A bit hard to find these days, but it's an excellent mic and its element is very similar to the Shure 444 desk mic.

73
Don W9CW

On 9/16/2013 10:52 PM, km5wx@... wrote:

I'm looking for a hand mic for my 530 and 820. Does anyone know if the Motorola business band mics are compatible? There are a lot of them around cheap. Also how about the mic from a Kenwood tm-261? Should anyone have a good compatible hand mic they want to sell or trade for I would be very interested. Thanks in advance. Richard KM5WX

44675. Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-17 23:01:35 UTC
From: clifford wright
Topic: 44675 Message: 44675

Good day! I have owned a TS-820 for over 10 years now and have given it many modifications in that time. These include the QST WARC bands, though the 18 Mhz mod is pretty poor as they final efficiency is low on that band.
Does anyone have a copy of the various errata published in QST during 1983 and 1984 to the original WARC conversion article in Feb 1983?
I still have the original article but not the corrections. It would be good to go through them in case I've missed something.

I have noticed that the TS-820 needs quite a high output microphone for SSB and a Hi Z model is the only way to go. However I use a modified Genius computer microphone with a small x10 built in amplifier. This works very well indeed. It needs a small internal battery, but since I use PTT this has a very long life.
It is noticeable just how many users have problems with the wafer switches over time, this is one of the worst features of the quality control of this radio and mine is no exception.
2 have been replaced entirely and I still need to fix the AGC switch properly as the rocker switches can be fragile too.
I have done the counter mods but the counter problems also seem to stem from band switch problems too. It is noticeable that if the counter pays up above 14 MHz cleaning the band switch can often get things going again.
My rig uses 6146B's in the final and has an upgraded fan and improved air circulation in the final area, but I am still considering making some new Pi network inductors for the output circuit. The original Kenwood design left quite a lot to be desired in that area.
If I get this done I'll post the details, after all an extra 20 or 30 watts output and less heat is not a bad idea.
My rig came with the CW and SSB filters and has had the RX front end mods done as well as
most other published changes. However as a lifelong home brewer, I am NOT entirely happy with the original RF stage. The extra source follower buffer bothers me a bit!
Has anyone tried a Norton of Hybrid cascode replacement for the original RF stage?
74 Zl1BDA

44676. RE: QST ts-820 WARC upgrade errata.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 05:28:13 UTC
From: <n6wk@...>
Topic: 44672 Message: 44676

I have all the Old QST magazines. Exactly which articles do you need?

73,
Gordon
N6WK

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Has any kind ham got these errata notices which would be in 1983 and
1984 QST? The original article is available te OK.
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definitely noisier than my home brew RX on 14 MHz and I am a bit
suspicious of the Rf stage source follower as a potential noise source
and cross mod inducer.
Has anyone tried one of QST's hybrid cascodes as an RF stage upgrade?
Zl1BDA ex G3NIA.

44677. DFC-230 for parts or possible repair

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 06:00:19 UTC
From: DBRogers
Topic: 44677 Message: 44677

A few years ago I bought a non-working DFC-230 as a parts unit to back up the two DFC-230 units that I use with my TS-130S and TS-130V. They are also used with the TS-830S, TS-530S and TS-120S. It has been about 5 years and the two good units are still working just fine, so I would like to sell the parts unit.

It seems to be complete except for the 4 screws that hold the circuit board to which the mic cord is attached (which also seems to be the problem area), and one foot is missing. It does not work.

If you need this, you know what it is. If you don’t know what it is, you probably don’t need it.

I would like $30.00 for it shipped within the USofA. Payment would have to be by USPS postal money order.

DId I mention that it does not work?

Thanks,

David, WA7ZYQ

44678. RE: Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 11:51:38 UTC
From: <wagstw46@...>
Topic: 44675 Message: 44678

It sounds like your efficiency issues are primarily due to less than optimum Q due to compromise tank L/C ratios on the Warc bands.

Instead of using relays and tapping on the existing tank coil today it would be pretty easy to buy an entire TS530 or TS830 PA cage with all the components designed for WARC operation. Might be fun project to swap out existing unit. This way have correct tank coil, tank caps, fixed padders etc for all the bands.

Might give Bob Mansker a try to see what he gets for a PA unit. Also show up on Ebay on regular basis.

Have you ever measured the RF drive levels at the control grids of the 6146 finals since you had to home brew Driver stage tank circuits for the Warc band. Are you able to easily get full scale ALC indication on the WARC bands without having to run Car Level pot full open? Easy to measure the RF drive. Should see something like 45 to 47rms rf volts.

Lastly I wonder if you would be better off using the Plate Choke from the TS530 or TS830? I have never looked at the original 820 choke to see if any series resonant holes near the WARC bands? Easy to do with GDO with choke shorted to simulate the shunt capacitance it sees in circuit. The TS830 solenoid wound choke has a hole close to 25mhz that makes me a little nervous.

Terry K9TW

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It is noticeable just how many users have problems with the wafer
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buffer bothers me a bit!
Has anyone tried a Norton of Hybrid cascode replacement for the original
RF stage?
74 Zl1BDA

44679. Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 12:17:34 UTC
From: <sm7fyw@...>
Topic: 44679 Message: 44679

Hi all
Have a question
I've got a TS-820 that sounds tinny, really tinny when compressor is on, but sounds perfect without.
Is there a way to adjust, without having a complete radio lab?
Or should I just tell my friend, that he shouldn't use the compressor?
Thanks Lars
KB3WBT

44680. Re: TS820 CW filter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 12:32:07 UTC
From: Barry
Topic: 44673 Message: 44680

Would this one work?

http://www.ebay.com/itm/KENWOOD-YG-88C-500Hz-CW-FILTER-TS-820-NICE-/121177054372?pt=US_Radio_Comm_Filters&hash=item1c36b71ca4

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44681. RE: RE: Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 13:02:41 UTC
From: <wagstw46@...>
Topic: 44675 Message: 44681

I forgot to comment.

Are you talking about the TS820 having two much gain ahead of the 1st Mixer? If so, sounds like something that Bob Sherwood has discussed often. Perhaps you have read his published articles on using a cascode amp for gain redistribution?

Kenwood after the TS520 attempted to addressed this problem by adding a diode switched capacitive voltage divider rf attenuator between the RF amp and buffer before the 1st mixer. It is controlled by the bandswitch and shunts some of the RF signal from Drain of Q2 RF amp to ground on the low bands and allows full gain on 10 meters.

In the TS820 it is diodes D4/D5 and capacitors C24/C25. If you are experiencing problems on 160 or 80 meters might want to make sure this circuit is working. Also make sure have good molex pin conneciton at RF-1 Pin 6 B4. I have never found it non functioning in a TS820, but I have in a TS520S.

I dont live in an area where I have to worry about front end being grossly overloaded by broadcast transmitters. Very seldom have to use the front panel switched 20db attenuator.

Also, maybe my ear is just less discriminating?

Terry K9TW

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Has anyone tried a Norton of Hybrid cascode replacement for the original RF stage?
74 Zl1BDA

44682. RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 13:24:45 UTC
From: <wagstw46@...>
Topic: 44679 Message: 44682

Lars:

The compressor is one of the better ones if aligned properly. It is kind of unusual circuit. It is not a clipper in the IF chain like the TS830. It uses a Balanced Mod to to convert your mic audio into a 455khz DSBSC signal and processes it and then a Product Detector to convert it back to audio for input to your SSB Balanced Modulator.

One of the biggest problems is people tweak on it without test gear and number one thing I find is they have tried to follow the procedure in the Service Manual and it is flawed. As I said this thing works by taking audio and applying it to its own Balanced Modulator that uses 455 khz as the LO. The manual has you set the LO for 451khz. This is outside the 455khz ceramic IF filters frequency response curve. Have to get the signal into the pass band of the ceramic filter chain that follows. It is possible to have a bad filter, but I have never seen one.

If you have a Frequency Counter you could just try setting TC-4 on IF board for 455kz at TP-3 and see what effect that has. You really cant hurt anything by making this simple adjustment. I suppose with no counter you could listen to yourself on the Moni with headphones and make small step changes on TC-4 to see if any improvement.

To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Have a question
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Or should I just tell my friend, that he shouldn't use the compressor?
Thanks Lars
KB3WBT

44683. Re: [TS-520_820_530_830] Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 13:31:14 UTC
From: Mark Gilger
Topic: 44679 Message: 44683

Lars,
Are we going to be hearing the 820 on the Saturday net?
Mark, WB0IQK

At 08:17 AM 9/18/2013, sm7fyw@... wrote:
>
>
>Hi all
>
>Have a question
>
>I've got a TS-820 that sounds tinny, really
>tinny when compressor is on, but sounds perfect without.
>
>Is there a way to adjust, without having a complete radio lab?
>
>Or should I just tell my friend, that he shouldn't use the compressor?
>
>Thanks Lars
>
>KB3WBT
>

44684. RE: [TS-520_820_530_830] Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 14:03:12 UTC
From: Lars Kvant
Topic: 44679 Message: 44684

Yes Mark, that is to say if I'm at home then :)
Lars

To: TS-520_820_530_830@yahoogroups.com; TS-520_820_530_830@yahoogroups.com
From: mgilger@brightdsl.net
Date: Wed, 18 Sep 2013 09:31:14 -0400
Subject: Re: [TS-520_820_530_830] Compressor adjustment...

Lars,

Are we going to be hearing the 820 on the Saturday net?

Mark, WB0IQK

At 08:17 AM 9/18/2013, sm7fyw@... wrote:

Hi all

Have a question

I've got a TS-820 that sounds tinny, really tinny when compressor is on,
but sounds perfect without.

Is there a way to adjust, without having a complete radio lab?

Or should I just tell my friend, that he shouldn't use the
compressor?

Thanks Lars

KB3WBT

44685. CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 14:58:47 UTC
From: Chris Maness
Topic: 44685 Message: 44685

I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down. Yesterday I ordered a CW filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I replace either the trimmer or the Xtal if it keeps drifting around?

Watcha think?

Thanks,
Chris Maness

44686. RE: RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 15:09:36 UTC
From: <sm7fyw@...>
Topic: 44679 Message: 44686

Terry thank you so very much!
I tuned my FT-847 to same freq as the 820 (10m) put on headphones, and without turning heater on, I got a nice ssb signal, then after following your instruction, I turned the TC4 abt 20-25 degrees, and the sound got better and better, so now, with compressor at 12 a'clock, its brilliant!!
I even tried to turn it up to full, and also the mike gain, and it still sounds great, but strong!!
No distortion at all!!
Though, I would say that 12 a'clock on compressor, and about 2-3 a'clock on mike gain, sounds just perfect!
I hope to be able to check in on net Saturday, and hear what all you guys think.
My friend Dave, who owns this radio is a lucky s.o.b, the radio is in near mint condition, both inside and out!
Terry thanks again!!

Lars

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Lars:

The compressor is one of the better ones if aligned properly. It is kind of unusual circuit. It is not a clipper in the IF chain like the TS830. It uses a Balanced Mod to to convert your mic audio into a 455khz DSBSC signal and processes it and then a Product Detector to convert it back to audio for input to your SSB Balanced Modulator.

One of the biggest problems is people tweak on it without test gear and number one thing I find is they have tried to follow the procedure in the Service Manual and it is flawed. As I said this thing works by taking audio and applying it to its own Balanced Modulator that uses 455 khz as the LO. The manual has you set the LO for 451khz. This is outside the 455khz ceramic IF filters frequency response curve. Have to get the signal into the pass band of the ceramic filter chain that follows. It is possible to have a bad filter, but I have never seen one.

If you have a Frequency Counter you could just try setting TC-4 on IF board for 455kz at TP-3 and see what effect that has. You really cant hurt anything by making this simple adjustment. I suppose with no counter you could listen to yourself on the Moni with headphones and make small step changes on TC-4 to see if any improvement.

To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all
Have a question
I've got a TS-820 that sounds tinny, really tinny when compressor is on, but sounds perfect without.
Is there a way to adjust, without having a complete radio lab?
Or should I just tell my friend, that he shouldn't use the compressor?
Thanks Lars
KB3WBT

44687. RE: RE: RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 16:48:43 UTC
From: <wagstw46@...>
Topic: 44679 Message: 44687

OK Lars a cheap and dirty fix. I have also done this quick adjustment a time of two just to be able to see if the processor was capable of working until I could take the time to do a full alignment. The real test will come with chasing DX barefoot. I generally dont like to run a lot of compression and almost never do so state side. The 820 manual advises that only use for DX work. I must admit that the 820 processor generally sounds better than the 830.

Maybe some day we can get this TS820 sevice manual revised. Perhaps could add a chapter on alternate ways to perform certain steps absent the KW recommended test gear.

For about 90% of the steps there are good ways to perform them and several alternate ways to perform them. Very few "Only" ways to perform most of these alignment steps. I have been in argument or two about that on other forums. Kenwood doesnt tell you the alternate ways. They just list the test gear they used. That is understandable.

Hopefully not too many more golden screw drivers have been in what sounds like a real beauty.

Have fun

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry thank you so very much!
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I even tried to turn it up to full, and also the mike gain, and it still sounds great, but strong!!
No distortion at all!!
Though, I would say that 12 a'clock on compressor, and about 2-3 a'clock on mike gain, sounds just perfect!
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Terry thanks again!!

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To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Or should I just tell my friend, that he shouldn't use the compressor?
Thanks Lars
KB3WBT

44688. RE: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 16:56:56 UTC
From: <wagstw46@...>
Topic: 44685 Message: 44688

How do you know the Carrier Osc frequency is drifting? Are you watching the Carrier Osc frequency at the CAR term post at the Gen Board with a stable Freq Counter?

Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced Mod are dirty? Ceramic trim caps are very touchy even from moving the rig around on the bench.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down. Yesterday I ordered a CW filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I replace either the trimmer or the Xtal if it keeps drifting around?

Watcha think?

Thanks,
Chris Maness

44689. Re: [TS-520_820_530_830] RE: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 17:05:42 UTC
From: Chris Maness
Topic: 44685 Message: 44689

No my assertation* *was not that scientific. Before I made my fix it was working fine. However, now I am hearing CW on both sides of the carrier. However, as I am composing this I am realizing that changing the capacitor on the balanced modulator might have slightly effected (or pulled) the frequency of the carrier crystal. In that case I just need to readjust and be done with it.

Thanks,
Chris Maness

On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:

>
>
> How do you know the Carrier Osc frequency is drifting? Are you watching
> the Carrier Osc frequency at the CAR term post at the Gen Board with a
> stable Freq Counter?
>
>
> Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced
> Mod are dirty? Ceramic trim caps are very touchy even from moving the rig
> around on the bench.
>
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> I purchased it from the Salvation Army back in 2009, and the previous
> owner went SK in 1995 (from the S.S. number on the rig). So I think it is
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> years at least. My experience has taught me that it is not good for a rig
> to sit idle for years on end. Monday I was finally able to get this radio
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> been using it a lot, and it seems that the CARRIER has shifted frequencies
> again. I had adjusted this back in 2009, but last night I was hearing CW
> notes on both sides of the carrier AGAIN. I guess carrier oscillator has
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> are only two parts that control the frequency. The crystal or the trimmer
> cap. Is it possible that one of these parts have not aged well. I am
> hopping it will settle down. Yesterday I ordered a! CW filter for the
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> the xtal filter skirt or adjust it now and expect that it will fall in line
> with the new CW filter. The USB/LSB is fine, so I know those two rocks are

> ok. I only hear a beat note on one side of the carrier in the SSB modes.
> Should I replace either the trimmer or the Xtal if it keeps drifting
> around?
>
> Watcha think?
>
> Thanks,
> Chris Maness
>
>
>
>

44690. Re: DFC-230 for parts or possible repair - SOLD

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 18:45:51 UTC
From: DBRogers
Topic: 44690 Message: 44690

This item has been sold.

Thanks,

David, WA7ZYQ

From: DBRogers
Sent: Tuesday, September 17, 2013 11:00 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: DFC-230 for parts or possible repair

A few years ago I bought a non-working DFC-230 as a parts unit to back up the two DFC-230 units that I use with my TS-130S and TS-130V. They are also used with the TS-830S, TS-530S and TS-120S. It has been about 5 years and the two good units are still working just fine, so I would like to sell the parts unit.

It seems to be complete except for the 4 screws that hold the circuit board to which the mic cord is attached (which also seems to be the problem area), and one foot is missing. It does not work.

If you need this, you know what it is. If you don’t know what it is, you probably don’t need it.

I would like $30.00 for it shipped within the USofA. Payment would have to be by USPS postal money order.

DId I mention that it does not work?

Thanks,

David, WA7ZYQ

44691. RE: Re: [TS-520_820_530_830] RE: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 18:47:03 UTC
From: <wagstw46@...>
Topic: 44685 Message: 44691

You can adjust the BM trimmer pot and trimmer cap all day long and the Carrier Osc will never see it. There is a nice buffer stage in the way of that.

You cannot just adjust the trimmer pot and trimmer cap on one side band. Has to be done on both and it will be a compromise. Some call this adjusting the Carrier Suppression and others call it Carrier Balance. It is a back and forth iteration that takes multiple passes to get the carrier nulled equally low on each side band.

I usually do it in SSB mode with Mic gain turned down full CCW. Can load to full output power in CW and then switch to SSB and adjust.

Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and adjust for a null in rf voltage on one side band and then flip to other and null again. Will find the trimmers interact and you have to off set and compromise for the best low rf voltage level flipping back and forth between LSB and USB. Will never get it to be zero on both side bands.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No my assertation was not that scientific. Before I made my fix it was working fine. However, now I am hearing CW on both sides of the carrier. However, as I am composing this I am realizing that changing the capacitor on the balanced modulator might have slightly effected (or pulled) the frequency of the carrier crystal. In that case I just need to readjust and be done with it.

Thanks,
Chris Maness

On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:

How do you know the Carrier Osc frequency is drifting? Are you watching the Carrier Osc frequency at the CAR term post at the Gen Board with a stable Freq Counter?

Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced Mod are dirty? Ceramic trim caps are very touchy even from moving the rig around on the bench.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a

lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down. Yesterday I ordered a! CW filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I replace either the trimmer or the Xtal if it keeps drifting around?

Watcha think?

Thanks,
Chris Maness

44692. Re: hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 13:23:51 UTC
From: popeyebob@...
Topic: 9016 Message: 44692

I use the Shure 404c hand mic on my T-599, and always receive excellent audio reports.

73
Robert Fitch
NB9G

44693. Re: hand mic question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 04:16:33 UTC
From: clifford wright
Topic: 9016 Message: 44693

Hi Richard!
If it is a dynamic mic all you need is an Ohmmeter. Lo Z mics are in the range100 to 300 Ohms and Hi Z in the range 800 Ohms and up. Be sure that you have the right connections to the mic plug however as the TS-820 is not compatible with some Microphones.
Also the diagram of the connections in the manual is rather confusing.
Crite40

44694. Need a clue...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 18:36:36 UTC
From: <hardedge@...>
Topic: 44694 Message: 44694

I'm a Yaesu freak. That said, the Kenwood TS-520 I just bought (off eBay) has a problem. RX is indescribably delicious. There's no TX. Can only manage about 20ma idle and the plate doesn't really dip. (It sort of curtsies.) Nothing into the watt meter. Replacing the driver tube made no difference.

Can anyone offer a clue as to where I might start. Thanks.

-O'B.

44695. RE: Re: [TS-520_820_530_830] RE: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 18:58:10 UTC
From: <wagstw46@...>
Topic: 44685 Message: 44695

I forgot to comment on your "assertation". Working on a Kenwood hybrid or any vintage radio isnt about scientific assertations. It is about testing and measuring.

When someone asks you how you know your Carrier Oscillator is drifting it isnt challenging your assertation. It is asking are you guessing, easter egging, using a flashlite or sniffing or....???

Lack of measuring and testing is how lots of crystals and ceramic trimmer caps and other good parts get needlessly replaced on forums like this one.

Also you cannot expect to make any adjustment in 2009 and expect it to be dead on today.This is especially true if the radio has been stored and or moved about. Even more so when that adjustment is done with a ceramic trimmer capacitor.

Try adjusting your LSB and USB carrier oscillator trimmer caps for the receive audio response you like. Check this by looking at your S-meter zero beat indication on LSB and USB. If you have your slow rythmic quiver at say S3 remember that. Now re-install the covers and place rig back in operating position. Check the zero beat again and not unusual to find it is now at S2 or S4 on LSB or USB or both. Very sensitive and touchy adjustments.
.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No my assertation was not that scientific. Before I made my fix it was working fine. However, now I am hearing CW on both sides of the carrier. However, as I am composing this I am realizing that changing the capacitor on the balanced modulator might have slightly effected (or pulled) the frequency of the carrier crystal. In that case I just need to readjust and be done with it.

Thanks,
Chris Maness

On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:

How do you know the Carrier Osc frequency is drifting? Are you watching the Carrier Osc frequency at the CAR term post at the Gen Board with a stable Freq Counter?

Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced Mod are dirty? Ceramic trim caps are very touchy even from moving the rig around on the bench.

Terry K9TW

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Watcha think?

Thanks,
Chris Maness

44696. Re: Re: [TS-520_820_530_830] RE: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 19:16:28 UTC
From: Chris Maness
Topic: 44685 Message: 44696

On Wed, Sep 18, 2013 at 11:47 AM, <wagstw46@...> wrote:

>
>
> You can adjust the BM trimmer pot and trimmer cap all day long and the
> Carrier Osc will never see it. There is a nice buffer stage in the way of
> that.
>

Thanks, that rules that cause out.

>
> You cannot just adjust the trimmer pot and trimmer cap on one side band.
> Has to be done on both and it will be a compromise. Some call this
> adjusting the Carrier Suppression and others call it Carrier Balance. It is
> a back and forth iteration that takes multiple passes to get the carrier
> nulled equally low on each side band.
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SSB is perfect. Problem is just in CW receive.

>
> I usually do it in SSB mode with Mic gain turned down full CCW. Can load
> to full output power in CW and then switch to SSB and adjust.
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> Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and
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> null again. Will find the trimmers interact and you have to off set and
> compromise for the best low rf voltage level flipping back and forth
> between LSB and USB. Will never get it to be zero on both side bands.
>
>
> I use my FT-817 with no antenna for this. However, per my statement
above. I balanced the carrier on Monday the day I replaced the diodes. I
am getting a beat note on both sides of the carrier on CW receive only. I
remember the cure for this one is to adjust TC1 on the CAR board. Then GEN
board is all good. What I was trying to determine is if it is common for
the CAR oscillator to drift. Because I am almost 100% certain that the CW
receive was good until late last night. I had the radio on all day
yesterday, and I was wondering if being turned on for a long time after not
being used could cause the carrier osc to drift. I also vaguely remember
wanting to replace the 3395.0 Xtal in 2009 because i could not get it to
swing all the way to the spec frequency with TC1. However, when I fired it
up after sitting for four years last week, I the CW receive was working
correctly. Last night it seemed to have drifted off again. I am thinking

I might have to either change the cap our Xtal out. What do you think? I had purchased a very nice frequency counter in 2009 for this project, and was reading the freq straight off of the CAR jack in the back. I think I remember not being able to get it to hit the spec freq.

> Terry K9TW
>
>
>
>
>
Thanks,
Chris Maness

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> notes on both sides of the carrier AGAIN. I guess carrier oscillator has
> gone squirrely due to running it so much the last few days. However, there
> are only two parts that control the frequency. The crystal or the trimmer
> cap. Is it possible that one of these parts have not aged well. I am
> hopping it will settle down. ! ;Yesterday I ordered a! CW filter for
> the radio, should I wait tell this comes before I adjust the CW carrier
> against the xtal filter skirt or adjust it now and expect that it will fall
> in line with the new CW filter. The USB/LSB is fine, so I know those two
> rocks are ok. I only hear a beat note on one side of the carrier in the
> SSB modes. Should I replace either the trimmer or the Xtal if it keeps
> drifting around?
>
> Watcha think?
>
> Thanks,
> Chris Maness
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44697. RE: Re: Re: [TS-520_820_530_830] RE: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 20:49:09 UTC
From: <wagstw46@...>
Topic: 44685 Message: 44697

Chris:

OK using the receiver is an acceptable alternative method to adjust carrier suppression. Done it myself lots of times. If you cannot hear carrier on your bench with test receiver then not very likely a fellow hundreds of miles away will.

OK for starters you might want to make sure you have Zero dc volts at the BM terminal on Gen Board in CW mode with Car Pot turned full CCW.

Even though a germanium diode has theoretical barrier potential of approx 0.25vdc (where you will see milliamperes of forward current), below that level you can see ua leakage current down in the .10 to .20 vdc range. Not unusual to see couple hundred ua at that voltage level.

So I think first place to look is at BM to make sure you have Zero vdc with Car at full CCW position.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Wed, Sep 18, 2013 at 11:47 AM, <wagstw46@...> wrote:

You can adjust the BM trimmer pot and trimmer cap all day long and the Carrier Osc will never see it. There is a nice buffer stage in the way of that.

Thanks, that rules that cause out.

You cannot just adjust the trimmer pot and trimmer cap on one side band. Has to be done on both and it will be a compromise. Some call this adjusting the Carrier Suppression and others call it Carrier Balance. It is a back and forth iteration that takes multiple passes to get the carrier nulled equally low on each side band.

SSB is perfect. Problem is just in CW receive.

I usually do it in SSB mode with Mic gain turned down full CCW. Can load to full output power in CW and then switch to SSB and adjust.

Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and adjust for a null in rf voltage on one side band and then flip to other and null again. Will find the trimmers interact and you have to off set and compromise for the best low rf voltage level flipping back and forth between LSB and USB. Will never get it to be zero on both side bands.

I use my FT-817 with no antenna for this. However, per my statement above. I balanced the carrier on Monday the day I replaced the diodes. I am getting a beat note on both sides of the carrier on CW receive only. I remember the cure for this one is to adjust TC1 on the

CAR board. Then GEN board is all good. What I was trying to determine is if it is common for the CAR oscillator to drift. Because I am almost 100% certain that the CW receive was good until late last night. I had the radio on all day yesterday, and I was wondering if being turned on for a long time after not being used could cause the carrier osc to drift. I also vaguely remember wanting to replace the 3395.0 Xtal in 2009 because i could not get it to swing all the way to the spec frequency with TC1. However, when I fired it up after sitting for four years last week, I the CW receive was working correctly. Last night it seemed to have drifted off again. I am thinking I might have to either change the cap our Xtal out. What do you think? I had purchased a very nice frequency counter in 2009 for this project, and was reading the freq straight off of the CAR jack in the back. I think I remember not being able to get it to hit the spec freq.

Terry K9TW

Thanks,
Chris Maness

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No my assertation was not that scientific. Before I made my fix it was working fine. However, now I am hearing CW on both sides of the carrier. However, as I am composing this I am realizing that changing the capacitor on the balanced mod! ulator might have slightly effected (or pulled) the frequency of the carrier crystal. In that case I just need to readjust and be done with it.

Thanks,
Chris Maness

On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:

How do you know the Carrier Osc frequency is drifting? Are you watching the Carrier Osc frequency at the CAR term post at the Gen Board with a stable Freq Counter?

Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced Mod are dirty? Ceramic trim caps are very touchy even from moving the rig around on the bench.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down. ! ;Yesterday I ordered a! CW filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I

replace either the trimmer or the Xtal if it keeps drifting around?

Watcha think?

Thanks,
Chris Maness

44698. Re: [TS-520_820_530_830] Need a clue...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 21:29:29 UTC
From: John Davidson
Topic: 44694 Message: 44698

what's your HV reading on transmit? If it's normal 800v or more, then you have to check final and driver tube screen voltages at the tube sockets and those cathode resistors.

From: "hardedge@..." <hardedge@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 2:36 PM
Subject: [TS-520_820_530_830] Need a clue...

I'm a Yaesu freak. That said, the Kenwood TS-520 I just bought (off eBay) has a problem. RX is indescribably delicious. There's no TX. Can only manage about 20ma idle and the plate doesn't really dip. (It sort of curtsies.) Nothing into the watt meter. Replacing the driver tube made no difference.

Can anyone offer a clue as to where I might start. Thanks.

-O'B.

44699. What would this mod accomplish ?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 21:45:55 UTC
From: <dlbowders@...>
Topic: 44699 Message: 44699

I acquired a TS 530SP with an on/off switch wired into the counter board on connector #2 pin #9. Rather hacked at that. I removed it and reconnected wire to the connector and receive works fine on the affected bands. The owner had stated that it would not receive and readout was blank so he evidently did not do the mod. He is a Ham up north and was only interested in getting rid of it. It is in relatively good shape and has a 6 million serial no.and still has the KW inspection stickers inside dated 1989, so I think I may hold on to this rig but this is the second time I have run into this mod and do not know what benefit it could be. The other time was in a TS 830 several years ago. Same scenario. I know I do not get out much but I can not figure out what this would do other than shut down several bands. Why would you do that? I am getting to the point of not being surprised by any of the hack jobs but if someone has an opinion about this let me know. Wouldn't you just like to smack someone if you caught them?

73, K5HFG, Don

44700. RE: TS820 CW filter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 22:09:03 UTC
From: <gd1mip@...>
Topic: 44673 Message: 44700

Barry, thanks for the link. It's exactly what I am missing. But the vendor will not ship to GD land.

Andy
GD1MIP

--- In ts-520_820_530_830@yahoogroups.com, <bonnevilleblb@...> wrote:

Would this one work?

http://www.ebay.com/itm/KENWOOD-YG-88C-500Hz-CW-FILTER-TS-820-NICE-/121177054372?pt=US_Radio_Comm_Filters&hash=item1c36b71ca4

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44701. Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 21:05:34 UTC
From: kk6ezq
Topic: 44701 Message: 44701

Group,

I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.

As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.

So, I am seeking guidance in how to align those three components: 1) front panel bandswitch knob, 2) coil pack section of the bandswitch shaft, and 3) the final section of the bandswich shaft.

I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference designators), nor how they are mechanically aligned with the front panel linkage.

Steve
'73

44702. RE: RE: Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-18 23:44:50 UTC
From: clifford wright
Topic: 44675 Message: 44702

Yes, at least it seems that way. It is a bit hard to be sure since the "rf" gain control appears to actually be an IF gain control. Possibly that is why they put the front panel attenuator button in?
As a long time home brewer (my Ts-820 and an upgrade FRG-7 are the only commercial gear I have) I was a bit dubious about the whole design of the RF stage the use of a source follower to drive the mixer at Lo Z seems to me to be an invitation to increase front end noise.
That's why I asked about anyone using a Norton circuit or a Hybrid cascode as a replacement. The Hybrid would be much easier of course as it has a moderately high input impedance and is designed to use a transformer coupled output to the mixer.
I use the QST version as the 2nd IF in my latest receiver.

BTW I have upgrade all the FET's in the front end and done the suggested mixer mods as well. It improved things slightly but I guess I am a stickler for quiet receivers.
My favourite mode is "Antipodal Hop" skating low angle signals off the ionosphere to NZ's antipodes in the Western Mediterranean. This sometimes works when 20 for example sounds quite dead.
Do you have reference to Bob Sherwood's article? It would be very interesting to read.
Thanks for your help.
Crite40

44703. RE: What would this mod accomplish ?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 00:13:54 UTC
From: <wagstw46@...>
Topic: 44699 Message: 44703

Don:

That sounds like 11 meter mod. Anytime you are messing with B and C you are messing with the PLL divider logic. They usually reverse B and C.

Suggest you look at the PLL board Connector 2 Pin 2 "C" and make sure they have not cut the wire (white/purple) to it and placed switch in series with it. If you find wire has been cut and spliced and taped back who ever undid the mod probably just didnt discover all of it?

Could be wrong but sure sounds like it. What makes me mad is these guys are smart or clever enough to do this but do not use that knowledge in constructive manner. Sadly often these things are figured out and published by licensed ham operators. Same ones who would run 10KW amps.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I acquired a TS 530SP with an on/off switch wired into the counter board on connector #2 pin #9. Rather hacked at that. I removed it and reconnected wire to the connector and receive works fine on the affected bands. The owner had stated that it would not receive and readout was blank so he evidently did not do the mod. He is a Ham up north and was only interested in getting rid of it. It is in relatively good shape and has a 6 million serial no.and still has the KW inspection stickers inside dated 1989, so I think I may hold on to this rig but this is the second time I have run into this mod and do not know what benefit it could be. The other time was in a TS 830 several years ago. Same scenario. I know I do not get out much but I can not figure out what this would do other than shut down several bands. Why would you do that? I am getting to the point of not being surprised by any of the hack jobs but if someone has an opinion about this let me know. Wouldn't you just like to smack someone if you caught them?

73, K5HFG, Don

44704. Why do I need a remote VFO for the Kenwood TS820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 00:31:20 UTC
From: <stevetroyer56@...>
Topic: 44704 Message: 44704

I now own a nice TS820 with the digital display (the replacement green one). Really nice radio.Got it a few weeks ago and did the capacitor replacement plus clean up and added new final tubes and also a new 12BY7A. VFO drift is now under control and it really is one awesome radio. I have a chance to get a never used Remote VFO for it with the cable fairly cheap ($50).

Is there a reason why I need a remote VFO? What are the advantages of having one? It does not have a digital read out and is it possible to add one to it?

44705. RE: Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 00:51:36 UTC
From: <wagstw46@...>
Topic: 44675 Message: 44705

Here is the Sherwood article;

http://www.sherweng.com/documents/Present-dayReceivers-sm.pdf

The RF gain control is used to adjust the dc voltage to the AGC bus rail. RF-1 typically is set for 3.2 to 3.6vdc depending on the KW hybrid model. It is derived from the regulated 9vdc AVR board.

The AGC voltage is a dc control voltage that is fed to Gate 2 of the RF amp and IF amps dual gate mosfets. Dc bias is also applied to Gate 1 to set the quiescent operating point of these amps. A variable Dc control voltage is applied to Gate 2 of all the gain controlled devices.

At nominal 3.6vdc on Gate 2 these mosfets are turned on for best signal to noise ratio. Can get a little more gain out of them if you increase this voltage, but around 4 volts or so you are at the knee of the curve. The S-meter is a FET based voltmeter with the gate hanging on the AGC rail. With 3.6vdc on the rail the S-meter is adjusted to read Zero. Anytime the AGC rail voltage goes down the FET sees this and drives the S-meter up scale. This is why when you lower the RF gain setting the meter reads up scale. You have just lowered the AGC rail voltage and the gain of the RF and IF amp mosfet amps. So if you set the RF gain for an S9 indication it is going to take a signal stronger than S9 to move the meter up scale. At S9 you have lowered the AGC rail voltage to approx 2.0vdc. It would normally take a -73dBM or 50uv signal to produce a S-9 indication.

At nominal 3.6vdc on Gate 2 the AGC threshold is approx -115dBm or 0.40uv. The AGC detector diodes are back biased by -6vdc to set the threshold level. I use a very high impedance HP-410C VTVM to measure this.

There are two ways to vary the gain of the RF amp and IF amps. One is to lower the RF gain pot as I have mentioned and the other it to allow the AGC detector diodes to do it. With the AGC turned to Fast or Slow an off air signal is amplified by RF amp and IF amps. A sample of the RIF signal at last IF amp is fed to AGC detector diodes. They are in the base bias network of the AGC amp transistor. The collector of this transistor is hanging on the AGC bus rail that is fed thru a 2 meg resistor making it a high Z power supply. It cannot support any load. It normally only sees the Gate 2 high Z and the AGC time constant capacitors. So when the AGC detector diodes turn on the AGC amp transistor (acts like a variable load) it pulls the AGC rail down and the gain of the RF amp and IF amps is reduced and the S-meter drives up scale showing the relative strength of the received signal.

The RF attenuator is ahead of the RF amp and I think primarily there to address those high voltage signals at the SO-239 particularly on 160 and 80 meters.

Terry K9TW

--- In ts-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

Yes, at least it seems that way. It is a bit hard to be sure since the "rf" gain control appears to actually be an IF gain control. Possibly that is why they put the front panel attenuator
button in?
As a long time home brewer (my Ts-820 and an upgrade FRG-7 are the only commercial gear I have) I was a bit dubious about the whole design of the RF stage the use of a source follower to drive the mixer at Lo Z seems to me to be an invitation to increase front end noise.
That's why I asked about anyone using a Norton circuit or a Hybrid cascode as a replacement. The Hybrid would be much easier of course as it has a moderately high input impedance and is designed to use a transformer coupled output to the mixer.
I use the QST version as the 2nd IF in my latest receiver.

BTW I have upgrade all the FET's in the front end and done the suggested mixer mods as well. It improved things slightly but I guess I am a stickler for quiet receivers.
My favourite mode is "Antipodal Hop" skating low angle signals off the ionosphere to NZ's
antipodes in the Western Mediterranean. This sometimes works when 20 for example sounds quite dead.
Do you have reference to Bob Sherwood's article? It would be very interesting to read.
Thanks for your help.
Crite40

44706. Re: [TS-520_820_530_830] Why do I need a remote VFO for the Kenwood TS820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 01:25:14 UTC
From: Joseph Stiles
Topic: 44704 Message: 44706

Steve,

Make sure that you have or, can get the interconnecting cable. Hard to find the originals, but there are several sellers that make
a "modern" one using a 9 pin "socket saver."

  Having or wanting....hummmm. Most reasons for remote VFO is to work "split." Transmit on one freq...receive on another...or use the remote
VFO to substitute for the main VFO. to split the wear or...if it breaks..or just 'cause you want to. Read the manual...there are several combinations
available to you. When using the remote VFO and you have the proper selection made on the "function" switch...say for example...you are
using the remote VFO to control "transmit" frequency...when you transmit...the frequency the remote VFO is on will be displayed on your
820 digital readout. I find that the 820 remote VFO to be just fine...and accurate when calibrated according to directions in the manual.
The other Kenwood remote VFO...the VFO 230 is digital...commands a premium price...will work fine with the 820...but LORD help
you if it breaks (just my observation & opinion) I had one...not again

73 Joe
WB7UQU

From: "stevetroyer56@..." <stevetroyer56@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:31 PM
Subject: [TS-520_820_530_830] Why do I need a remote VFO for the Kenwood TS820?

I now own a nice TS820 with the digital display (the replacement green one). Really nice radio.Got it a few weeks ago and did the capacitor replacement plus clean up and added new final tubes and also a new 12BY7A. VFO drift is now under control and it really is one awesome radio. I have a chance to get a never used Remote VFO for it with the cable fairly cheap ($50).

Is there a reason why I need a remote VFO? What are the advantages of having one? It does not have a digital read out and is it possible to add one to it?

44707. Re: [TS-520_820_530_830] What would this mod accomplish ?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 01:34:12 UTC
From: Joseph Stiles
Topic: 44699 Message: 44707

Don,

  This is a common "mod"....it's called "CB HACK," or "FREE BANDING." Off the top of my head, if the switch was say in
the "on" position and the bandswitch was say in the 28 to 29Mhz range...and the +0.5 switch was pushed...you could receive and
transmit from about the low 26Mhz to ????which covers the CB frequencies. I have seen a few that looked "factory" but then,
a few that looked put together by blind, drunk monkies. Also, you never know what else may be wrong...by adjustment
by the "golden screwdriver."

73 Joe
WB7UQU

From: "dlbowders@..." <dlbowders@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 2:45 PM
Subject: [TS-520_820_530_830] What would this mod accomplish ?

I acquired a TS 530SP with an on/off switch wired into the counter board on connector #2 pin #9. Rather hacked at that. I removed it and reconnected wire to the connector and receive works fine on the affected bands. The owner had stated that it would not receive and readout was blank so he evidently did not do the mod. He is a Ham up north and was only interested in getting rid of it. It is in relatively good shape and has a 6 million serial no.and still has the KW inspection stickers inside dated 1989, so I think I may hold on to this rig but this is the second time I have run into this mod and do not know what benefit it could be. The other time was in a TS 830 several years ago. Same scenario. I know I do not get out much but I can not figure out what this would do other than shut down several bands. Why would you do that? I am getting to the point of not being surprised by any of the hack jobs but if someone has an opinion about this let me know.
Wouldn't you just like to smack someone if you caught them?

73, K5HFG, Don

44708. Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 00:39:24 UTC
From: <stevetroyer56@...>
Topic: 44708 Message: 44708

I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?

44709. RE: Why do I need a remote VFO for the Kenwood TS820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 02:09:46 UTC
From: <w5rkl@...>
Topic: 44704 Message: 44709

The VFO-230 is not compatible nor will it work with the TS-820 series transceivers.

The VFO-230 operates over a frequency range between 5.400Mhz and 6.100Mhz. The internal VFO in the TS-820 series and the external VFO-820 operate over a frequency range between 4.900Mhz and 5.500Mhz.

The VFO-240 also is not compatible with the TS-820 series transceivers for the same reason, the VFO frequency range is wrong.

73
Mike W5RKL

--- In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@yahoo.com> wrote:

Steve,

Make sure that you have or, can get the interconnecting cable. Hard to find the originals, but there are several sellers that make
a "modern" one using a 9 pin "socket saver."

Having or wanting....hummmm. Most reasons for remote VFO is to work "split." Transmit on one freq...receive on another...or use the remote
VFO to substitute for the main VFO. to split the wear or...if it breaks..or just 'cause you want to. Read the manual...there are several combinations
available to you. When using the remote VFO and you have the proper selection made on the "function" switch...say for example...you are
using the remote VFO to control "transmit" frequency...when you transmit...the frequency the remote VFO is on will be displayed on your
820 digital readout. I find that the 820 remote VFO to be just fine...and accurate when calibrated according to directions in the manual.
The other Kenwood remote VFO...the VFO 230 is digital...commands a premium price...will work fine with the 820...but LORD help
you if it breaks (just my observation & opinion) I had one...not again

73 Joe
WB7UQU

From: "stevetroyer56@yahoo.com" <stevetroyer56@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:31 PM
Subject: [TS-520_820_530_830] Why do I need a remote VFO for the Kenwood TS820?

I now own a nice TS820 with the digital display (the replacement green one). Really nice radio.Got it a few weeks ago and did the capacitor replacement plus clean up and added new final tubes and also a new 12BY7A. VFO drift is now under control and it really is one awesome radio. I have a chance to get a never used Remote VFO for it with the cable fairly cheap ($50).

Is there a reason why I need a remote VFO? What are the advantages of having one? It does not have a digital read out and is it possible to add one to it?

44710. RE: Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 02:22:02 UTC
From: <w5rkl@...>
Topic: 44708 Message: 44710

No, there's no significant advantage or improvement in performance using black plate 6146B verses gray plate 6146B and vice verse.

73
Mike W5RKL

--- In ts-520_820_530_830@yahoogroups.com, <stevetroyer56@yahoo.com> wrote:

I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?

44711. Re: [TS-520_820_530_830] MC-30s Needed

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 02:26:31 UTC
From: Terry Aldridge
Topic: 44704 Message: 44711

group...I am looking for a Kenwood MC-30s for my TS-830s...thanks

Charles Terry Aldridge, KM9N

44712. Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 02:46:24 UTC
From: GEAgent21@...
Topic: 44510 Message: 44712

Terry
Please let me start at the beginning. My TS 520 has worked very well on 10 meters this summer. I have contacts from New York to California and down into S. America using a dipole at 30'. I just received my General license a week ago . I have a OCF antenna and tuner but the antenna is still on my work bench.
The problem started a few days ago with a dead spot on ALC adjusting Mic gain. It progressed over a couple days to no ALC indication at all adjusting mic. I tried what you told me to do and checked RF and IP. No movement there either.
The receiver is not working correctly either. I can receive JJY/WWV at 28.00. At 28.150 I hear what sounds like a digital signal. If I flip thru all the bands I can hear the same signal without changing frequencies. I can also hear what sounds like a aircraft weather report. I hear some digital signals on some frequencies but no SSB or LSB.
Ya gotta tell me doc, how bad is it?

73
Greg
KC9VVU

In a message dated 9/18/2013 1:16:09 A.M. Eastern Daylight Time, GEAgent21@... writes:

Thanks Terry
I have the next two days off from work so I will dig into the TS 520 to see what I can find. I also have purchased a VTVM as I know I will need it sooner or later. I will get back to you with an update as soon as I know what is going on.

73
Greg
KC9VVU

In a message dated 9/16/2013 4:36:02 A.M. Eastern Daylight Time, wagstw46@... writes:

Yes Deoxit spray and canned air. I also like to use some Deoxit Fader Type F lube after cleaning. It is made for carbon trace pots and it helps maintain good smooth and quiet action for longer time after pot is cleaned. If you dont have any dont worry about it at this time. Just spray and exercise pot thru its full range multiple times and blow out with canned air. Do this with power off.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com,
<ts-520_820_530_830@yahoogroups.com> wrote:

Needle is steady until dead spot and after dead spot. Mic gain set at 3-4
normally. What do you recommend to clean the pot? Deoxit?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time,
wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and
getting some flicks of ALC and when you increase the mic gain more you reach a
point where you lose the flicks of ALC and as you increase the mic gain
past that spot you get flicks but much higher than you would like to see. Is
this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same
increase in mic gain. See if at the same place you were losing ALC you also
lose Ip or RF indication. If you do then you know it is likely a bad spot on
the mic gain pot. The peaks on IP and RF meter position will be different
than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic
gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com,
<ts-520_820_530_830@yahoogroups.com> wrote:

Terry
Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time,
wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while
adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi
My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.
73
Greg
KC9VVU

44713. TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 02:56:52 UTC
From: Chris Maness
Topic: 44713 Message: 44713

Ok, I am now thinking that issue was never resolved the first time I was messing with this radio in 2009. I have made some measurements. I don't have the 500Hz CW filter installed, so this all may be moot when it is.

1. Listening to the 25kHz calibration carrier in SSB gives me some unexpected results. The passband of this radio is VERY wide. It sounds beautiful with the local rag chew groups that are running hi-fi sound. The passband is almost 4kHz wide.

2. Since I don't have the CW filter, my bandwidth is so wide the beat note on the other side of the carrier shows up as I tune through the 25kHz calibration carrier. I have uploaded a you tube video since some folks might not understand what I mean by this, and I want to make sure I am very clear about what is going on here. Here is the video:

http://youtu.be/Ate02ICbLmw

3. I am thinking that this might be a defective multipole crystal passband filter. It sounds beautiful on SSB, but so wide I am hearing a note on both sides of the carrier. This problem will probably be moot when I install the CW filter, but I am thinking I still might not want to be running so wide on SSB.

4. Now I fully remember all the problems I was having with this radio back in 2009, and I still want to keep her and fix her. I now have the biggest problem with the radio behind me, so moving on to this conundrum.

73 de KQ6UP
Chris Maness

On Wed, Sep 18, 2013 at 1:49 PM, <wagstw46@...> wrote:

>
>
> Chris:
>
>
> OK using the receiver is an acceptable alternative method to adjust
> carrier suppression. Done it myself lots of times. If you cannot hear
> carrier on your bench with test receiver then not very likely a fellow
> hundreds of miles away will.
>
>
> OK for starters you might want to make sure you have Zero dc volts at the
> BM terminal on Gen Board in CW mode with Car Pot turned full CCW.

>
>
> Even though a germanium diode has theoretical barrier potential of approx
> 0.25vdc (where you will see milliamperes of forward current), below that
> level you can see ua leakage current down in the .10 to .20 vdc range. Not
> unusual to see couple hundred ua at that voltage level.
>
>
> So I think first place to look is at BM to make sure you have Zero vdc
> with Car at full CCW position.
>
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>
>
> On Wed, Sep 18, 2013 at 11:47 AM, <wagstw46@...> wrote:
>
>
>
> You can adjust the BM trimmer pot and trimmer cap all day long and the
> Carrier Osc will never see it. There is a nice buffer stage in the way of
> that.
>
>
> Thanks, that rules that cause out.
>
>
> You cannot just adjust the trimmer pot and trimmer cap on one side band.
> Has to be done on both and it will be a compromise. Some call this
> adjusting the Carrier Suppression and others call it Carrier Balance. It is
> a back and forth iteration that takes multiple passes to get the carrier
> nulled equally low on each side band.
>
>
> SSB is perfect. Problem is just in CW receive.
>
>
> I usually do it in SSB mode with Mic gain turned down full CCW. Can load
> to full output power in CW and then switch to SSB and adjust.
>
>
> Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and
> adjust for a null in rf voltage on one side band and then flip to other and
> null again. Will find the trimmers interact and you have to off set and

> compromise for the best low rf voltage level flipping back and forth
> between LSB and USB. Will never get it to be zero on both side bands.
>
>
> I use my FT-817 with no antenna for this. However, per my statement
> above. I balanced the carrier on Monday the day I replaced the diodes. I
> am getting a beat note on both sides of the carrier on CW receive only. I
> remember the cure for this one is to adjust TC1 on the CAR board. Then GEN
> board is all good. What I was trying to determine is if it is common for
> the CAR oscillator to drift. Because I am almost 100% certain that the CW
> receive was good until late last night. I had the radio on all day
> yesterday, and I was wondering if being turned on for a long time after not
> being used could cause the carrier osc to drift. I also vaguely remember
> wanting to replace the 3395.0 Xtal in 2009 because i could not get it to
> swing all the way to the spec frequency with TC1. However, when I fired it
> up after sitting for four years last week, I the CW receive was working
> correctly. Last! night it seemed to have drifted off again. I am thinking
> I might have to either change the cap our Xtal out. What do you think? I
> had purchased a very nice frequency counter in 2009 for this project, and
> was reading the freq straight off of the CAR jack in the back. I think I
> remember not being able to get it to hit the spec freq.
>
>
>
> Terry K9TW
>
>
>
>
>
> Thanks,
> Chris Maness
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> No my assertation* *was not that scientific. Before I made my fix it was
> working fine. However, now I am hearing CW on both sides of the carrier.
> However, as I am composing this I am realizing that changing the
> capacitor on the balanced mod! ulator might have slightly effected (or
> pulled) the frequency of the carrier crystal. In that case I just need to
> readjust and be done with it.
>
> Thanks,
> Chris Maness
>
>

> On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:
>
>
>
> How do you know the Carrier Osc frequency is drifting? Are you watching
> the Carrier Osc frequency at the CAR term post at the Gen Board with a
> stable Freq Counter?
>
>
> Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced
> Mod are dirty? Ceramic trim caps are very touchy even from moving the rig
> around on the bench.
>
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> I purchased it from the Salvation Army back in 2009, and the previous
> owner went SK in 1995 (from the S.S. number on the rig). So I think it is
> safe to assume my TS-520S has not been on very much in the past twenty
> years at least. My experience has taught me that it is not good for a rig
> to sit idle for years on end. Monday I was finally able to get this radio
> going 100% with a bad diode on the balanced mixer. Since fixing it, I have
> been using it a lot, and it seems that the CARRIER has shifted frequencies
> again. I had adjusted this back in 2009, but last night I was hearing CW
> notes on both sides of the carrier AGAIN. I guess carrier oscillator has
> gone squirrely due to running it so much the last few days. However, there
> are only two parts that control the frequency. The crystal or the trimmer
> cap. Is it possible that one of these parts have not aged well. I am
> hopping it will settle down.! ! ;Yesterday I ordered a! CW filter for
> the radio, should I wait tell this comes before I adjust the CW carrier
> against the xtal filter skirt or adjust it now and expect that it will fall
> in line with the new CW filter. The USB/LSB is fine, so I know those two
> rocks are ok. I only hear a beat note on one side of the carrier in the
> SSB modes. Should I replace either the trimmer or the Xtal if it keeps
> drifting around?
>
> Watcha think?
>
> Thanks,
> Chris Maness
>
>
>
>
>
>
>

>
>
>
>

44714. Re: [TS-520_820_530_830] RE: Why do I need a remote VFO for the Kenwood TS820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 04:09:13 UTC
From: Joseph Stiles
Topic: 44704 Message: 44714

Mike,

u r correct...my error...tired of seeing numbers today.

Good deal on the videos too!

73 Joe
WB7UQU

From: "w5rkl@..." <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 7:09 PM
Subject: [TS-520_820_530_830] RE: Why do I need a remote VFO for the Kenwood TS820?

The VFO-230 is not compatible nor will it work with the TS-820 series transceivers.

The VFO-230 operates over a frequency range between 5.400Mhz and 6.100Mhz. The internal VFO in the TS-820 series and the external VFO-820 operate over a frequency range between 4.900Mhz and 5.500Mhz.

The VFO-240 also is not compatible with the TS-820 series transceivers for the same reason, the VFO frequency range is wrong.

73
Mike W5RKL

--- In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Steve,

Make sure that you have or, can get the interconnecting cable. Hard to find the originals, but there are several sellers that make
a "modern" one using a 9 pin "socket saver."

Having or wanting....hummmm. Most reasons for remote VFO is to work "split." Transmit on one freq...receive on another...or use the remote
VFO to substitute for the main VFO. to split the wear or...if it breaks..or just 'cause you want to. Read the manual...there are several combinations
available to you. When using the remote VFO and you have the proper selection made on the "function" switch...say for example...you are
using the remote VFO to control "transmit" frequency...when you transmit...the frequency the remote VFO is on will be displayed on your
820 digital readout. I find that the 820 remote VFO to be
just fine...and accurate when calibrated according to directions in the manual.
The other Kenwood remote VFO...the VFO 230 is digital...commands a premium price...will

work fine with the 820...but LORD help
you if it breaks (just my observation & opinion) I had one...not again

73 Joe
WB7UQU

From: "stevetroyer56@..." <stevetroyer56@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:31 PM
Subject: [TS-520_820_530_830] Why do I need a remote VFO for the Kenwood TS820?

I now own a nice TS820 with the digital display (the replacement green one). Really nice radio.Got it a few weeks ago and did the capacitor replacement plus clean up and added new final tubes and also a new 12BY7A. VFO drift is now under control and it really is one awesome radio. I have a chance to get a never used Remote VFO for it with the cable fairly cheap ($50).

Is there a reason why I need a remote VFO? What are the advantages of having one? It does not have a digital read out and is it possible to add one to it?

44715. Re: [TS-520_820_530_830] RE: Why do I need a remote VFO for the Kenwood TS820?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 04:17:42 UTC
From: Joseph Stiles
Topic: 44704 Message: 44715

Steve,

  Mike..w5rkl...is correct on the VFO difference...sorry for the confusion. After a few hours staring at schematics...things get blurry. My 820 works fine with the VFO-820(made to be used with it), my 830 WAS using the VFO-230...the VFO-230 had a stroke and is not repairable...I'm going to stick with the ol' analog.

  Good luck

73 Joe
WB7UQU

From: "w5rkl@..." <w5rkl@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 7:09 PM
Subject: [TS-520_820_530_830] RE: Why do I need a remote VFO for the Kenwood TS820?

 The VFO-230 is not compatible nor will it work with the TS-820 series transceivers.

The VFO-230 operates over a frequency range between 5.400Mhz and 6.100Mhz. The internal VFO in the TS-820 series and the external VFO-820 operate over a frequency range between 4.900Mhz and 5.500Mhz.

The VFO-240 also is not compatible with the TS-820 series transceivers for the same reason, the VFO frequency range is wrong.

73
Mike W5RKL

--- In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Steve,

Make sure that you have or, can get the interconnecting cable. Hard to find the originals, but there are several sellers that make a "modern" one using a 9 pin "socket saver."

  Having or wanting....hummmm. Most reasons for remote VFO is to work "split." Transmit on one freq...receive on another...or use the remote VFO to substitute for the main VFO. to split the wear or...if it breaks..or just 'cause you want to. Read the manual...there are several combinations available to you. When using the remote VFO and you have the proper selection made on the "function" switch...say for example...you are using the remote VFO to control "transmit" frequency...when you transmit...the frequency

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The other Kenwood remote VFO...the VFO 230 is digital...commands a premium price...will
work fine with the 820...but LORD help
you if it breaks (just my observation & opinion) I had one...not again

73 Joe
WB7UQU

From: "stevetroyer56@..." <stevetroyer56@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:31 PM
Subject: [TS-520_820_530_830] Why do I need a remote VFO for the Kenwood TS820?

I now own a nice TS820 with the digital display (the replacement green one). Really nice radio.Got it a few weeks ago and did the capacitor replacement plus clean up and added new final tubes and also a new 12BY7A. VFO drift is now under control and it really is one awesome radio. I have a chance to get a never used Remote VFO for it with the cable fairly cheap ($50).

Is there a reason why I need a remote VFO? What are the advantages of having one? It does not have a digital read out and is it possible to add one to it?

44716. Is anyone else getting board messages out of order?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 05:24:28 UTC
From: Wes Will
Topic: 44679 Message: 44716

For instance, Lars' message around 0730-ish this morning just arrived, which made the reply I received in near-real-time from Terry (some time after 0800) make a lot more sense.

Those two aren't the only messages which have come in to my in-box today in reverse or otherwise scrambled order. Several threads are pied like that so far.

Is there some blockage in the system? Does Yahoo hate me for denying them the opportunities for more Spam in my in-box, or is it simply that I'm a Luddite when it comes to this stuff, preferring that text messages be TEXT messages without a lot of fluff on top?

I do not ever use the web page interface, I find such things to be excessively loaded with "features" which I never need, want, nor use.

I just read email. Words in a row. I like it that way.

I have seen references to "the changes" to "the system," which I am assuming mean something to do with the way the Yahoo web site for forae like this one is set up. Is this related? Just started in the last day or so,

My own MailMan mailing list server (sits in the rack in the basement, just runs, has done so for years) and Postfix SMTP and Dovecot IMAP set-up doesn't deliver mail backwards through time; or if it does none of the folks using it have ever mentioned it to me. Since none of my systems have been down at all, I am at a loss to understand how this recent phenomenon could occur without positing some sort of error at Yahoo.

Any Clues? Or is it just me?

--
Wes Will
N9KDY
Server Up-Time:
00:17 up 133 days 18:28, 14 users, load average: 2.51, 2.32, 2.22

44717. RE: [TS-520_820_530_830] Is anyone else getting board messages out of order?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 06:23:16 UTC
From: fpath fpath
Topic: 44679 Message: 44717

Wes,

This sort of thing has been happening for ages, your system has just been adopted into the "whenever yahoo decides box" LOL. I may not get any messages for days and then a huge backlog of messages arrive all jumbled up. Don't take it personally LOL. I'm pretty sure Terry, is referring to the Outlook change, it took me a while to get my system sorted again.

73's
Dave

To: TS-520_820_530_830@yahoogroups.com
From: wwill@...
Date: Thu, 19 Sep 2013 00:24:28 -0500
Subject: [TS-520_820_530_830] Is anyone else getting board messages out of order?

For instance, Lars' message around 0730-ish this morning just arrived, which made the reply I received in near-real-time from Terry (some time after 0800) make a lot more sense.

Those two aren't the only messages which have come in to my in-box today in reverse or otherwise scrambled order. Several threads are pied like that so far.

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Any Clues? Or is it just me?

--
Wes Will
N9KDY
Server Up-Time:
00:17 up 133 days 18:28, 14 users, load average: 2.51, 2.32, 2.22

44718. RE: Re: [TS-520_820_530_830] RE: TS 520 ALC

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 10:49:07 UTC
From: <wagstw46@...>
Topic: 44510 Message: 44718

Greg:

Have you tried cycling the JJY/WWV push button on and off several times?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Please let me start at the beginning. My TS 520 has worked very well on 10 meters this summer. I have contacts from New York to California and down into S. America using a dipole at 30'. I just received my General license a week ago . I have a OCF antenna and tuner but the antenna is still on my work bench.

The problem started a few days ago with a dead spot on ALC adjusting Mic gain. It progressed over a couple days to no ALC indication at all adjusting mic. I tried what you told me to do and checked RF and IP. No movement there either.

The receiver is not working correctly either. I can receive JJY/WWV at 28.00. At 28.150 I hear what sounds like a digital signal. If I flip thru all the bands I can hear the same signal without changing frequencies. I can also hear what sounds like a aircraft weather report. I hear some digital signals on some frequencies but no SSB or LSB.

Ya gotta tell me doc, how bad is it?

73
Greg
KC9VVU

In a message dated 9/18/2013 1:16:09 A.M. Eastern Daylight Time, GEAgent21@... writes:

Thanks Terry

I have the next two days off from work so I will dig into the TS 520 to see what I can find. I also have purchased a VTVM as I know I will need it sooner or later. I will get back to you with an update as soon as I know what is going on.

73
Greg
KC9VVU

In a message dated 9/16/2013 4:36:02 A.M. Eastern Daylight Time, wagstw46@... writes:

Yes Deoxit spray and canned air. I also like to use some Deoxit Fader Type F lube after cleaning. It is made for carbon trace pots and it helps maintain good smooth and quiet action for longer time after pot is cleaned. If you dont have any dont worry about it at this time. Just spray and exercise pot thru its full range multiple times and blow out with canned air. Do this with power off.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Needle is steady until dead spot and after dead spot. Mic gain set at 3-4 normally. What do you recommend to clean the pot? Deoxit?

73
Greg
KC9VVU

In a message dated 9/13/2013 11:21:10 P.M. Eastern Daylight Time, wagstw46@... writes:

OK as I understand what you are saying you are speaking in the mic and getting some flicks of ALC and when you increase the mic gain more you reach a point where you lose the flicks of ALC and as you increase the mic gain past that spot you get flicks but much higher than you would like to see. Is this correct?

Try this to see if you are losing ALC indication or losing modulation.

Flip the meter to Ip or RF and watch the meter as you perform the same increase in mic gain. See if at the same place you were losing ALC you also lose Ip or RF indication. If you do then you know it is likely a bad spot on the mic gain pot. The peaks on IP and RF meter position will be different than what you observed on ALC but dont worry about that.

If so, you lose Ip and RF like you do ALC I would try cleaning the mic gain pot as a first step.

Also what kind of ALC indication are you trying to attain on voice peaks?

What position are you trying to run the Mic gain at (3, 4, 5, 6)?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Thanks for the reply. Number 2.

73
Greg
KC9VVU

In a message dated 9/13/2013 8:42:13 P.M. Eastern Daylight Time, wagstw46@... writes:

Greg:

Are you talking about:

1. Setting the Car Level pot for a particular meter indication while adjusting the Drive control when loading the radio?

2. Speaking into the microphone in SSB mode and adjusting the mic gain pot as you speak for a particular amount of ALC indication on voice peaks?

When you adjust the mic gain there should be no ALC indication unless you are speaking into the microphone in LSB or USB mode.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi

My TS 520 has a dead spot when trying to adjust the ALC level. The dead spot is where I would like to set ALC. Probably in the mic adj . I turn the mic control clockwise and the meter needle moves to the right to a point where it drops back to zero. If I continue to turn clockwise the needle will bounce back up but then is out of range. Is there a fix for this.

73

Greg

KC9VVU

44719. RE: RE: RE: Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 11:33:39 UTC
From: <wagstw46@...>
Topic: 44675 Message: 44719

I forgot to ask.

What Mosfets did you use in the front end?

We are limited state side to NTE222 and NTE454. I have a small supply of NOS 3N211 and 40673. A 3SK48 was used by some folks and it was also used in VHF pre-amps with approx 2.0 NF, but no longer available. I have two supposed NOS 3SK48 and plan to use in one of my own rigs to see if any measurable difference.

VHF clubs use to have NF testing day where fellows would bring their homebrew VHF pre-amps and gain and NF would be measured with correct procedure and calibrated test gear. None of this " it is much quieter" subjective reporting stuff. A 3SK48 was popular device for these club pre-amps.

I once had a 820 on the bench where someone had tack soldered X-package BF981 devices on the foil side of the board. These report typical NF of 0.7 at low current?

Also, I am not familiar with the Mixer Mods you mention? Would be interested if could point me to info on this.

Lastly have you looked at the RX Level Diagram in the Service Manual? It shows you were the gain is at for the RF and IF amps. The dB levels are not what you would measure but what you would inject at the given test point to obtain 50mw output across 8 ohm dummy load at audio output. For example on 20 meters you would inject 1.58uv at gate of 3SK35 RF amp and inject 50uv at drain of the Rf amp. So should have approx 30dB gain across the RF amp.

I think sometimes folks dont understand difference between maximum gain and maximum signal to noise ratio when making these mods and device substitutions and really have no way to do any before and after measuring. Ends up being "feel good" engineering. I have had TS-520 rigs here that were nice and quiet on 40 meters and nice to listen to the audio only to find that they had set the RF-1 down around 2.75vdc or so.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes, at least it seems that way. It is a bit hard to be sure since the
"rf" gain control appears to actually be an IF gain control. Possibly
that is why they put the front panel attenuator
button in?
As a long time home brewer (my Ts-820 and an upgrade FRG-7 are the only
commercial gear I have) I was a bit dubious about the whole design of
the RF stage the use of a source follower to drive the mixer at Lo Z
seems to me to be an invitation to increase front end noise.
That's why I asked about anyone using a Norton circuit or a Hybrid
cascode as a replacement. The Hybrid would be much easier of course as

it has a moderately high input impedance and is designed to use a transformer coupled output to the mixer.
I use the QST version as the 2nd IF in my latest receiver.

BTW I have upgrade all the FET's in the front end and done the suggested mixer mods as well. It improved things slightly but I guess I am a stickler for quiet receivers.
My favourite mode is "Antipodal Hop" skating low angle signals off the ionosphere to NZ's
antipodes in the Western Mediterranean. This sometimes works when 20 for example sounds quite dead.
Do you have reference to Bob Sherwood's article? It would be very interesting to read.
Thanks for your help.
Crite40

44720. RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 14:24:43 UTC
From: <wagstw46@...>
Topic: 44713 Message: 44720

If you want to very easily see and measure and adjust your passband response:

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http://w5big.com/spectrogram.htm.

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To see a sample sweep go to the files and search under the Repair and Alignment folder and I have placed a sweep of LSB on a TS-830 using Spectrogram.

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If you have problem and need help I can provide suggested initial settings. I suspect you can play with this and have it running in no time.

Lot of fun to see your passband and very accurate way to adjust LSB/USB carrier osc if you do not have audio generator and wattmeter to set 3db roll off points.

Terry K9TW

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Watcha think?

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44721. RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 15:14:46 UTC
From: <chris@...>
Topic: 44713 Message: 44721

Yes, I have a Palomar noise bridge. I can do the above setup. Did you watch the video I posted? I used a carrier on my FT-817 to measure the passband by sweeping it, and I came up with the width of the spec stock SSB filter. I could also sweep it and sent the audio to my freq counter. I am not worried about the precision so much as a qualitative test to find out if my SSB crystal filter has gone wide. The TC2/TC3 trimmers are set within spec. I measured them, so the only issue would be if the center freq. of the crystal filter has shifted (I don''t believe it has) or it is REALLY wide. 4kHz seems excessive to me. Was there a super wide crystal filter option for this radio? Maybe the PO was an audio nut and wanted HiFi sound from his TS-520s :D

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44722. RE: RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 15:52:13 UTC
From: <wagstw46@...>
Topic: 44713 Message: 44722

No it would not let me access it.

There is no setting of TC2/TC3 to spec?

You initially set them to the xtal frequency noted in the service manual or on the block diagram to get them in the ball park so the rig will work. However, you are not done yet.

I know of three common ways to set them (bring the oscillators to the xtal filter actual center frequency)

1. Use the Marker/S-meter method. It is described in the TS830 survival guide under the maintenance section and works pretty well. Must do in AGC fast and lite touch on the VFO knob after a good warm up period. Must understand what zero beat is and looks like on an S-meter (slow rythmic needle quiver or swing)

2. Use Audio Generator and RF Wattmeter and set for equal 3 dB roll off. Accurate and easy if you have the test gear.

3. Use Audio Spectrum Analyzer software and set for equal 3 dB roll off. Easy and no test gear required.

These three methods are all within budget for average ham. Of course the new Rigol DSA815-TG Spectrum analyzer is now available for the serious hobbyist. I am hoping for Xmas present.

I am not aware of any KW hybrid filter with 4khz BW. I have seen one bad filter and others on the forum report they have had bad ones. Sometimes very weak output or sometimes OK on one side band and not the other.

Terry K9TW

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Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a

lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down.! ! ;Yesterday I ordered a! CW filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I replace either the trimmer or the Xtal if it keeps drifting around?

Watcha think?

Thanks,
Chris Maness

44723. Re: [TS-520_820_530_830] RE: RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 16:13:59 UTC
From: Chris Maness
Topic: 44713 Message: 44723

Yea, qualitatively the filter seems really wide. I really like it for rag chew, and I think that is why I was so impressed by the radio's audio. I checked into a ragchew net and they were gushing over the transmit audio too. However, this could be bad for DX or crowded band. That is my only issue with the radio now. I have a 500Hz filter coming in today, and I would imagine that will fix the CW receive problem of hearing the cw beat tone on both sides of the carrier. I have tried every possible adjustment of TC1 on the carrier board to make that note go away, but it is still there to a greater or lessor degree.

The video was marked private. It is now public.

Thanks es 73
Chris KQ6UP

44724. RE: Re: [TS-520_820_530_830] RE: RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 17:39:05 UTC
From: <wagstw46@...>
Topic: 44713 Message: 44724

OK what you are doing is very imprecise. Using a yard stick.

Here is what I would do:

1. Rig on dummy load or no antenna
2. Turn AGC on to Fast.
3. Set VFO to 200
4. Mode in LSB. Tune the VFO for zero beat. As you approach zero beat use light touch or tap on the VFO knob. Should see see rythmic needle quiver at approx S3.
5. Set your analog dial to zero. Tap on VFO dial to get a slow rythmic quiver. Dont stop it. Want some quiver to make sure close to zero beat.
6. Very slowly move the VFO dial and watch the analog divisions and the S-meter. As you get close to approx 2.5 divisions the S-meter should fall to zero. You may still hear very high pitched note.
7. Repeat on USB. Should get zero beat near S3. Should see S-meter fall off near 2.5 divisions. It could be 2.4 it could be 2.7 but you are using a yard stick to measure with.
8. Now set to CW mode.
9. Slowly adjust VFO for zero beat. This time it should occur closer to S5 to S6. Set analog dial to zero.
10. Move VFO dial up frequency and watch analog dial and S-meter. Should see S-meter fall to zero at approx 2 divisions. Return to zero beat.
11. Move VFO dial down frequency and watch analog dial and S-meter. Should see S-meter fall to zero in just slightly less than 1 division. If you keep turning you will hear more signal. Ignore that. You are using a harmomic rich signal source.

So in CW you dont have 4khz bandwidth. Using Marker and S-meter and Fast AGC and good touch on VFO dial you will see S-meter fall to zero at approx 3khz and it is really 2.7 or so if you were measuring it. .

The reason in CW mode that you will see close to 2 divisions on one side and 1 division on the other is that the filter response is not completely symmetrical. If you download the Spectrogram software or look at the sample I placed in the files you will see this.

For purposes of this test only.

My LSB osc was set at 3393,621 mhz
My USB osc was set at 3396.356 mhz
My CWR was set at 3394.319 mhz
CWT went up appropriate 700hz

Th LSB and USB osc were set using the Marker S meter method. Background noise as a switch from LSB to USB sounds close to my ear.

However, I now need to go back and set with Spectrogram or Audio Gen and Wattmeter. I suspect will be close but need some tweaking.

I just set them to get approx S3 zero beat so could duplicate what you are trying to do.

Terry K9TW .

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yea, qualitatively the filter seems really wide. I really like it for rag chew, and I think that is why I was so impressed by the radio's audio. I checked into a ragchew net and they were gushing over the transmit audio too. However, this could be bad for DX or crowded band. That is my only issue with the radio now. I have a 500Hz filter coming in today, and I would imagine that will fix the CW receive problem of hearing the cw beat tone on both sides of the carrier. I have tried every possible adjustment of TC1 on the carrier board to make that note go away, but it is still there to a greater or lessor degree.

The video was marked private. It is now public.

Thanks es 73
Chris KQ6UP

44725. RE: RE: Re: [TS-520_820_530_830] RE: RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 17:54:45 UTC
From: <wagstw46@...>
Topic: 44713 Message: 44725

I forgot to mention when I speak about 3dB roll off I am talking about RF power using the wattmeter method.

If you use Spectrogram you will measure the BW at 6dB points on each side of the displayed response curve.

All you have to do move cursor along the curve and it will display when you are at 6dB down and you can place a marker there if you chose or just read the frequency displayed in the box and log it down.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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6. Very slowly move the VFO dial and watch the analog divisions and the S-meter. As you get close to approx 2.5 divisions the S-meter should fall to zero. You may still hear very high pitched note.
7. Repeat on USB. Should get zero beat near S3. Should see S-meter fall off near 2.5 divisions. It could be 2.4 it could be 2.7 but you are using a yard stick to measure with.
8. Now set to CW mode.
9. Slowly adjust VFO for zero beat. This time it should occur closer to S5 to S6. Set analog dial to zero.
10. Move VFO dial up frequency and watch analog dial and S-meter. Should see S-meter fall to zero at approx 2 divisions. Return to zero beat.
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The reason in CW mode that you will see close to 2 divisions on one side and 1 division on the other is that the filter response is not completely symmetrical. If you download the Spectrogram software or look at the sample I placed in the files you will see this.

For purposes of this test only.

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My USB osc was set at 3396.356 mhz
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CWT went up appropriate 700hz

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However, I now need to go back and set with Spectrogram or Audio Gen and Wattmeter. I suspect will be close but need some tweaking.

I just set them to get approx S3 zero beat so could duplicate what you are trying to do.

Terry K9TW .

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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The video was marked private. It is now public.

Thanks es 73
Chris KQ6UP

44726. Re: [TS-520_820_530_830] Four 1N4004 diodes, five minutes soldering, and a little hope later...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 18:16:57 UTC
From: Ken Winterling
Topic: 9016 Message: 44726

Wes,

I do not know the history of your DG-5 so I am going to assume it is "unknown" and you are working on it for the first time. Do you have a schematic for the DG-5? If not, you will need one. I believe you already have the manual and schematic for the '520SE.

I would start troubleshooting by measuring the voltage and polarity of the DG-5 socket on the back of the '520SE to eliminate it as a source of the problem. Once I knew that was good I would check the wiring of the DG-5 connectors and the wiring to make sure it was the correct polarity (to mate with the '520SE) and that it wasn't shorted.

Diode D18 in the DG-5 is wired for reverse voltage protection. If it is shorted, or the voltage polarity from the '520SE is incorrect, it will cause the symptoms you are seeing. It is unlikely that the 0.01 cap across the DG-5 power input is shorted but it can't be ruled out in an "unknown" device.

The voltage regulators, FS7805 and Q31(w/Zener D17), as well as the power transistor, 2SD235, would be the next items to check since they feed power to the rest of the circuitry. You should also check for a short in capacitor C88 (47uf/25V) on the input to the FS7805 and C86 (22uf/16V) on the emitter of the 2SD235 transistor.

Assuming the above devices are not shorted then I would set the DG-5 to "COUNTER" mode and connect it to a current-limited bench power supply and slowly crank up the voltage while watching the mA meter and the front panel display of the DG-5. You are looking to see if it only draws significant current when powered up vs a hard short that can be found with the power off. The DG-5 specs indicate 0.9A (900mA) max so you want to see is if there is a significant current draw as you increase the voltage. It should stabilize below 900mA and the display should show signs of life. Of course, there should be no snap, crackle, and/or pop nor the dreaded release of factory smoke!

Keep us posted on your progress!

Ken
WA2LBI

On Tue, Sep 17, 2013 at 11:03 PM, Wes Will <wwill@...> wrote:

> **
>
>

> And once again the TS-520SE is back up and running just fine.
>
> The DG-5 freq counter is still inoperative, when plugged in to the
> radio. I did a fast on-off and in the fraction of a second heard the
> 14V section of the power supply board start to sizzle. I cannot figure
> what could be wrong with that thing. YET.
>
> The modification of the odd rectifier board, to add the side-tone bias
> connection via a 100K ohm resistor tacked to R9 worked a treat. (?
> Pretty sure it's R9, and the new resistor would be what should have been
> there as R10.)
>
> The 300 PIV / 1 A 1N4004 diodes are a perfect replacement for the V06B
> diodes originally in there. Possibly better, since the same on/off of
> the rig with the DG-5 on it and V06B original diodes in there resulted
> in four bad diodes, and two burned traces on the rectifier board. The
> 1N4004 units held their own, and didn't blow or take anything out with
> themselves, unlike the OEM parts.
>
> I'll be tuning up the transmitter into the dummy load tomorrow, when I'm
> less fatigued. Been a bit of a day for me, all around, and I didn't
> think I was even going to be able to snatch the five minutes for this
> repair. Tomorrow is smarter for working with an unfamiliar transmitter.
> I've got to try to remember how to load a tube rig, using the
> instructions from here. Don't want to blow a final now that I'm >this<
> close to having a working rig.
>
> --
> Wes Will
> N9KDY
>
>

44727. Re: Re: [TS-520_820_530_830] RE: RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 18:43:05 UTC
From: Chris Maness
Topic: 44713 Message: 44727

On Thu, Sep 19, 2013 at 10:39 AM, <wagstw46@...> wrote:

>
>
> OK what you are doing is very imprecise. Using a yard stick.
>

It is, but it got 2.8kHz for my FT-817. The spec is 2.3kHz not too far
off. I am just saying that 4kHz seems REALLY wide as unscientific and
qualitative as a test as it is.

> Here is what I would do:
>
>
> 1. Rig on dummy load or no antenna
>
> 2. Turn AGC on to Fast.
>
> 3. Set VFO to! 200
>
> 4. Mode in LSB. Tune the VFO for zero beat. As you approach zero beat use
> light touch or tap on the VFO knob. Should see see rythmic needle quiver at
> approx S3.
>
> 5. Set your analog dial to zero. Tap on VFO dial to get a slow rythmic
> quiver. Dont stop it. Want some quiver to make sure close to zero beat.
>
> 6. Very slowly move the VFO dial and watch the analog divisions and the
> S-meter. As you get close to approx 2.5 divisions the S-meter should fall
> to zero. You may still hear very high pitched note.&n! bsp;
>
> 7. Repeat on USB. Should get zero beat near S3. Should see S-meter fall
> off near 2.5 divisions. It could be 2.4 it could be 2.7 but you are using a
> yard stick to measure with.
>
> 8. Now set to CW mode.
>
> 9. Slowly adjust VFO for zero beat. This time it should occur closer to S5
> to S6. Set analog dial to zero.
>
> 10. Move VFO dial up frequency and watch analog dial and S-meter. Should
> see S-meter fall to zer! o at approx 2 divisions. Return to zero beat.
>
> 11. Move VFO dial down frequency and watch analog dial and S-meter. Should

> see S-meter fall to zero in just slightly less than 1 division. If you keep
> turning you will hear more signal. Ignore that. You are using a harmomic
> rich signal source.
>
Yea, it is doing that. However, isn't the design objective supposed to
have no carrier on the other side?

>
> So in CW you dont have 4khz bandwidth. Using Marker and S-meter and Fast
> AGC and good touch on VFO dial you will see S-meter fall to zero at approx
> 3khz and it is really 2.7 or so if you were mea! suring it. .
>
>
> The reason in CW mode that you will see close to 2 divisions on one side
> and 1 division on the other is that the filter response is not completely
> symmetrical. If you download the Spectrogram software or look at the
> sample I placed in the files you will see this.
>
>
> For purposes of this test only.
>
>
> My LSB osc was set at 3393,621 mhz
>
> My USB osc was set at 3396.356 mhz
>
> My CWR was set at 3394.319 mhz
>
> CWT went up appropriate 700hz
>

I am only getting a 500Hz shift. It think the value of that little 22pF
cap might be off.

>
> Th LSB and USB osc were set using the Marker S meter method. Background
> noise as a switch from LSB to USB sounds close to my ear.
>
Yes, no complaints in SSB.

>
> However, I now need to go back and set with Spectrogram or Audio Gen and
> Wattmeter. I suspect will be close but need some tweaking.
>
>
> I just set them to get approx S3 zero beat so could duplicate what you
> are trying to do.
>
>
> Terry K9TW .
>

>
Thanks, Terry
Chris KQ6UP

>
>

44728. Re: RE: Re: [TS-520_820_530_830] RE: RE: RE: TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 18:46:42 UTC
From: Chris Maness
Topic: 44713 Message: 44728

On Thu, Sep 19, 2013 at 10:54 AM, <wagstw46@...> wrote:

>
>
> I forgot to mention when I speak about 3dB roll off I am talking about RF
> power using the wattmeter method.
>
>
> If you use Spectrogram you will measure the BW at 6dB points on each side
> of the displayed response curve.
>

I imagine that reflects the difference between dBmV and dBmW.

>
> All you have to do move cursor along the curve and it will display when
> you are at 6dB down and you can place a marker there if you chose or just
> read the frequency displayed in the box and log it down.
>
>
> Terry K9TW
>
>
Thanks
Chris

> _.-._,___
>

44729. New videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 18:49:07 UTC
From: Mike
Topic: 44729 Message: 44729

I uploaded 2 new videos this afternoon. They are in the "Grid Voltage"
folder(see the following links)

http://www.n6wk.com/w5rkl/Grid%20Voltage/Grid%20voltage%20changes%20based%20on%20sine%20wave%20voltage%20levels%20part%202.wmv

and

http://www.n6wk.com/w5rkl/Grid%20Voltage/Grid%20voltage%20changes%20causes%20changed%20in%20tubes%20plate%20voltage%20drop%20and%20plate%20voltage.wmv

I recommend reviewing part 1 again, then part 2 and finally the last
video discussing grid voltage changes affecting the plate voltage drop
and plate voltage. All 3 videos gotogether.

73
Mike W5RKL

44730. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 19:29:57 UTC
From: Joseph Stiles
Topic: 44708 Message: 44730

Steve,

I think this question was asked a few days ago..or maybe longer...can't remember.

I my humble opinion..you are NOT going to see any real operational difference...same goes for "matched pairs" of 6146's....not necessary
Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."

73 Joe
WB7UQU

From: "stevetroyer56@..." <stevetroyer56@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:39 PM
Subject: [TS-520_820_530_830] Final tube question.

I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?

44731. RE: What would this mod accomplish ?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 20:56:53 UTC
From: <dlbowders@...>
Topic: 44699 Message: 44731

I appreciate the explanations. I have gone over it and it appears the mod was started but never finished. The switch is installed but the wire has not been cut. I removed it and put the wire back in the molex connector and all receive and transmit are working fine. I was lucky there was not more damage. I understand what they were in the process of doing now. The molex connector is melted around the pin hole and will need replaced. It appears someone was actually trying to desolder? the wire right in the connector. I have a few spares. I will recheck the PLL board to make sure I did not miss anything. Just need a cw filter and it will look good on my station console. Thanks Terry and Joe. I put it in my notes.

73 K5HFG Don

--- In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Don,

This is a common "mod"....it's called "CB HACK," or "FREE BANDING." Off the top of my head, if the switch was say in
the "on" position and the bandswitch was say in the 28 to 29Mhz range...and the +0.5 switch was pushed...you could receive and
transmit from about the low 26Mhz to ????which covers the CB frequencies. I have seen a few that looked "factory" but then,
a few that looked put together by blind, drunk monkies. Also, you never know what else may be wrong...by adjustment
by the "golden screwdriver."

73 Joe
WB7UQU

From: "dlbowders@..." <dlbowders@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 2:45 PM
Subject: [TS-520_820_530_830] What would this mod accomplish ?

I acquired a TS 530SP with an on/off switch wired into the counter board on connector #2 pin #9. Rather hacked at that. I removed it and reconnected wire to the connector and receive works fine on the affected bands. The owner had stated that it would not receive and readout was blank so he evidently did not do the mod. He is a Ham up north and was only interested in getting rid of it. It is in relatively good shape and has a 6 million serial no.and still has the KW inspection stickers inside dated 1989, so I think I may hold on to this rig but this is the second time I have run into this mod and do not know what benefit it could be. The other time was in a TS 830 several years ago. Same scenario. I know I do not get out much but I can not figure out what this would do other than shut down several bands. Why would you do that? I am getting to the point of not being surprised by any of the hack jobs but if someone has an opinion about this let me know. Wouldn't you just like to smack someone if you caught them?

73, K5HFG, Don

44732. Re: [TS-520_820_530_830] RE: What would this mod accomplish ?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 21:24:28 UTC
From: Joseph Stiles
Topic: 44699 Message: 44732

Don,

u r welcome. You were lucky...I've seen some real butcher jobs. What seems to get the most damage..besides the wiring/connectors...etc.
is the components in the final compartment, mainly the plate choke...it should look kinda bright...not brown/black...also the cathode resistors
on the final board also take a beating by persons doing these mods...including the "QRO MOD," which I've also seen go with the "CB HACK."
Glad it was easy to get it back in operation.....

73 Joe
WB7UQU

From: "dlbowders@..." <dlbowders@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 19, 2013 1:56 PM
Subject: [TS-520_820_530_830] RE: What would this mod accomplish ?

I appreciate the explanations. I have gone over it and it appears the mod was started but never finished. The switch is installed but the wire has not been cut. I removed it and put the wire back in the molex connector and all receive and transmit are working fine. I was lucky there was not more damage. I understand what they were in the process of doing now. The molex connector is melted around the pin hole and will need replaced. It appears someone was actually trying to desolder? the wire right in the connector. I have a few spares. I will recheck the PLL board to make sure I did not miss anything. Just need a cw filter and it will look good on my station console. Thanks Terry and Joe. I put it in my notes.

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a few that looked put together by blind, drunk monkies. Also, you never know what else may be wrong...by adjustment
by the "golden screwdriver."

73 Joe
WB7UQU

_____
From: "dlbowders@..." <dlbowders@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 2:45 PM
Subject: [TS-520_820_530_830] What would this mod accomplish ?

I acquired a TS 530SP with an on/off switch wired into the counter board on connector #2 pin #9. Rather hacked at that. I removed it and reconnected wire to the connector and receive works fine on the affected bands. The owner had stated that it would not receive and readout was blank so he evidently did not do the mod. He is a Ham up north and was only interested in getting rid of it. It is in relatively good shape and has a 6 million serial no.and still has the KW inspection stickers inside dated 1989, so I think I may hold on to this rig but this is the second time I have run into this mod and do not know what benefit it could be. The other time was in a TS 830 several years ago. Same scenario. I know I do not get out much but I can not figure out what this would do other than shut down several bands. Why would you do that? I am getting to the point of not being surprised by any of the hack jobs but if someone has an opinion about this let me know.
Wouldn't you just like to smack someone if you caught them?

73, K5HFG, Don

44733. Re: [TS-520_820_530_830] Is anyone else getting board messages out of order?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 22:35:52 UTC
From: John Davidson
Topic: 44679 Message: 44733

I seem to get my all Yahoo E-mails in a timely fashion here.

From: Wes Will <wwill@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 19, 2013 1:24 AM
Subject: [TS-520_820_530_830] Is anyone else getting board messages out of order?

For instance, Lars' message around 0730-ish this morning just arrived,
which made the reply I received in near-real-time from Terry (some time
after 0800) make a lot more sense.

Those two aren't the only messages which have come in to my in-box today
in reverse or otherwise scrambled order. Several threads are pied like
that so far.

Is there some blockage in the system? Does Yahoo hate me for denying
them the opportunities for more Spam in my in-box, or is it simply that
I'm a Luddite when it comes to this stuff, preferring that text messages
be TEXT messages without a lot of fluff on top?

I do not ever use the web page interface, I find such things to be
excessively loaded with "features" which I never need, want, nor use.

I just read email. Words in a row. I like it that way.

I have seen references to "the changes" to "the system," which I am
assuming mean something to do with the way the Yahoo web site for forae
like this one is set up. Is this related? Just started in the last day
or so,

My own MailMan mailing list server (sits in the rack in the basement,
just runs, has done so for years) and Postfix SMTP and Dovecot IMAP
set-up doesn't deliver mail backwards through time; or if it does none
of the folks using it have ever mentioned it to me. Since none of my
systems have been down at all, I am at a loss to understand how this
recent phenomenon could occur without positing some sort of error at Yahoo.

Any Clues? Or is it just me?

--
Wes Will
N9KDY
Server Up-Time:
00:17 up 133 days 18:28, 14 users, load average: 2.51, 2.32, 2.22

44734. Re: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 23:36:48 UTC
From: John Davidson
Topic: 44713 Message: 44734

When I got my TS520 it was the last one in the store and had no CW filter.
When I got it home and put the antenna on it I knew in about 5 minutes I HAD to get the CW filter and got one ordered.

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 10:56 PM
Subject: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Ok, I am now thinking that issue was never resolved the first time I was messing with this radio in 2009. I have made some measurements. I don't have the 500Hz CW filter installed, so this all may be moot when it is.

1. Listening to the 25kHz calibration carrier in SSB gives me some unexpected results. The passband of this radio is VERY wide. It sounds beautiful with the local rag chew groups that are running hi-fi sound. The passband is almost 4kHz wide.

2. Since I don't have the CW filter, my bandwidth is so wide the beat note on the other side of the carrier shows up as I tune through the 25kHz calibration carrier. I have uploaded a you tube video since some folks might not understand what I mean by this, and I want to make sure I am very clear about what is going on here. Here is the video:

http://youtu.be/Ate02ICbLmw

3. I am thinking that this might be a defective multipole crystal passband filter. It sounds beautiful on SSB, but so wide I am hearing a note on both sides of the carrier. This problem will probably be moot when I install the CW filter, but I am thinking I still might not want to be running so wide on SSB.

4. Now I fully remember all the problems I was having with this radio back in 2009, and I still want to keep her and fix her. I now have the biggest problem with the radio behind me, so moving on to this conundrum.

73 de KQ6UP
Chris Maness

On Wed, Sep 18, 2013 at 1:49 PM, <wagstw46@...> wrote:

>
>
>Chris:
>
>
>OK using the receiver is an acceptable alternative method to adjust carrier suppression.

Done it myself lots of times. If you cannot hear carrier on your bench with test receiver then not very likely a fellow hundreds of miles away will.
>
>
>OK for starters you might want to make sure you have Zero dc volts at the BM terminal on Gen Board in CW mode with Car Pot turned full CCW.
>
>
>Even though a germanium diode has theoretical barrier potential of approx 0.25vdc (where you will see milliamperes of forward current), below that level you can see ua leakage current down in the .10 to .20 vdc range. Not unusual to see couple hundred ua at that voltage level.
>
>
>So I think first place to look is at BM to make sure you have Zero vdc with Car at full CCW position.
>
>
>Terry K9TW
>
>
>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
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>>On Wed, Sep 18, 2013 at 11:47 AM, <wagstw46@...> wrote:
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>>>>>You can adjust the BM trimmer pot and trimmer cap all day long and the Carrier Osc will never see it. There is a nice buffer stage in the way of that.
>>
>>
>>Thanks, that rules that cause out.
>>
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>>>>>You cannot just adjust the trimmer pot and trimmer cap on one side band. Has to be done on both and it will be a compromise. Some call this adjusting the Carrier Suppression and others call it Carrier Balance. It is a back and forth iteration that takes multiple passes to get the carrier nulled equally low on each side band.
>>
>>
>>SSB is perfect. Problem is just in CW receive.
>>
>>>>

>>>I usually do it in SSB mode with Mic gain turned down full CCW. Can load to full output power in CW and then switch to SSB and adjust.
>>>
>>>
>>>Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and adjust for a null in rf voltage on one side band and then flip to other and null again. Will find the trimmers interact and you have to off set and compromise for the best low rf voltage level flipping back and forth between LSB and USB. Will never get it to be zero on both side bands.
>>>
>>>
>>I use my FT-817 with no antenna for this. However, per my statement above. I balanced the carrier on Monday the day I replaced the diodes. I am getting a beat note on both sides of the carrier on CW receive only. I remember the cure for this one is to adjust TC1 on the CAR board. Then GEN board is all good. What I was trying to determine is if it is common for the CAR oscillator to drift. Because I am almost 100% certain that the CW receive was good until late last night. I had the radio on all day yesterday, and I was wondering if being turned on for a long time after not being used could cause the carrier osc to drift. I also vaguely remember wanting to replace the 3395.0 Xtal in 2009 because i could not get it to swing all the way to the spec frequency with TC1. However, when I fired it up after sitting for four years last week, I the CW receive was working correctly. Last! night it seemed to have drifted off again. I am
thinking I might have to either change the cap our Xtal out. What do you think? I had purchased a very nice frequency counter in 2009 for this project, and was reading the freq straight off of the CAR jack in the back. I think I remember not being able to get it to hit the spec freq.
>>
>>
>>
>>Terry K9TW
>>>
>>>
>>>
>>>
>>>
>>>
>>
>>
>>Thanks,
>>Chris Maness
>>
>>
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>>
>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>>
>>>No my assertation was not that scientific. Before I made my fix it was working fine. However, now I am hearing CW on both sides of the carrier. However, as I am composing this I am realizing that changing the capacitor on the balanced mod! ulator might have

slightly effected (or pulled) the frequency of the carrier crystal. In that case I just need to readjust and be done with it.
>>>
>>>
>>>Thanks,
>>>Chris Maness
>>>
>>>
>>>
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>>>>On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:
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>>>>
>>>>>
>>>>>
>>>>>How do you know the Carrier Osc frequency is drifting? Are you watching the Carrier Osc frequency at the CAR term post at the Gen Board with a stable Freq Counter?
>>>>>
>>>>>
>>>>>Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced Mod are dirty? Ceramic trim caps are very touchy even from moving the rig around on the bench.
>>>>>
>>>>>
>>>>>Terry K9TW
>>>>>
>>>>>
>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
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>>>>>
>>>>>I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down.! ?! ;Yesterday I ordered a! CW
filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I replace either the trimmer or the Xtal if it keeps drifting around?
>>>>>
>>>>>
>>>>>Watcha think?
>>>>>
>>>>>

>>>>>Thanks,
>>>>>Chris Maness
>>>>>
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44735. Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 00:43:25 UTC
From: Chris Maness
Topic: 44735 Message: 44735

I just installed my CW filter in my radio, and turned it on to find out now it has a short. I almost cried. Perfect clean solder joints on the IF board. I didn't drop any screws in the works, but it is blowing the 2A side. The meter light comes on, and the filaments, but everything else is dead. I have no idea what happened. Maybe putting stress on the wire harness to flip the board out to work on it might have done something. Maybe the wire underneath the filter got mashed and shorted against the filter case. I will check that option.

73 de KQ6UP
Chris

44736. Re: [TS-520_820_530_830] Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 00:55:26 UTC
From: n6wk@...
Topic: 44735 Message: 44736

Pinch a wire under the Board when re-installing?

Gordon
N6WK

On 9/19/2013 5:43 PM, Chris Maness wrote:
> I just installed my CW filter in my radio, and turned it on to find
> out now it has a short. I almost cried. Perfect clean solder joints
> on the IF board. I didn't drop any screws in the works, but it is
> blowing the 2A side. The meter light comes on, and the filaments, but
> everything else is dead. I have no idea what happened. Maybe putting
> stress on the wire harness to flip the board out to work on it might
> have done something. Maybe the wire underneath the filter got mashed
> and shorted against the filter case. I will check that option.
>
> 73 de KQ6UP
> Chris
>

--

44737. Re: [TS-520_820_530_830] Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 01:23:57 UTC
From: Chris Maness
Topic: 44735 Message: 44737

Yes :D. I am back in business.

Chris KQ6UP
On Sep 19, 2013 5:55 PM, <n6wk@...> wrote:

>
>
> Pinch a wire under the Board when re-installing?
>
> Gordon
> N6WK
>
>
> On 9/19/2013 5:43 PM, Chris Maness wrote:
>
>
> I just installed my CW filter in my radio, and turned it on to find out
> now it has a short. I almost cried. Perfect clean solder joints on the IF
> board. I didn't drop any screws in the works, but it is blowing the 2A
> side. The meter light comes on, and the filaments, but everything else is
> dead. I have no idea what happened. Maybe putting stress on the wire
> harness to flip the board out to work on it might have done something.
> Maybe the wire underneath the filter got mashed and shorted against the
> filter case. I will check that option.
>
> 73 de KQ6UP
> Chris
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44738. What does Voltage Drop mean video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 03:01:50 UTC
From: Mike
Topic: 44738 Message: 44738

I uploaded a video in the Ohms Law test folder explaining, with explanation, what the term Voltage Drop means. This is another term that you should know what it means so you will understand what is being said when the term is used.

73
Mike W5RKL

44739. Re: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 03:17:58 UTC
From: Chris Maness
Topic: 44713 Message: 44739

Yes, I now how the CW filter inline, and the double sided carrier note is gone, as I figured it would. Terry, I will take some time and do a more quantitative measurement on the SSB passband. The CW passband is now to my liking. So do most of the TS-520S without the filter have beat note on both sides?

Thanks,
73's de KQ6UP

On Thu, Sep 19, 2013 at 4:36 PM, John Davidson <k8jd@...> wrote:

>
>
> When I got my TS520 it was the last one in the store and had no CW filter.
> When I got it home and put the antenna on it I knew in about 5 minutes I
> HAD to get the CW filter and got one ordered.
>
> ------------------------------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Wednesday, September 18, 2013 10:56 PM
> *Subject:* [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER
> instability on the TS-520S
>
>
> Ok, I am now thinking that issue was never resolved the first time I was
> messing with this radio in 2009. I have made some measurements. I don't
> have the 500Hz CW filter installed, so this all may be moot when it is.
>
> 1. Listening to the 25kHz calibration carrier in SSB gives me some
> unexpected results. The passband of this radio is VERY wide. It sounds
> beautiful with the local rag chew groups that are running hi-fi sound. The
> passband is almost 4kHz wide.
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> 2. Since I don't have the CW filter, my bandwidth is so wide the beat
> note on the other side of the carrier shows up as I tune through the 25kHz
> calibration carrier. I have uploaded a you tube video since some folks
> might not understand what I mean by this, and I want to make sure I am very
> clear about what is going on here. Here is the video:
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> http://youtu.be/Ate02ICbLmw
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> 3. I am thinking that this might be a defective multipole crystal
> passband filter. It sounds beautiful on SSB, but so wide I am hearing a

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> I install the CW filter, but I am thinking I still might not want to be
> running so wide on SSB.
>
> 4. Now I fully remember all the problems I was having with this radio
> back in 2009, and I still want to keep her and fix her. I now have the
> biggest problem with the radio behind me, so moving on to this conundrum.
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> 73 de KQ6UP
> Chris Maness
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> On Wed, Sep 18, 2013 at 1:49 PM, <wagstw46@...> wrote:
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>
> Chris:
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> OK using the receiver is an acceptable alternative method to adjust
> carrier suppression. Done it myself lots of times. If you cannot hear
> carrier on your bench with test receiver then not very likely a fellow
> hundreds of miles away will.
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> OK for starters you might want to make sure you have Zero dc volts at the
> BM terminal on Gen Board in CW mode with Car Pot turned full CCW.
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> Even though a germanium diode has theoretical barrier potential of approx
> 0.25vdc (where you will see milliamperes of forward current), below that
> level you can see ua leakage current down in the .10 to .20 vdc range. Not
> unusual to see couple hundred ua at that voltage level.
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> So I think first place to look is at BM to make sure you have Zero vdc
> with Car at full CCW position.
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> Terry K9TW
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> --- In TS-520_820_530_830@yahoogroups.com, <
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> Has to be done on both and it will be a compromise. Some call this
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> board is all good. What I was trying to determine is if it is common for
> the CAR oscillator to drift. Because I am almost 100% certain that the CW
> receive was good until late last night. I had the radio on all day
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> being used could cause the carrier osc to drift. I also vaguely remember
> wanting to replace the 3395.0 Xtal in 2009 because i could not get it to
> swing all the way to the spec frequency with TC1. However, when I fired it
> up after sitting for four years last week, I the CW receive was working
> correctly. Last! night it seemed to have drifted off again. I am thinking
> I might have to either change the cap our Xtal out. What do you think? I
> had purchased a very nice frequency counter in 2009 for this project, and
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> remember not being able to get it to hit the spec freq.
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> Thanks,

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> Chris Maness
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> Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced
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> Terry K9TW
>
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> again. I had adjusted this back in 2009, but last night I was hearing CW
> notes on both sides of the carrier AGAIN. I guess carrier oscillator has
> gone squirrely due to running it so much the last few days. However, there
> are only two parts that control the frequency. The crystal or the trimmer
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> rocks are ok. I only hear a beat note on one side of the carrier in the
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> Watcha think?
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> Thanks,
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44740. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-19 23:57:38 UTC
From: Steve Troyer
Topic: 44708 Message: 44740

Thanks Joe.

I'm new here as I just got the 820 not too long ago. I did a search but could not find the topic.
I have heard that the black plate tubes have a deeper less hollow sound but that was for guitar amplifiers.
I guess that for ham radio and especially SSB, the final tubes are not as particular as far as sound goes.

Thanks again. 73....N8WGM

44741. RE: RE: RE: Unsure if my previous posting made it through! TS-820 WARC.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 03:14:41 UTC
From: clifford wright
Topic: 44675 Message: 44741

If i remember correctly they were equivalents to the 3SK45. Under a different number though, fortunately the Auckland VHF group trading table had some.
Their noise performance looked quite good.
Crite40

44742. Re: [TS-520_820_530_830] Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 03:26:42 UTC
From: n6wk@...
Topic: 44735 Message: 44742

That is Great News!
Glad you found the Pinched wire... LOL

73,
Gordon
N6WK

On 9/19/2013 6:23 PM, Chris Maness wrote:
>
> Yes :D. I am back in business.
>
> Chris KQ6UP
>
> On Sep 19, 2013 5:55 PM, <n6wk@... <mailto:n6wk@...>> wrote:
>
>
>
> Pinch a wire under the Board when re-installing?
>
> Gordon
> N6WK
>
>
> On 9/19/2013 5:43 PM, Chris Maness wrote:
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>> find out now it has a short. I almost cried. Perfect clean
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>> works, but it is blowing the 2A side. The meter light comes on,
>> and the filaments, but everything else is dead. I have no idea
>> what happened. Maybe putting stress on the wire harness to flip
>> the board out to work on it might have done something. Maybe the
>> wire underneath the filter got mashed and shorted against the
>> filter case. I will check that option.
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>> 73 de KQ6UP
>> Chris
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44743. Re: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 03:29:14 UTC
From: Timothy Johnston
Topic: 44713 Message: 44743

I haven't been following this thread, but I have a TS-520S. Tell me how to
test what you are asking for and I will let you know.
TJ, K4TFJ

Tj Johnston, K4TFJ ==
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

On Thu, Sep 19, 2013 at 11:17 PM, Chris Maness <chris@chrismaness.com>wrote:

> **
>
>
> Yes, I now how the CW filter inline, and the double sided carrier note is
> gone, as I figured it would. Terry, I will take some time and do a more
> quantitative measurement on the SSB passband. The CW passband is now to my
> liking. So do most of the TS-520S without the filter have beat note on
> both sides?
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>> *Sent:* Wednesday, September 18, 2013 10:56 PM
>> *Subject:* [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER
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>> messing with this radio in 2009. I have made some measurements. I don't
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>> 1. Listening to the 25kHz calibration carrier in SSB gives me some
>> unexpected results. The passband of this radio is VERY wide. It sounds
>> beautiful with the local rag chew groups that are running hi-fi sound. The
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>> 2. Since I don't have the CW filter, my bandwidth is so wide the beat
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>> calibration carrier. I have uploaded a you tube video since some folks
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>> back in 2009, and I still want to keep her and fix her. I now have the
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>> Chris Maness
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>> On Wed, Sep 18, 2013 at 1:49 PM, <wagstw46@...> wrote:
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>> carrier suppression. Done it myself lots of times. If you cannot hear
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>> the BM terminal on Gen Board in CW mode with Car Pot turned full CCW.

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>> approx 0.25vdc (where you will see milliamperes of forward current), below
>> that level you can see ua leakage current down in the .10 to .20 vdc range.
>> Not unusual to see couple hundred ua at that voltage level.
>>
>> So I think first place to look is at BM to make sure you have Zero vdc
>> with Car at full CCW position.

>>
>> Terry K9TW
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>> --- In TS-520_820_530_830@yahoogroups.com, <
>> ts-520_820_530_830@yahoogroups.com> wrote:
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>> adjusting the Carrier Suppression and others call it Carrier Balance. It is
>> a back and forth iteration that takes multiple passes to get the carrier
>> nulled equally low on each side band.
>>
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>> SSB is perfect. Problem is just in CW receive.
>>
>>
>> I usually do it in SSB mode with Mic gain turned down full CCW. Can load
>> to full output power in CW and then switch to SSB and adjust.
>>
>> Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and
>> adjust for a null in rf voltage on one side band and then flip to other and
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>> board is all good. What I was trying to determine is if it is common for
>> the CAR oscillator to drift. Because I am almost 100% certain that the CW
>> receive was good until late last night. I had the radio on all day
>> yesterday, and I was wondering if being turned on for a long time after not

>> being used could cause the carrier osc to drift. I also vaguely remember
>> wanting to replace the 3395.0 Xtal in 2009 because i could not get it to
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>> I might have to either change the cap our Xtal out. What do you think? I
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>> pulled) the frequency of the carrier crystal. In that case I just need to
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>> Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced
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>> owner went SK in 1995 (from the S.S. number on the rig). So I think it is
>> safe to assume my TS-520S has not been on very much in the past twenty
>> years at least. My experience has taught me that it is not good for a rig
>> to sit idle for years on end. Monday I was finally able to get this radio
>> going 100% with a bad diode on the balanced mixer. Since fixing it, I have
>> been using it a lot, and it seems that the CARRIER has shifted frequencies
>> again. I had adjusted this back in 2009, but last night I was hearing CW
>> notes on both sides of the carrier AGAIN. I guess carrier oscillator has
>> gone squirrely due to running it so much the last few days. However, there
>> are only two parts that control the frequency. The crystal or the trimmer
>> cap. Is it possible that one of these parts have not aged well. I am
>> hopping it will settle down.! ! ;Yesterday I ordered a! CW filter for
>> the radio, should I wait tell this comes before I adjust the CW carrier
>> against the xtal filter skirt or adjust it now and expect that it will fall
>> in line with the new CW filter. The USB/LSB is fine, so I know those two
>> rocks are ok. I only hear a beat note on one side of the carrier in the
>> SSB modes. Should I replace either the trimmer or the Xtal if it keeps
>> drifting around?
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>> Watcha think?
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>> Thanks,
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44744. Tuned the 520SE up on all bands.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 04:20:30 UTC
From: Wes Will
Topic: 44735 Message: 44744

Full 100W on 80, 40, and 20. About 85W on 160, and a bit less than 80W above 20 meters. That's with the plate current kept at or just above 100 mA. No higher than 110 mA, though.

Used an external Wattmeter, tuned it the hard way using the long-form instruction sheet. Will convert my scribbled notes on switch positions into something legible very shortly.

Tuned into my homemade can of mineral oil and resistors. Don't have an antenna yet, but will probably toss something into the trees to get going with. Suggestions there would be welcome, I'm always up for a rag-chew about antennas.

Took a few tries to remember how that all went, but once I started remembering and seeing the dip and peak while adjusting the controls, well, it sort of all came back.

Couple of things I noticed:

1) On receive, all bands, there is an awful lot of white noise. Even on a can full of resistors on a quarter-meter long coax stub. Clean, perfectly regular and "smooth" white noise.

2) The plate control setting was nowhere NEAR the dialed-in band. For 20 meters, for instance the indicator was closer to 7 MHz than 14. How worried should I be?

Should I look at doing a coil pack alignment, or should I just look at them and see if any are bottomed out?

I suspect the driver tube is starting to flake out, but right now it's fine. I'll let it ride and get some hours on the thing. If it's dying it will show itself under use fairly quickly, I suspect.

Finals seem great. Checked inside the cage and the resistors look good, and the coils are still nice and bright; nothing blackened or toasted.

The silly little plastic switch tab on the send/receive toggle is loose, feels like it's going to come out like a bad tooth under my fingers. What's the word on fixing those switches (all of them) so they don't flop around and feel like they're going to come off in your hand when you touch one? It seems to be just long usage, not abuse or anything really broken. (I just like a firm response to a control. Maybe it's just a quirk of mine but I don't like sloppy controls.)

I stuck a length of wire on the antenna plug, and started hearing some strong signals from various places around the country. I'm in 9-land, I heard a couple of 5's and a 0 call sign. I need better headphones,

couldn't get tuned in over the white noise quickly enough to get the call signs, (I couldn't spend much time hunting, either. In the middle of making dinner, had to go cook some pork steak and squash and sprouts.)

So, other than a bit noisier than I think it ought to be, and perhaps something odd with the output Pi section, it's working.

One more question. While I have this thing open and belly up on the bench, which voltage measurements would be the most sensible to take NOW while it's working, so that later when it isn't I'll have baseline data? I've written some measurements down, but having all of the important ones in my notebook (and not missing any from being inexperienced with these rigs) would make me feel a lot better about putting the lid on this beast tomorrow.

Thanks for bearing with me, all. You're a great bunch, and a fantastic resource. I am appreciative.

--
Wes Will
N9KDY
(I HAVE NOT HEARD A WORD BACK FROM THE LONDON DIODE SOURCE! He isn't answering his email. That might turn out to be a dry well. If someone else would like to try to get hold of this guy, the URL is:

http://www.oneonetwo.com/2013/07/vintage-diodes-v06b-hitachi-silicon.html

Wishing you better luck than I had. I'm going to try again, and see if the gonif will answer his mail. www)

44745. RE: Tuned the 520SE up on all bands.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 11:47:59 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44745

Wes

Using the external wattmeter is not the "long or hard" way to load?

Very simple simple procedure. Peak the Drive in Tune. Get the initial plate current dip in Tune (done for safety in case the tank has not been preset close to resonance and would have excessively high plate current). Leave meter in Ip. Switch to CW mode. Flip to Send. Alternately adjust Plate Load and Plate Tune caps for approx 100 watts output into dummy load (there is no dip and load involved) . Verify not exceeding approx 200 ma. Unkey the rig. Your done in matter of seconds.

Very easy to learn and perform, faster method, and less stress on the finals, and you can immediately tell if something is wrong by looking at output level on the wattmeter.

For example, if you have an open in your feed line anywhere you can load normally by plate current or RF relative power meter method and not notice you have a problem unless you are very experienced. With the wattmeter method you will see ZERO output yet will see 100ma plus Ip. This should immediately tell you something is wrong. Never want to load into an open with a TS520 as the rig doesn not have RF negative feedback like the later rigs and the very high VSWR results in high rf voltage at your SO-239 connector which appear across the plates of your Plate Load capacitor. At approx 100ma IP you will have just over 200 rf volts. This is a close spaced broadcast type air variable and easy to arc it over. So an external wattmeter is a great loading aid as gives you an approx value to shoot for and immediate indication when there is a problem with your antenna system. Opens, shorts, high resistance, balun breaking down etc. will all manifest themselves on your wattmeter.

Once you get use to this method it can be done in seconds. It is the method described in your manual accept they tell you to use the built in RF relative power position. Adding a wattmeter puts a real number to that method.

Also. it is not possible to get 100 watts output at 100ma plate current. If this is not a typo then you need to verify the accuracy of your external wattmeter.

Assuming 825vdc plate voltage then 825 x .100 = 82.5 watts dc input power. Assuming 55% efficiency then 82.5 x .55 = 45 rf watts output into your dummy load. Absolute best condition would be something on order of 840 x .100 = 84 watts input X .60 = 50 Watts output. At 100ma best you should see on wattmeter into 50 ohm dummy load is 50 watts.

The way you can check the accuracy of your wattmeter is to measure the RF voltage drop across the 50 ohm resistors with a RF probe and VTVM/DMM.

At 100 watts output you will have approx 70.7 rms rf volts.

70.7 x 70.7 /50 = 4998/50 = 99.96 watts

Need a 3 diode RF probe or an O-scope to make this measurement. Place a coaxial Tee at the dummy load and measure IR drop at the open end of the Tee.

If using an O-scope will read 70.7 X 2.828 = 200 volts P-P.

If you actually have something on the order of 840 vdc and 100 ma and resulting 50 watt rf output then the voltage at the open Tee will be approx 50 rms rf volts or 141v P-P.

Terry K9TW

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Full 100W on 80, 40, and 20. About 85W on 160, and a bit less than 80W above 20 meters. That's with the plate current kept at or just above 100 mA. No higher than 110 mA, though.

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Thanks for bearing with me, all. You're a great bunch, and a fantastic resource. I am appreciative.

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Wishing you better luck than I had. I'm going to try again, and see if the gonif will answer his mail. www)

44746. RE: Re: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 12:06:44 UTC
From: <wagstw46@...>
Topic: 44713 Message: 44746

Chris:

I obviously do not believe that you have a stock SSB xtal filter that has a -6dB band width of 4 khz. The spec is -6dB BW = 2400hz and -60dB BW = 4.4khz.

I do not believe you have 4 khz BW at -6dB and I do not have 3khz BW at -6dB. We are looking at the limitations of the accuracy of our Marker/S-meter measuring method.

If you sweep your filter with accurate method and find otherwise I will offer public apology and I owe you a beer to two!

The point of my note was to help you refine your Marker method to get a result closer to 3khz.

Only way you accurately measure the -6dB BW of your SSB filter is:
1. Sweep it with a standard RF sweep generator and view on calibrated O-scope using KW markers.
2. Sweep it with a RF Spectrum Analyzer and Tracking Generator.
3. Sweep it with a 2 port VNA (Couple of nice USB models now available in the $500 range)
4. Sweep it with Spectrogram Audio Spectrum Analyzer software and noise bridge. (cheapest method)

After I ran the Marker/S-meter method and got my approx 3khz result I decided to take a look with Spectrogram. Had been awhile and I needed to re-set the LSB/USB trimmers back to the SSB response I like.

I left TC-2/TC-3 as left after the Marker/Smeter measurement method and ran Spectrogram. I found the -6dB BW to be very close to 2.4khz but the low end was at approx 450 hz so I adjusted the trimmers to lower it to 300hz. Also, my balance between LSB and USB was off a little with USB being shifted higher.

I try to set mine for more SSB communications audio and not bass response that everyone seems to favor. I want little ,more high end presence as I run barefoot.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes, I now how the CW filter inline, and the double sided carrier note is gone, as I figured it would. Terry, I will take some time and do a more quantitative measurement on the SSB passband. The CW passband is now to my liking. So do most of the TS-520S without the filter have beat note on both sides?

Thanks,
73's de KQ6UP

On Thu, Sep 19, 2013 at 4:36 PM, John Davidson <k8jd@...> wrote:

When I got my TS520 it was the last one in the store and had no CW filter.
When I got it home and put the antenna on it I knew in about 5 minutes I HAD to get the CW filter and got one ordered.

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 10:56 PM
Subject: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Ok, I am now thinking that issue was never resolved the first time I was messing with this radio in 2009. I have made some measurements. I don't have the 500Hz CW filter installed, so this all may be moot when it is.

1. Listening to the 25kHz calibration carrier in SSB gives me some unexpected results. The passband of this radio is VERY wide. It sounds beautiful with the local rag chew groups that are running hi-fi sound. The passband is almost 4kHz wide.

2. Since I don't have the CW filter, my bandwidth is so wide the beat note on the other side of the carrier shows up as I tune through the 25kHz calibration carrier. I have uploaded a you tube video since some folks might not understand what I mean by this, and I want to make sure I am very clear about what is going on here. Here is the video:

http://youtu.be/Ate02ICbLmw

3. I am thinking that this might be a defective multipole crystal passband filter. It sounds beautiful on SSB, but so wide I am hearing a note on both sides of the carrier. This problem will probably be moot when I install the CW filter, but I am thinking I still might not want to be running so wide on SSB.

4. Now I fully remember all the problems I was having with this radio back in 2009, and I still want to keep her and fix her. I now have the biggest problem with the radio behind me, so moving on to this conundrum.

73 de KQ6UP
Chris Maness

On Wed, Sep 18, 2013 at 1:49 PM, <wagstw46@...> wrote:

Chris:

OK using the receiver is an acceptable alternative method to adjust carrier suppression. Done it myself lots of times. If you cannot hear carrier on your bench with test receiver then not very likely a fellow hundreds of miles away will.

OK for starters you might want to make sure you have Zero dc volts at the BM terminal on Gen Board in CW mode with Car Pot turned full CCW.

Even though a germanium diode has theoretical barrier potential of approx 0.25vdc (where you will see milliamperes of forward current), below that level you can see ua leakage current down in the .10 to .20 vdc range. Not unusual to see couple hundred ua at that voltage level.

So I think first place to look is at BM to make sure you have Zero vdc with Car at full CCW position.

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Thanks,
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Thanks,
Chris Maness

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Watcha think?

Thanks,
Chris Maness

44747. Parallel Resistor Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 13:46:38 UTC
From: Mike
Topic: 44747 Message: 44747

Good morning,

I uploaded a new video discussing parallel resistors. The video discusses how to calculate total resistance in a parallel circuit, how to calculate total current in the circuit, and how to calculate current through each resistor.

73
Mike W5RKL

44748. Broadspectrum White Noise on CW Receive (TS-520S)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 15:26:01 UTC
From: Chris Maness
Topic: 44748 Message: 44748

After placing the narrow filter in the radio I notice some wide band white noise in the RX. This is wider than the filter skirt. It was there before, but not very noticeable due to the RX noise masking it. It also seems to go up and down proportionally to the AGC. It is not too distracting, but I was wondering if this is normal with this radio.

Thanks,
Chris Maness

44749. RE: RE: Re: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 15:27:17 UTC
From: <wagstw46@...>
Topic: 44713 Message: 44749

OK I should not use the "ONLY" word.

Yes you can sweep the filter with a straight RF sig gen in very small steps and measure the RF output voltage at each frequency step and then plot the points on a graph and produce the filter response curve. Done this many times is the ancient past and a bit tedious, but is another method to reasonably measure the -6dB BW of your IF filter.

I should know better than to use Never or Always or Only or ....!

Terry K9TW

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Chris:

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If you sweep your filter with accurate method and find otherwise I will offer public apology and I owe you a beer to two!

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Only way you accurately measure the -6dB BW of your SSB filter is:
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After I ran the Marker/S-meter method and got my approx 3khz result I decided to take a look with Spectrogram. Had been awhile and I needed to re-set the LSB/USB trimmers back to the SSB response I like.

I left TC-2/TC-3 as left after the Marker/Smeter measurement method and ran Spectrogram. I found the -6dB BW to be very close to 2.4khz but the low end was at approx 450 hz so I adjusted the trimmers to lower it to 300hz. Also, my balance between LSB and USB was off a little with USB being shifted higher.

I try to set mine for more SSB communications audio and not bass response that everyone seems to favor. I want little ,more high end presence as I run barefoot.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes, I now how the CW filter inline, and the double sided carrier note is gone, as I figured it would. Terry, I will take some time and do a more quantitative measurement on the SSB passband. The CW passband is now to my liking. So do most of the TS-520S without the filter have beat note on both sides?

Thanks,
73's de KQ6UP

On Thu, Sep 19, 2013 at 4:36 PM, John Davidson <k8jd@...> wrote:

When I got my TS520 it was the last one in the store and had no CW filter.
When I got it home and put the antenna on it I knew in about 5 minutes I HAD to get the CW filter and got one ordered.

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 10:56 PM
Subject: [TS-520_820_530_830] TS-520S Passband Problems WAS: CARRIER instability on the TS-520S

Ok, I am now thinking that issue was never resolved the first time I was messing with this radio in 2009. I have made some measurements. I don't have the 500Hz CW filter installed, so this all may be moot when it is.

1. Listening to the 25kHz calibration carrier in SSB gives me some unexpected results. The passband of this radio is VERY wide. It sounds beautiful with the local rag chew groups that are running hi-fi sound. The passband is almost 4kHz wide.

2. Since I don't have the CW filter, my bandwidth is so wide the beat note on the other side of the carrier shows up as I tune through the 25kHz calibration carrier. I have uploaded a you tube video since some folks might not understand what I mean by this, and I want to make sure I am very clear about what is going on here. Here is the video:

http://youtu.be/Ate02ICbLmw

3. I am thinking that this might be a defective multipole crystal passband filter. It sounds beautiful on SSB, but so wide I am hearing a note on both sides of the carrier. This problem will probably be moot when I install the CW filter, but I am thinking I still might not want to be running so wide on SSB.

4. Now I fully remember all the problems I was having with this radio back in 2009, and I still want to keep her and fix her. I now have the biggest problem with the radio behind me, so moving on to this conundrum.

73 de KQ6UP
Chris Maness

On Wed, Sep 18, 2013 at 1:49 PM, <wagstw46@...> wrote:

Chris:

OK using the receiver is an acceptable alternative method to adjust carrier suppression. Done it myself lots of times. If you cannot hear carrier on your bench with test receiver then not very likely a fellow hundreds of miles away will.

OK for starters you might want to make sure you have Zero dc volts at the BM terminal on Gen Board in CW mode with Car Pot turned full CCW.

Even though a germanium diode has theoretical barrier potential of approx 0.25vdc (where you will see milliamperes of forward current), below that level you can see ua leakage current down in the .10 to .20 vdc range. Not unusual to see couple hundred ua at that voltage level.

So I think first place to look is at BM to make sure you have Zero vdc with Car at full CCW position.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Wed, Sep 18, 2013 at 11:47 AM, <wagstw46@...> wrote:

You can adjust the BM trimmer pot and trimmer cap all day long and the Carrier Osc will never see it. There is a nice buffer stage in the way of that.

Thanks, that rules that cause out.

You cannot just adjust the trimmer pot and trimmer cap on one side band. Has to be done on both and it will be a compromise. Some call this adjusting the Carrier Suppression and others call it Carrier Balance. It is a back and forth iteration that takes multiple passes to get the carrier nulled equally low on each side band.

SSB is perfect. Problem is just in CW receive.

I usually do it in SSB mode with Mic gain turned down full CCW. Can load to full output power in CW and then switch to SSB and adjust.

Need to connect RF probe/VTVM at SO-239 and key mic or flip to send and adjust for a null in rf voltage on one side band and then flip to other and null again. Will find the trimmers interact and you have to off set and compromise for the best low rf voltage level flipping back and forth between LSB and USB. Will never get it to be zero on both side bands.

I use my FT-817 with no antenna for this. However, per my statement above. I balanced the carrier on Monday the day I replaced the diodes. I am getting a beat note on both sides of the carrier on CW receive only. I remember the cure for this one is to adjust TC1 on the CAR board. Then GEN board is all good. What I was trying to determine is if it is common for the CAR oscillator to drift. Because I am almost 100% certain that the CW receive was good until late last night. I had the radio on all day yesterday, and I was wondering if being turned on for a long time after not being used could cause the carrier osc to drift. I also vaguely remember wanting to replace the 3395.0 Xtal in 2009 because i could not get it to swing all the way to the spec frequency with TC1. However, when I fired it up after sitting for four years last week, I the CW receive was working correctly. Last! night it seemed to have drifted off again. I am thinking I might have to either change the cap our Xtal out. What do you think? I had purchased a very nice frequency counter in 2009 for this

project, and was reading the freq straight off of the CAR jack in the back. I think I remember not being able to get it to hit the spec freq.

Terry K9TW

Thanks,
Chris Maness

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No my assertation was not that scientific. Before I made my fix it was working fine. However, now I am hearing CW on both sides of the carrier. However, as I am composing this I am realizing that changing the capacitor on the balanced mod! ulator might have slightly effected (or pulled) the frequency of the carrier crystal. In that case I just need to readjust and be done with it.

Thanks,
Chris Maness

On Wed, Sep 18, 2013 at 9:56 AM, <wagstw46@...> wrote:

How do you know the Carrier Osc frequency is drifting? Are you watching the Carrier Osc frequency at the CAR term post at the Gen Board with a stable Freq Counter?

Could it be the bal trim pot VR-1 and bal trim cap TC-1 on the Balanced Mod are dirty? Ceramic trim caps are very touchy even from moving the rig around on the bench.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I purchased it from the Salvation Army back in 2009, and the previous owner went SK in 1995 (from the S.S. number on the rig). So I think it is safe to assume my TS-520S has not been on very much in the past twenty years at least. My experience has taught me that it is not good for a rig to sit idle for years on end. Monday I was finally able to get this radio going 100% with a bad diode on the balanced mixer. Since fixing it, I have been using it a lot, and it seems that the CARRIER has shifted frequencies again. I had adjusted this back in 2009, but last night I was hearing CW notes on both sides of the carrier AGAIN. I guess carrier oscillator has gone squirrely due to running it so much the last few days. However, there are only two parts that control the frequency. The crystal or the trimmer cap. Is it possible that one of these parts have not aged well. I am hopping it will settle down.! ! ;Yesterday I ordered a! CW filter for the radio, should I wait tell this comes before I adjust the CW carrier against the xtal filter skirt or adjust it now and expect that it will fall in line with the new CW filter. The USB/LSB is fine, so I know those two rocks are ok. I only hear a beat note on one side of the carrier in the SSB modes. Should I replace either the trimmer or the Xtal if it keeps drifting around?

Watcha think?

Thanks,
Chris Maness

44750. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 16:13:16 UTC
From: kenny
Topic: 44708 Message: 44750

Hi ,
Can any of you nice people tell me if 6146w valves will be ok for my TS530S.
73
Kenny
Scotland

----- Original Message -----
From: Joseph Stiles
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 19, 2013 8:29 PM
Subject: Re: [TS-520_820_530_830] Final tube question.

Steve,

I think this question was asked a few days ago..or maybe longer...can't remember.

I my humble opinion..you are NOT going to see any real operational difference...same goes for "matched pairs" of 6146's....not necessary
Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."

73 Joe
WB7UQU

From: "stevetroyer56@...m" <stevetroyer56@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:39 PM
Subject: [TS-520_820_530_830] Final tube question.

I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?

44751. Re: [TS-520_820_530_830] Parallel Resistor Video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 15:53:23 UTC
From: Adrian Ellison
Topic: 44747 Message: 44751

Can't wait for the "How to tie your shoe laces" video, that should be a good one !
On Friday 20 September 2013 08:46:38 you wrote:

Good morning,

----
[1]
http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJxc3BjY2M4BF9TA
zk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NzQ3B
HNlYwNmdHIEc2xrA3JwbHkEc3RpbWUDMTM3OTY4NDgyNg--?act=reply&messageNum=44
747
[2] mailto:w5rkl@...?subject=Re%3A%20Parallel%20Resistor%20Video
[3]
mailto:TS-520_820_530_830@yahoogroups.com?subject=Re%3A%20Parallel%20Resistor
%20Video
[4]
http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJlMWkwaWZvBF9
TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xr
A250cGMEc3RpbWUDMTM3OTY4NDgyNg--
[5]
http://groups.yahoo.com/group/TS-520_820_530_830/message/44747;_ylc=X3oDMTM2dn
BwOGVxBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ
0lkAzQ0NzQ3BHNlYwNmdHIEc2xrA3Z0cGMEc3RpbWUDMTM3OTY4NDgyNgR0cGNJZAM0ND
c0Nw--
[6]
http://groups.yahoo.com/group/TS-520_820_530_830/members;_ylc=X3oDMTJmNmg2Zmk
0BF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGw
Ec2xrA3ZtYnJzBHN0aW1lAzEzNzk2ODQ4MjY-?o=6
[7]
http://groups.yahoo.com/group/TS-520_820_530_830;_ylc=X3oDMTJlaHVubzA0BF9TAzk3M
zU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3Zna
HAEc3RpbWUDMTM3OTY4NDgyNg--
[8] http://l.yimg.com/a/i/us/yg/logo/us.gif
[9] mailto:TS-520_820_530_830-traditional@yahoogroups.com?subject=Change Delivery
Format: Traditional
[10] mailto:TS-520_820_530_830-digest@yahoogroups.com?subject=Email Delivery:
Digest
[11] mailto:TS-520_820_530_830-unsubscribe@yahoogroups.com?subject=Unsubscribe
[12] http://info.yahoo.com/legal/us/yahoo/utos/terms/
[13] mailto:ygroupsnotifications@yahoogroups.com?subject=Feedback on the redesigned
individual mail v1
[14]
http://geo.yahoo.com/serv?s=97359714/grpId=7525021/grpspId=1705063108/msgId=4
4747/stime=1379684826

44752. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 18:20:01 UTC
From: Mark Gilger
Topic: 44708 Message: 44752

Yes. Either 6146B's or 'W' will work. I'm using 'W's in my TS-830 and 530s

Mark

At 12:13 PM 9/20/2013, kenny wrote:
>
>
>ï»¿
>Hi ,
>Can any of you nice people tell me if 6146w valves will be ok for my TS530S.
>73
>Kenny
>Scotland
>
>
>----- Original Message -----
>From: <mailto:stilesjoseph@yahoo.com>Joseph Stiles
>To:
><mailto:TS-520_820_530_830@yahoogroups.com>TS-520_820_530_830@yahoogroups.com
>Sent: Thursday, September 19, 2013 8:29 PM
>Subject: Re: [TS-520_820_530_830] Final tube question.
>
>
>
>Steve,
>
> I think this question was asked a few days
> ago..or maybe longer...can't remember.
>
> I my humble opinion..you are NOT going to see
> any real operational difference...same goes for
> "matched pairs" of 6146's....not necessary
>Just make sure that since you replaced the
>finals that you "neutralize" them. Directions
>are in the "operators" & "service manuals."
>
>
>73 Joe
>WB7UQU
>
>
>From: "stevetroyer56@..." <stevetroyer56@yahoo.com>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Wednesday, September 18, 2013 5:39 PM
>Subject: [TS-520_820_530_830] Final tube question.

>
>
>I recently replaced my finals in my Kenwood
>TS820 with a set of NOS 6146B's. They have the
>black plates. Is there an advantage to the black
>plates or should I have used the grey plate version?
>
>
>

44753. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 18:30:51 UTC
From: Joseph Stiles
Topic: 44708 Message: 44753

Kenny,

the 6146W's will serve fine in the Kenwood hybrids. Just make sure to "neutralize" them according to directions in the "operators" or "service manual."
Some have reported a small drop in output...5-10 watts...but I have not experienced this.

73 Joe
WB7UQU

From: kenny <kenny.macdougall@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 20, 2013 9:13 AM
Subject: Re: [TS-520_820_530_830] Final tube question.

☐
Hi ,
Can any of you nice
people tell me if 6146w valves will be ok for my TS530S.
73
Kenny
Scotland

----- Original Message -----
From: Joseph Stiles
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Thursday, September 19, 2013 8:29 PM
>Subject: Re: [TS-520_820_530_830] Final tube question.
>
>
>Steve,
>
>
I think this question was asked a few days ago..or maybe longer...can't remember.
>
> I my humble opinion..you are NOT going to see any real operational difference...same goes for "matched pairs" of 6146's....not necessary
>Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."
>
>
>
>

>73 Joe
>WB7UQU
>
>
>
>
>_________________________________
> From: "stevetroyer56@..." <stevetroyer56@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Wednesday, September 18, 2013 5:39 PM
>Subject: [TS-520_820_530_830] Final tube question.
>
>
>
>
>I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?
>
>

44754. Re: [TS-520_820_530_830] RE: Tuned the 520SE up on all bands.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 19:20:17 UTC
From: Wes Will
Topic: 44735 Message: 44754

On 09/20/2013 06:47 AM, wagstw46@... wrote:

> Using the external wattmeter is not the "long or hard" way to load?

Ummm.... That's kind of what I said. I used the method in the printed manual, which is the LONG way. Not the SHORTER way using the wattmeter.

And I very much already suspected that the plate current meter was out of calibration. It showed a needle-width above 100ma when the external wattmeter showed 101 watts. I will adjust it post haste.

And I'll look (harder, elsewhere, obviously) for a list of which voltages would be appropriate for me to note down while it is working to aid later troubleshooting. Just using the schematic I'm quite liable to miss some important ones.

--
wes will
n9kdy

44755. V06B diodes - finally heard from the vendor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 20:01:19 UTC
From: Wes Will
Topic: 44755 Message: 44755

Diodes on the way soon.

Turns out the vendor is on holiday somewhere, should be back in the UK and ready to process an order in a few more days.

The lucky stiff. What's a "holiday"??

Anyway, so far I have orders for 40 V06B diodes (10 for me, 24 for Joseph, 6 for Terry - on me, Terry, for the help).

Anyone else for that part, or any of the others on his list? Some fairly rare items in there. Not much longer until they're gone.

Drop a line to me off the list if there is anything you want to add. It will save a lot of shipping, a bunch of small parts weigh less than the envelope they get mailed in. No risks, I'll foot the bill for the order, and will trust list members to PayPal or mail me the couple bucks it will actually cost.

99 pence (UK) per ten, for most items. Add in a bit for a portion of the shipping (the more that order, the less each) and it's around a quarter each for that quantity/price. Around $2.50 for ten diodes, in other words. (Exact amount depends on the actual shipping cost and the number of people to divide it amongst. Two so far.)

I'll eat the currency exchange losses, shouldn't be much.

--
wes will
n9kdy

44756. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 20:02:23 UTC
From: kenny
Topic: 44708 Message: 44756

Thanks Joe,
73
Kenny
Scotland
----- Original Message -----
From: Joseph Stiles
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 20, 2013 7:30 PM
Subject: Re: [TS-520_820_530_830] Final tube question.

Kenny,

the 6146W's will serve fine in the Kenwood hybrids. Just make sure to "neutralize" them according to directions in the "operators" or "service manual."
Some have reported a small drop in output...5-10 watts...but I have not experienced this.

73 Joe
WB7UQU

From: kenny <kenny.macdougall@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 20, 2013 9:13 AM
Subject: Re: [TS-520_820_530_830] Final tube question.

☐
Hi ,
Can any of you nice people tell me if 6146w valves will be ok for my TS530S.
73

Kenny
Scotland

----- Original Message -----
From: Joseph Stiles
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, September 19, 2013 8:29 PM
Subject: Re: [TS-520_820_530_830] Final tube question.

Steve,

I think this question was asked a few days ago..or maybe longer...can't remember.

I my humble opinion..you are NOT going to see any real operational difference...same goes for "matched pairs" of 6146's....not necessary
Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."

73 Joe
WB7UQU

From: "stevetroyer56@..." <stevetroyer56@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 18, 2013 5:39 PM
Subject: [TS-520_820_530_830] Final tube question.

I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?

44757. Re: [TS-520_820_530_830] Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 20:01:48 UTC
From: kenny
Topic: 44708 Message: 44757

Thanks Mark.
73
Kenny
Scotland
----- Original Message -----
From: Mark Gilger
To: TS-520_820_530_830@yahoogroups.com ; TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 20, 2013 7:20 PM
Subject: Re: [TS-520_820_530_830] Final tube question.

Yes. Either 6146B's or 'W' will work. I'm using 'W's in my TS-830 and 530s

Mark

At 12:13 PM 9/20/2013, kenny wrote:

ï»¿
Hi ,
Can any of you nice people tell me if 6146w valves will be ok for my TS530S.
73
Kenny
Scotland

----- Original Message -----

From: Joseph Stiles

To: TS-520_820_530_830@yahoogroups.com

Sent: Thursday, September 19, 2013 8:29 PM

Subject: Re: [TS-520_820_530_830] Final tube question.

Steve,

I think this question was asked a few days ago..or maybe longer...can't remember.

I my humble opinion..you are NOT going to see any real operational difference...same goes for "matched pairs" of 6146's....not necessary

Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."

73 Joe

WB7UQU

From: "stevetroyer56@..." <stevetroyer56@...>

To: TS-520_820_530_830@yahoogroups.com

Sent: Wednesday, September 18, 2013 5:39 PM

Subject: [TS-520_820_530_830] Final tube question.

I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?

44758. RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 20:47:14 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44758

OK Sorry not what I read or understood. No reason to use the rigs RF position.

Also, you cannot "adjust" the rigs Plate current meter in the sense we normally associate with adjustment. There is no cal trim pot.

Have you checked the two 10 ohm cathode meter shunt resistors? I suggest you replace both for starters. Replace with metal film.

I wonder what would happen if someone installed two 5 ohm resistors? Maybe an example of Mikes parallel resistor primer?

If they check good then check 3.3k meter multiplier resistor. If it checks good then possible to have bad cathode bypass caps but I have never seen one.

You can also measure 6146 cathode voltage key down into dummy load and work the math. With 200 ma and 5 ohm meter shunt what voltage would you expect the cathode to be?

Terry K9TW

--- In ts-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 09/20/2013 06:47 AM, wagstw46@... wrote:

> Using the external wattmeter is not the "long or hard" way to load?

Ummm.... That's kind of what I said. I used the method in the printed
manual, which is the LONG way. Not the SHORTER way using the wattmeter.

And I very much already suspected that the plate current meter was out
of calibration. It showed a needle-width above 100ma when the external
wattmeter showed 101 watts. I will adjust it post haste.

And I'll look (harder, elsewhere, obviously) for a list of which
voltages would be appropriate for me to note down while it is working to
aid later troubleshooting. Just using the schematic I'm quite liable to
miss some important ones.

--
wes will
n9kdy

44759. Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 20:57:07 UTC
From: Chris Maness
Topic: 44735 Message: 44759

I think you responded to the wrong email.

Chris

On Fri, Sep 20, 2013 at 1:47 PM, <wagstw46@...> wrote:

>
>
> OK Sorry not what I read or understood. No reason to use the rigs RF
> position.
>
>
> Also, you cannot "adjust" the rigs Plate current meter in the sense we
> normally associate with adjustment. There is no cal trim pot.
>
>
> Have you checked the two 10 ohm cathode meter shunt resistors? I suggest
> you replace both for starters. Replace with metal film.
>
>
> I wonder what would happen if someone installed two 5 ohm resistors? Maybe
> an example of Mikes parallel resistor primer?
>
>
> If they check good then check 3.3k meter multiplier resistor. If it checks
> good then possible to have bad cathode bypass caps but I have never seen
> one.
>
>
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> work the math. With 200 ma and 5 ohm meter shunt what voltage would you
> expect the cathode to be?
>
>
> Terry K9TW
>
>
>
>
>
> --- In ts-520_820_530_830@! yahoogroups.com, <wwill@...> wrote:
>
> On 09/20/2013 06:47 AM, wagstw46@... wrote:
>
> > Using the external wattmeter is not the "long or hard" way to load?
>

> Ummm.... That's kind of what I said. I used the method in the printed
> manual, which is the LONG way. Not the SHORTER way using the wattmeter.
>
> And I very much already suspected that the plate current meter was out
> of calibration. It showed a needle-width above 100ma when the external
> wattmeter showed 101 watts. I will adjust it post haste.
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> And I'll look (harder, elsewhere, obviously) for a list of which
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> aid later troubleshooting. Just using the schematic I'm quite liable to
> miss some important ones.
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> --
> wes will
> n9kdy
>
>
>
>

44760. RE: Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-20 21:55:55 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44760

Sorry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I think you responded to the wrong email.

Chris

On Fri, Sep 20, 2013 at 1:47 PM, <wagstw46@...> wrote:

OK Sorry not what I read or understood. No reason to use the rigs RF position.

Also, you cannot "adjust" the rigs Plate current meter in the sense we normally associate with adjustment. There is no cal trim pot.

Have you checked the two 10 ohm cathode meter shunt resistors? I suggest you replace both for starters. Replace with metal film.

I wonder what would happen if someone installed two 5 ohm resistors? Maybe an example of Mikes parallel resistor primer?

If they check good then check 3.3k meter multiplier resistor. If it checks good then possible to have bad cathode bypass caps but I have never seen one.

You can also measure 6146 cathode voltage key down into dummy load and work the math. With 200 ma and 5 ohm meter shunt what voltage would you expect the cathode to be?

Terry K9TW

--- In ts-520_820_530_830@! yahoogroups.com (http://yahoogroups.com), <wwill@...> wrote:

On 09/20/2013 06:47 AM, wagstw46@... wrote:

> Using the external wattmeter is not the "long or hard" way to load?

Ummm.... That's kind of what I said. I used the method in the printed
manual, which is the LONG way. Not the SHORTER way using the wattmeter.

And I very much already suspected that the plate current meter was out
of calibration. It showed a needle-width above 100ma when the external
wattmeter showed 101 watts. I will adjust it post haste.

And I'll look (harder, elsewhere, obviously) for a list of which
voltages would be appropriate for me to note down while it is working to
aid later troubleshooting. Just using the schematic I'm quite liable to
miss some important ones.

--
wes will

n9kdy

44761. TS 820s tune receive tunet up/alignmen issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 02:17:59 UTC
From: schneiderandrew
Topic: 44761 Message: 44761

TS 820s tune receive tune up/alignment issue

Need some help; I am having an S-20 to 30 noise level on receive. I have a friend that will help me with the tune up/alignment of the radio and double checking the receive side to determine if that is the source/cause of my noise.
So to those who have experience in the tune/alignment of this radio, any suggestions, things to look for or areas that could be the issue/cause of the noise?
As a side bar, I have tried different antennas and even different houses 200 miles apart, no difference in the noise level in receive.
I have the owner's manual and the service manual.
My sincere thanks to all.
Andy N7EBG
N7EBG@...

44762. Re: [TS-520_820_530_830] TS 820s tune receive tunet up/alignmen issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 03:15:27 UTC
From: W5RKL
Topic: 44761 Message: 44762

Do you experience the noise with the antenna disconnected?

Do you experience the noise with the HEAT switch turned OFF?

73
Mike

On 9/20/2013 9:17 PM, schneiderandrew wrote:
>
> TS 820s tune receive tune up/alignment issue
>
> Need some help; I am having an S-20 to 30 noise level on receive. I
> have a friend that will help me with the tune up/alignment of the
> radio and double checking the receive side to determine if that is the
> source/cause of my noise.
> So to those who have experience in the tune/alignment of this radio,
> any suggestions, things to look for or areas that could be the
> issue/cause of the noise?
> As a side bar, I have tried different antennas and even different
> houses 200 miles apart, no difference in the noise level in receive.
> I have the owner's manual and the service manual.
> My sincere thanks to all.
> Andy N7EBG
> N7EBG@...
>
>

44763. RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 02:58:47 UTC
From: clifford wright
Topic: 44735 Message: 44763

Re final cathode resistors. Yes they are a known source of trouble. Since they were combined in parallel and a bit stressed, it is very common for one to go high and put both of them out. I have replaced mine with a Wirewound 5 watt resistor. However I triple by passed it with 3 different capacitor values and it works fine (and it won't happen again).
Crite40

44764. RE: [TS-520_820_530_830] TS 820s tune receive tunet up/alignmen issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 05:39:16 UTC
From: <andrew@...>
Topic: 44764 Message: 44764

Mike

I would say the noise is about a 1 with no antenna.

Yes the noise is there with and without the heater.

I can take a video clip with sound if that would help.

Thank you VERY MUCH for trying to help me

Andy

Andrew Schneider, N7EBG
C 801-529-3033
andrew@...

-------- Original Message --------
Subject: Re: [TS-520_820_530_830] TS 820s tune receive tune up/alignment issue
From: W5RKL <w5rkl@yahoo.com>
Date: Fri, September 20, 2013 9:15 pm
To: TS-520_820_530_830@yahoogroups.com

?

Do you experience the noise with the antenna disconnected?

Do you experience the noise with the HEAT switch turned OFF?

73
Mike

On 9/20/2013 9:17 PM, schneiderandrew wrote:

TS 820s tune receive tune up/alignment issue

Need some help; I am having an S-20 to 30 noise level on receive. I have a friend that will help me with the tune up/alignment of the radio and double checking the receive side to determine if that is the source/cause of my noise.
So to those who have experience in the tune/alignment of this radio, any suggestions, things to look for or areas that could be the issue/cause of the noise?
As a side bar, I have tried different antennas and even different houses 200 miles apart, no difference in the noise level in receive.
I have the owner's manual and the service manual.
My sincere thanks to all.
Andy N7EBG
N7EBG@wmsinc.org

44765. Re: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 14:54:13 UTC
From: John Boardman
Topic: 44755 Message: 44765

"holiday" is English for vacation.

From: Wes Will <wwill@...>
To: TS-520 Yahoo Group List <TS-520_820_530_830@yahoogroups.com>
Sent: Friday, September 20, 2013 3:01 PM
Subject: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

Diodes on the way soon.

Turns out the vendor is on holiday somewhere, should be back in the UK
and ready to process an order in a few more days.

The lucky stiff. What's a "holiday"??

Anyway, so far I have orders for 40 V06B diodes (10 for me, 24 for
Joseph, 6 for Terry - on me, Terry, for the help).

Anyone else for that part, or any of the others on his list? Some
fairly rare items in there. Not much longer until they're gone.

Drop a line to me off the list if there is anything you want to add. It
will save a lot of shipping, a bunch of small parts weigh less than the
envelope they get mailed in. No risks, I'll foot the bill for the
order, and will trust list members to PayPal or mail me the couple bucks
it will actually cost.

99 pence (UK) per ten, for most items. Add in a bit for a portion of
the shipping (the more that order, the less each) and it's around a
quarter each for that quantity/price. Around $2.50 for ten diodes, in
other words. (Exact amount depends on the actual shipping cost and the
number of people to divide it amongst. Two so far.)

I'll eat the currency exchange losses, shouldn't be much.

--
wes will
n9kdy

Yahoo! Groups Links

    http://info.yahoo.com/legal/us/yahoo/utos/terms/

44766. Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 14:40:58 UTC
From: kk6ezq
Topic: 44701 Message: 44766

Group,

Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.

Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.

Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.

Steve
KK6EZQ
'73

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
>
> Group,
>
>
> I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.
>
>
> As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.
>
>
> So, I am seeking guidance in how to align those three components: 1) front panel bandswitch knob, 2) coil pack section of the bandswitch shaft, and 3) the final section of the bandswich shaft.
>
>
>
> I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference designators), nor how they are mechanically aligned with the front panel linkage.
>
>
> Steve

> '73
>

44767. Re: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 17:32:47 UTC
From: Wes Will
Topic: 44755 Message: 44767

On 09/21/2013 09:54 AM, John Boardman wrote:
> "holiday" is English for vacation.

Ummm....Yeah mate. Wotcher.

(I know.)

Has my bloody spelling not given a clue, even a small one?

"Colour" for instance?

Lived and worked with the Brits for quite some time. Took my holidays in Scotland and Wales, when I was stationed in West Berlin. That sort of thing. Almost choked, I was having my first hot cuppa (PG Tipps, with milk, by the way) when I read that.

--
Wes Will
N9KDY

44768. RE: Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 18:15:37 UTC
From: <wagstw46@...>
Topic: 44701 Message: 44768

Steve:

I have never replaced a band switch coupler on a TS-820. My personal one still has the original nylon.

With 3500 members you would think someone could help you with this. I cannot be all things to all people. Trying to do that gets me and them in trouble.

I can tell you what I see on my TS820.

This assumes you did not let any of the 6 wafer switches on the coil pack board rotate if you pulled the long shaft out of all of them.

With rig facing you and looking down from the top here is what is see.
1. Band switch at 29mhz
2. The knob driven band switch shaft has 2 flats and they are facing left and right.
3. Coming up to the short stub shaft from the front panel bushing to the white nylon chain drive gear there is 1 flat that is facing to the left.
3. The long coil pack shaft has 2 flats and they are facing to the left and ride side of the rig.
4. The S22 switch in the PA cage has 2 flats and one is facing straight up (1200) and the other is facing the right side (1500) of the rig.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Group,

Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.

Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.

Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.

Steve
KK6EZQ
'73

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
>
> Group,

>
>
> I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.
>
>
> As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.
>
>
> So, I am seeking guidance in how to align those three components: 1) front panel bandswitch knob, 2) coil pack section of the bandswitch shaft, and 3) the final section of the bandswich shaft.
>
>
>
> I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference designators), nor how they are mechanically aligned with the front panel linkage.
>
>
> Steve
> '73
>

44769. Re: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 18:18:05 UTC
From: John Boardman
Topic: 44755 Message: 44769

Mr. Will:

Had I been aware that you were a pome wanker, I would not have troubled you with what I felt was helpful information. I may be a mere benighted Colonial, but you were the one who asked "what's a holiday?". Please accept my most humble apologies.

From: Wes Will <wwill@...>
To: TS-520_820_530_830@...m
Sent: Saturday, September 21, 2013 12:32 PM
Subject: Re: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

On 09/21/2013 09:54 AM, John Boardman wrote:
> "holiday" is English for vacation.

Ummm....Yeah mate. Wotcher.

(I know.)

Has my bloody spelling not given a clue, even a small one?

"Colour" for instance?

Lived and worked with the Brits for quite some time. Took my holidays in Scotland and Wales, when I was stationed in West Berlin. That sort of thing. Almost choked, I was having my first hot cuppa (PG Tipps, with milk, by the way) when I read that.

--
Wes Will
N9KDY

44770. Re: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-21 20:39:39 UTC
From: Mac Haszard
Topic: 44755 Message: 44770

Wes,

I must have lost the list referred to below. Please resend.

Mac K6OVI

From: Wes Will <wwill@...>
To: TS-520 Yahoo Group List <TS-520_820_530_830@yahoogroups.com>
Sent: Friday, September 20, 2013 4:01 PM
Subject: [TS-520_820_530_830] V06B diodes - finally heard from the vendor.

Diodes on the way soon.

Turns out the vendor is on holiday somewhere, should be back in the UK
and ready to process an order in a few more days.

The lucky stiff. What's a "holiday"??

Anyway, so far I have orders for 40 V06B diodes (10 for me, 24 for
Joseph, 6 for Terry - on me, Terry, for the help).

Anyone else for that part, or any of the others on his list? Some
fairly rare items in there. Not much longer until they're gone.

Drop a line to me off the list if there is anything you want to add. It
will save a lot of shipping, a bunch of small parts weigh less than the
envelope they get mailed in. No risks, I'll foot the bill for the
order, and will trust list members to PayPal or mail me the couple bucks
it will actually cost.

99 pence (UK) per ten, for most items. Add in a bit for a portion of
the shipping (the more that order, the less each) and it's around a
quarter each for that quantity/price. Around $2.50 for ten diodes, in
other words. (Exact amount depends on the actual shipping cost and the
number of people to divide it amongst. Two so far.)

I'll eat the currency exchange losses, shouldn't be much.

--
wes will
n9kdy

Yahoo! Groups Links

    http://info.yahoo.com/legal/us/yahoo/utos/terms/

44771. Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 01:43:11 UTC
From: kk6ezq
Topic: 44701 Message: 44771

Terry,

Thanks for the quick response, and thanks for going to the trouble of checking your 820 for me. When the front panel band select switch on my unit selects 29mHz the flats are not facing left and right like yours, and that part of the mechanical assemblies has not been changed. I tried aligning the other shafts per your results without success.

Unless others chime in with some alignment advice I plan to try tuning to 15MHz (I usually get a healthy WWV signal) and tracing the signal back through the receiver (coil pack, RF unit, IF unit, AF-AVR unit.

This is a hobby for me, so although the results are not too great right now I do enjoy the process. Thanks for the help with my troubleshooting - nice to know you are still giving your time to helping us NEWBIES :)

'73 Terry
Steve KK6EZQ

44772. Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 02:11:12 UTC
From: <n6wk@...>
Topic: 44772 Message: 44772

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44773. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 02:39:51 UTC
From: Joseph Stiles
Topic: 44772 Message: 44773

Gordon,

  Thanks for being an inspiration, mentor, and...other things good. Good luck with your future health and well being.
IF, I had some extra "air bags," I'd give you some... : }

73 Joe
WB7UQU

From: "n6wk@..." <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 21, 2013 7:11 PM
Subject: [TS-520_820_530_830] Group Co-Owner

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44774. Re: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 02:55:55 UTC
From: Joseph Stiles
Topic: 44701 Message: 44774

Steve,

At times, "YAHOO" seems to take forever..if not several days to "post" questions..etc. I myself..have posted a question to this board...and either NOT having it show up...or it showing up 1 to 3 days later. Most everyone here..works a "day job" in various parts of the United States or the "world." I myself did..until recently. I understand the "need" for immediate satisfaction/answer(s) to question(s)...but at times you must hold your breath. Sometimes..it takes time to analyze what you are asking...look at a specific schematic or rig...and give you a possible answer.
If, I may off a suggestion...BEFORE you work on a rig...especially if removing, modifying,...or anything else...take pictures, write notes, make diagrams...or whatever...so it is clear to you and, possibly others how it goes back together.

I can take a look at my 820S...but it may be a day or two, and report about my band switch alignment. I will agree that the 820(S) band switch is a pain in the a@*$ compared to the other hybrids. That's the BEST I can do.

73 Joe
WB7UQU

From: kk6ezq <kk6ezq@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 21, 2013 7:40 AM
Subject: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Group,

Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.

Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.

Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.

Steve
KK6EZQ
'73

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
>
> Group,
>
>
> I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.
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> As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.
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> I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference designators), nor how they are mechanically aligned with the front panel linkage.
>
>
> Steve
> '73
>

44775. Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 03:10:26 UTC
From: Joseph Stiles
Topic: 44735 Message: 44775

OK..possible stupid question time...

  WHY would you want to use 5 watt, wire-wound resistors, to replace the cathode resistors in the 520? Why not use the "factory" value of(I think are) 10ohm & 1 watt 5%? carbon-comp. I have replaced several..but never used "wire-wound," capacitor "triple by-passed"
resistors...just modern metal film..or equivalent and, never had a problem......just curious

73 Joe
WB7UQU

_____
From: clifford wright <c.c.wright@clear.net.nz>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 20, 2013 7:58 PM
Subject: [TS-520_820_530_830] RE: Short in my TS-520S

Re final cathode resistors. Yes they are a known source of trouble.
Since they were combined in parallel and a bit stressed, it
is very common for one to go high and put both of them out. I have
replaced mine with a Wirewound 5 watt resistor. However I triple by
passed it with 3 different capacitor values and it works fine (and it
won't happen again).
Crite40

44776. Re: Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 04:12:10 UTC
From: John Holden
Topic: 44772 Message: 44776

Gordon,

You have been wonderful in your abilities to help out those of us that have major problems with Kenwood gear, those of us with minor problems, and yes, the legions who manage to get the SG switch turned to "OFF".

Thank you for your efforts, and I wish you the best as you step back fro the keyboard and screen. I hope you can take things a bit easier, and stay in touch as you are able.

73
John/N7IQV

44777. RE: RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 04:26:52 UTC
From: <n7iqv@...>
Topic: 44735 Message: 44777

Clifford..

You should give some SERIOUS thought to un-doing your "upgrade" to your cathode resistors. The originals fail, butthey ALSO act like a fuse to prevent more serious damage in the finals section of the KW hybrids. Using wirewound resistors will increase the survivability of the resistors, but may cause other components to overheat or burn out completely in some circumstances. (We used to have similar problems with an old Motorola MPY series base station transmitter from the late 1960s. Frequent failures of the cathode resistors. We tried the
wirewound trick, and discovered why the cheap resistors kept failing. The fix was NOT cheap.)

John/N7IQV

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Re final cathode resistors. Yes they are a known source of trouble.
Since they were combined in parallel and a bit stressed, it
is very common for one to go high and put both of them out. I have
replaced mine with a Wirewound 5 watt resistor. However I triple by
passed it with 3 different capacitor values and it works fine (and it
won't happen again).
Crite40

44778. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 04:34:16 UTC
From: jwarner1
Topic: 44772 Message: 44778
Attachments: 1 described; binary payloads are missing from this source WARC

Gordon I love the group! I know I dont participate much but I read
and having that group as a backup tosome of my vintage gear has
been a real resource! Im still my running my TS830s in fact spent more
than I should have a year ago getting one realigned and checked out.

Please know you have done an *outstanding* job! Whatever you decide
please hang around.

Very sincerely and 73.
Jerry Warner in Iowa City, KG0EI (K0CEF ret)
. .

n6wk@... wrote:

> Guys and Girls, I have been Co-Owner of this group for many years. It
> was handed to myself and Walt from Coors Bill. He knew our Love for
> the hybrids and felt we would make great owners. I think we have done
> an outstanding job. This group is pretty easy, as it has always gotten
> along well except for a few sour apples. LOL. I will be deciding over
> the next few days who to turn my half the ownership to. My declining
> health prevents me from being as active as I once was. I want to Thank
> each and every one of you for contributing and /or being members of
> this great group.
> Best 73,
> Gordon
> N6WK
> Group Co-Owner
>
>
>

44779. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 05:05:58 UTC
From: KD5SFA
Topic: 44772 Message: 44779

Gordon,
I as well was brought into the group via Bill. I do know he would have liked for you to continue. As a member and moderator I'd like for you to continue at that level so that when you do have the chance to participate you can be more than just a member.

73,
Jon
KD5SFA

Sent from my iPad

On Sep 21, 2013, at 9:11 PM, <n6wk@...> wrote:

> Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
> Best 73,
> Gordon
> N6WK
> Group Co-Owner
>
>

44780. Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 04:43:21 UTC
From: kk6ezq
Topic: 44701 Message: 44780

Joe,

Didn't know about the delay. My post was Wednesday, so maybe hoping for some feedback by Friday was too much to ask. Following some other posts, though, it seems as many of the threads include multiple posts on the same day - suggesting the delay is not too long. Probably varies with internet provider, etc.

Thanks for the offer to check your rig but no need now. Thanks to the moral support and some checks to make from Terry, and some investigation and troubleshooting on my own, I am happy to report the rig is now receiving and transmitting :)

Your solution is a good one - take lots of pictures and make drawings before taking something apart. I know better than not to, but somehow just expected I could pull-it-off this time - probably cost me an extra week of down time.

Anyway, just a reminder for those "elmers" that continue to provide guidance and support. Thanks Terry and Joe. Sometimes just knowing you are there gives us the confidence we need - I call it moral support.

Thanks!!!!!!!!

Steve
KK6EZQ

'73

--- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...> wrote:
>
> Steve,
>
> Â At times, "YAHOO" seems to take forever..if not several days to "post" questions..etc. I myself..have posted a question to this
> board...and either NOT having it show up...or it showing up 1 to 3 days later. Most everyone here..works a "day job" in various
> parts of the United States or the "world." I myself did..until recently. I understand the "need" for immediate satisfaction/answer(s)
> to question(s)...but at times you must hold your breath. Sometimes..it takes time to analyze what you are asking...look at a specific
> schematic or rig...and give you a possible answer.
> If, I may off a suggestion...BEFORE you work on a rig...especially if removing, modifying,...or anything else...take pictures,
> write notes, make diagrams...or whatever...so it is clear to you and, possibly others how it goes back together.
>
> Â I can take a look at my 820S...but it may be a day or two, and report about my band switch alignment. I will agree
> that the 820(S) band switch is a pain in the a@*$ compared to the other hybrids. That's

the BEST I can do.
>
>
> Â
> 73Â Joe
> WB7UQU
>
>
>
> _____
> From: kk6ezq <kk6ezq@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Saturday, September 21, 2013 7:40 AM
> Subject: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment
>

>
>
> Â
> Group,
>
> Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.
>
> Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.
>
> Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.
>
> Steve
> KK6EZQ
> '73
>
> --- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@> wrote:
> >
> > Group,
> >
> >
> > I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.
> >
> >
> > As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.
> >

> >
> > So, I am seeking guidance in how to align those three components: 1) front panel bandswitch knob, 2) coil pack section of the bandswitch shaft, and 3) the final section of the bandswich shaft.
> >
> >
> >
> > I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference designators), nor how they are mechanically aligned with the front panel linkage.
> >
> >
> > Steve
> > '73
> >
>

44781. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 10:38:23 UTC
From: Barry Brown
Topic: 44772 Message: 44781

Thanks for doing all you've done to make this a great resource!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

44782. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 11:28:00 UTC
From: ni0i@...
Topic: 44772 Message: 44782

Thanks!
Tom, ni0i

Quoting n6wk@...:

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

Links:
---
[1] mailto:n6wk@...?subject=Re%3A%20Group%20Co-Owner
[2] mailto:TS-520_820_530_830@yahoogroups.com?subject=Re%3A%20Group%20Co-Owner
[3] http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJlNGltazRqBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA250cGMEc3RpbWUDMTM3OTgxNTg3Mw--
[4] http://groups.yahoo.com/group/TS-520_820_530_830/message/44772;_ylc=X3oDMTM2bXM0NGllBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NzcyBHNlYwNmdHIEc2xrA3Z0cGMEc3RpbWUDMTM3OTgxNTg3MwR0cGNJZAM0NDc3Mg--
[5] http://groups.yahoo.com/group/TS-520_820_530_830/members;_ylc=X3oDMTJmdTlvMThuBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3ZtYnJzBHN0aW1lAzEzNzk4MTU4NzM-?o=6
[6] http://groups.yahoo.com/group/TS-520_820_530_830;_ylc=X3oDMTJlcHVxbWFuBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3ZnaHAEc3RpbWUDMTM3OTgxNTg3Mw--
[7] http://groups.yahoo.com/;_ylc=X3oDMTJkZGpsZGg0BF9TAzk3NDc2NTkwBGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA2dmcARzdGltZQMxMzc5ODE1ODcz
[8] mailto:TS-520_820_530_830-traditional@yahoogroups.com?subject=Change Delivery Format: Traditional
[9] mailto:TS-520_820_530_830-digest@yahoogroups.com?subject=Email

Delivery: Digest
[10] mailto:TS-520_820_530_830-unsubscribe@yahoogroups.com?subject=Unsubscribe
[11] http://info.yahoo.com/legal/us/yahoo/utos/terms/
[12] mailto:ygroupsnotifications@yahoogroups.com?subject=Feedback on
the redesigned individual mail v1

44783. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 11:33:25 UTC
From: Terry Wagoner
Topic: 44772 Message: 44783

Gordon

You will be in my thoughts and prayers. I hope I have not been too much of a pain in the butt for you. Just old school and have high expectations for people. You are correct there is no other place like this one if you are passionate about hybrids. Majority of us our greatful for what you have provided and nurtured.

Thanks and Best 73s

Terry

K9TW

From: "n6wk@..." <n6wk@n6wk.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 21, 2013 10:11 PM
Subject: [TS-520_820_530_830] Group Co-Owner

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44784. RE: Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 11:54:40 UTC
From: <wagstw46@...>
Topic: 44701 Message: 44784

Steve:

Is there a bandswitch position where the coil pack board shaft flats are side to side and the PA cage S22 switch shaft flats are at 1200 and 1500 as I described? If not, that has to be corrected.

If you can find a band position where they are properly aligned then most likely you have mis-aligned the two chain drive sprockets. If you can position those two shafts correctly at any particular band, then I would set it there and loosen the chain drive sprocket and switch the band switch to 29mhz and make sure the two shafts dont rotate and then secure the sprocket set screws and see if your problem is resolved.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the quick response, and thanks for going to the trouble of checking your 820 for me. When the front panel band select switch on my unit selects 29mHz the flats are not facing left and right like yours, and that part of the mechanical assemblies has not been changed. I tried aligning the other shafts per your results without success.

Unless others chime in with some alignment advice I plan to try tuning to 15MHz (I usually get a healthy WWV signal) and tracing the signal back through the receiver (coil pack, RF unit, IF unit, AF-AVR unit.

This is a hobby for me, so although the results are not too great right now I do enjoy the process. Thanks for the help with my troubleshooting - nice to know you are still giving your time to helping us NEWBIES :)

'73 Terry
Steve KK6EZQ

44785. RE: Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 11:20:28 UTC
From: <glene77is@...>
Topic: 44772 Message: 44785

Gordon, N6WK, Group Co-Owner

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Thanks for doing all you've done to make this a great resource!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

From: n6wk@... <n6wk@...>;
To: <TS-520_820_530_830@yahoogroups.com>;
Subject: [TS-520_820_530_830] Group Co-Owner
Sent: Sun, Sep 22, 2013 2:11:12 AM

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

These are tough choices to make.
It takes courage to try for what is best for the Group.

My station is a 1977 HW8, a single Long-Wire,
and 1946 Bug from my first station.
Reflects my time in life.
I must temper my participation,
and let the younger guys do their part.

I own a Kenwood TS-830-S, but seldom use it.
Just read your postings, to keep up with things, to stay in touch.

Thanks for the leadership all these years.

Glen, KK4LPg

44786. RE: Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 11:41:03 UTC
From: <paw_paw44036@...>
Topic: 44772 Message: 44786

Good luck to you and your health problems. I know the feeling well. It has been really hard to tell this 68 year old body with a 25 year old mind that I can do that stuff any more. At one time any challenge got answered, now it is a challenge to even think about answering the challenge. I just restored my TS-530S and what should have taken a week took me a whole month. Terry was a great help on this group. It overwhelms me that he can remember all this stuff and explain it so anyone can understand it. There a great bunch of other people on here as well. I am glad I found this group.
Take care of yourself and drop in and let us know how you are doing.
Our prayers are uplifted to and for you.
Bill
WD8OSJ

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44787. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 11:42:13 UTC
From: kenny
Topic: 44772 Message: 44787

Thanks Gordon,
I am really enjoying this very interesting group.
73
Kenny
Isle of Skye
Scotland

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

Links:
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[1] mailto:n6wk@...?subject=Re%3A%20Group%20Co-Owner
[2] mailto:TS-520_820_530_830@yahoogroups.com?subject=Re%3A%20Group%20Co-Owner
[3]
http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJlNGltazRqBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA250cGMEc3RpbWUDMTM3OTgxNTg3Mw--
[4]
http://groups.yahoo.com/group/TS-520_820_530_830/message/44772;_ylc=X3oDMTM2bXM0NGllBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0NzcyBHNlYwNmdHIEc2xrA3Z0cGMEc3RpbWUDMTM3OTgxNTg3MwR0cGNJZAM0NDc3Mg--
[5]
http://groups.yahoo.com/group/TS-520_820_530_830/members;_ylc=X3oDMTJmdTlvMThuBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3ZtYnJzBHN0aW1lAzEzNzk4MTU4NzM-?o=6
[6]
http://groups.yahoo.com/group/TS-520_820_530_830;_ylc=X3oDMTJlcHVxbWFuBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3ZnaHAEc3RpbWUDMTM3OTgxNTg3Mw--
[7]
http://groups.yahoo.com/;_ylc=X3oDMTJkZGpsZGg0BF9TAzk3NDc2NTkwBGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA2dmcARzdGltZQMxMzc5ODE1ODcz
[8]
mailto:TS-520_820_530_830-traditional@yahoogroups.com?subject=Change

Delivery Format: Traditional
[9] mailto:TS-520_820_530_830-digest@yahoogroups.com?subject=Email
Delivery: Digest
[10] mailto:TS-520_820_530_830-unsubscribe@yahoogroups.com?subject=Unsubscribe
[11] http://info.yahoo.com/legal/us/yahoo/utos/terms/
[12] mailto:ygroupsnotifications@yahoogroups.com?subject=Feedback on
the redesigned individual mail v1

44788. RE: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 12:14:49 UTC
From: fpath fpath
Topic: 44772 Message: 44788

Gordon,

You have been a great support and friend and I hope that you still stay on the forum, evn if it is just to say HI. You have done a magnificent job and the person you past your co-ownership onto will have very large shoes to fill. I still hope to have an on air contact with you. I hope things go well for you with your health and know you have many friends that have you in their prays

73s

DAve

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: n6wk@...
Date: Sat, 21 Sep 2013 19:11:12 -0700
Subject: [TS-520_820_530_830] Group Co-Owner

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44789. RE: RE: RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 12:50:16 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44789

Well once again I will waste key strokes.

You never want to open the cathode of your final tubes during an arc over event.

Have you looked at the design of any modern day high power linear amplifiers? Where do they place tube arc over protection? They dont fuse the cathode circuit. They limit the current in the HV anode lead. Typically using a 25 to 50 ohm long path current limiting resistor or an impulse rated glitch resistor. Read Eimac Bulletin 17 or any of Ian Whites G3SEK excellent work on protecting Tetrode tubes.

That is the fix you needed in your 1960s vintage transmitter.

When 6146 arcs over and meter shunts blow open you now have an open cathode and the voltage on it will immediately rise to well over 100vdc (I have measured 125vdc) . After you recover from the pop and try to load again and key the rig and place meter in IP position you will be applying over 100vdc to your panel meter which is designed to measure a maximum of 1.75vdc. You are lucky if the initial event didnt take out your meter and if your eye was quick enough or ear sensitive enough you would have noticed the hit against the peg that occured. Why do it again intentionally?

Why would you subject your meter to this? Would you put your VOM on 2vdc range and try to measure 125vdc? Hybrid meters are scarce.

I have installed a glitch resistor in my 900vdc HV lead using a modern Ohmite Type OY unit that is designed to limit current without shattering. You dont want the glitch resistor to be sacrificial as you dont want to remove anode voltage with screen grid voltage still applied.

I have also placed 3 silicon power rectifiers in series across the 5 ohm meter shunts. I never want my 5 ohm meter shunts to open during a fault. The diode string ensures that the maximum IR drop that my meter will be exposed to is approx 2vdc. It will better survive that than 125vdc.

Kenwood realized the error of their ways when they introduced the TS530 and TS830 rigs. They added a 4.7k ohm or a 5.6k ohm resistor in parallel with the 5 ohm meter shunts. This resistor ensures that in the event that the meter shunts would open the cathode would no longer be allowed to go open circuited and there would no longer be any cathode potential rise toward SG voltage that could damage the panel meter.

The fix is to prevent the cathode from open circuiting and to install some meter protection. Fault current limiting in the HV lead close to the HV filter caps is where you want it for tube arc over events.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Clifford..

You should give some SERIOUS thought to un-doing your "upgrade" to your cathode resistors. The originals fail, butthey ALSO act like a fuse to prevent more serious damage in the finals section of the KW hybrids. Using wirewound resistors will increase the survivability of the resistors, but may cause other components to overheat or burn out completely in some circumstances. (We used to have similar problems with an old Motorola MPY series base station transmitter from the late 1960s. Frequent failures of the cathode resistors. We tried the
wirewound trick, and discovered why the cheap resistors kept failing. The fix was NOT cheap.)

John/N7IQV

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Re final cathode resistors. Yes they are a known source of trouble.
Since they were combined in parallel and a bit stressed, it
is very common for one to go high and put both of them out. I have
replaced mine with a Wirewound 5 watt resistor. However I triple by
passed it with 3 different capacitor values and it works fine (and it
won't happen again).
Crite40

44790. RE: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 13:04:32 UTC
From: Jan
Topic: 44772 Message: 44790

Gordon,

You have been a great support and friend . Thanks for all help. Specially with my TS-950SDX.

Best 73 from Norway

Jan – LA2XSA

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of n6wk@...
Sent: Sunday, September 22, 2013 4:11 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Group Co-Owner

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44791. RE: RE: RE: RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 15:03:49 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44791

If I told someone to place a fuse in the 6146 HV anode lead I am sorry. That is very bad advice. I have not done that in my or anyone elses KW Hybrid radio.

You never want to apply SG before Plate voltage and never want to interrupt Plate voltage when Screen Grid voltage is applied. The only exception to this is if the tube has cut-off bias applied.

If you have a fixed screen grid voltage supply like we have in our KW hybrids and you interrupt the Plate voltage heavy screen grid current will flow and the screen grid dissipation will be quickly exceeded and the 6146 final will almost always be damaged.

I do not remember recommending fusing the anode lead. However, if I recommended fusing the HV anode lead that was a mistake. I did not mean to say that. I meant to say to use a non-sacrificial glitch resistor close to the HV filter caps. This is one of the mods I have made to my personal rigs. I used approx 10 ohms which is on the low end of the value you want to use.

Lastly do not remove the anode caps and run your rig or remove just one anode cap and test run the rig. Should be OK in Rx mode with -100vdc cutoff bias applied, but may damage the tubes if you key the rig.

Terry K9TW .

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Well once again I will waste key strokes.

You never want to open the cathode of your final tubes during an arc over event.

Have you looked at the design of any modern day high power linear amplifiers? Where do they place tube arc over protection? They dont fuse the cathode circuit. They limit the current in the HV anode lead. Typically using a 25 to 50 ohm long path current limiting resistor or an impulse rated glitch resistor. Read Eimac Bulletin 17 or any of Ian Whites G3SEK excellent work on protecting Tetrode tubes.

That is the fix you needed in your 1960s vintage transmitter.

When 6146 arcs over and meter shunts blow open you now have an open cathode and the voltage on it will immediately rise to well over 100vdc (I have measured 125vdc) . After you recover from the pop and try to load again and key the rig and place meter in IP position you will be applying over 100vdc to your panel meter which is designed to measure a maximum of 1.75vdc. You are lucky if the initial event didnt take out your meter and if your eye was quick enough or ear sensitive enough you would have noticed the hit against the peg that occured. Why do it again intentionally?

Why would you subject your meter to this? Would you put your VOM on 2vdc range and try to measure 125vdc? Hybrid meters are scarce.

I have installed a glitch resistor in my 900vdc HV lead using a modern Ohmite Type OY unit that is designed to limit current without shattering. You dont want the glitch resistor to be sacrificial as you dont want to remove anode voltage with screen grid voltage still applied.

I have also placed 3 silicon power rectifiers in series across the 5 ohm meter shunts. I never want my 5 ohm meter shunts to open during a fault. The diode string ensures that the maximum IR drop that my meter will be exposed to is approx 2vdc. It will better survive that than 125vdc.

Kenwood realized the error of their ways when they introduced the TS530 and TS830 rigs. They added a 4.7k ohm or a 5.6k ohm resistor in parallel with the 5 ohm meter shunts. This resistor ensures that in the event that the meter shunts would open the cathode would no longer be allowed to go open circuited and there would no longer be any cathode potential rise toward SG voltage that could damage the panel meter.

The fix is to prevent the cathode from open circuiting and to install some meter protection. Fault current limiting in the HV lead close to the HV filter caps is where you want it for tube arc over events.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Clifford..

You should give some SERIOUS thought to un-doing your "upgrade" to your cathode resistors. The originals fail, butthey ALSO act like a fuse to prevent more serious damage in the finals section of the KW hybrids. Using wirewound resistors will increase the survivability of the resistors, but may cause other components to overheat or burn out completely in some circumstances. (We used to have similar problems with an old Motorola MPY series base station transmitter from the late 1960s. Frequent failures of the cathode resistors. We tried the
wirewound trick, and discovered why the cheap resistors kept failing. The fix was NOT cheap.)

John/N7IQV

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Re final cathode resistors. Yes they are a known source of trouble.
Since they were combined in parallel and a bit stressed, it
is very common for one to go high and put both of them out. I have
replaced mine with a Wirewound 5 watt resistor. However I triple by
passed it with 3 different capacitor values and it works fine (and it
won't happen again).
Crite40

44792. Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 15:31:03 UTC
From: wallydoc
Topic: 44701 Message: 44792

Sreve'
I had the same problem. Do not remember how exactly I solved it but I think I did this:
The back switch has the detente. Set it to one end or the other.
Check the front switches for continuity to the appropriate coils on the RF board. Line them up.
I do not think you can hurt the receiver if you misalign the coil switches, It just won't work well.
The back switch should be connected to all of the coil on the lowest freq setting. I think you can eyeball that part.

Wally
KC9INK

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
>
> Group,
>
>
> Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.
>
>
> Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.
>
>
> Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.
>
>
> Steve
> KK6EZQ
> '73
>
>
> --- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@> wrote:
> >
> > Group,
> >
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> > I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board

section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.
> >
> >
> > As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.
> >
> >
> > So, I am seeking guidance in how to align those three components: 1) front panel bandswitch knob, 2) coil pack section of the bandswitch shaft, and 3) the final section of the bandswich shaft.
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> >
> >
> > I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference designators), nor how they are mechanically aligned with the front panel linkage.
> >
> >
> > Steve
> > '73
> >
>

44793. Re: [TS-520_820_530_830] RE: RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 15:41:46 UTC
From: Don
Topic: 44735 Message: 44793

http://vintageamps.com/plexiboard/viewtopic.php?f=1&t=105441&start=
<http://vintageamps.com/plexiboard/viewtopic.php?f=1&t=105441&start=30>30
<http://vintageamps.com/plexiboard/viewtopic.php?f=1&t=105441&start=30>

On 22/09/2013 12:26 AM, n7iqv@... wrote:
>
> Clifford..
>
>
> You should give some SERIOUS thought to un-doing your "upgrade" to
> your cathode resistors. The originals fail, butthey ALSO act like a
> fuse to prevent more serious damage in the finals section of the KW
> hybrids. Using wirewound resistors will increase the survivability of
> the resistors, but may cause other components to overheat or burn out
> completely in some circumstances. (We used to have similar problems
> with an old Motorola MPY series base station transmitter from the late
> 1960s. Frequent failures of the cathode resistors. We tried the
>
> wirewound trick, and discovered why the cheap resistors kept failing.
> The fix was NOT cheap.)
>
>
> John/N7IQV
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Re final cathode resistors. Yes they are a known source of trouble.
> Since they were combined in parallel and a bit stressed, it
> is very common for one to go high and put both of them out. I have
> replaced mine with a Wirewound 5 watt resistor. However I triple by
> passed it with 3 different capacitor values and it works fine (and it
> won't happen again).
> Crite40
>

44794. Re: Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 15:42:18 UTC
From: wallydoc
Topic: 44708 Message: 44794

Kenny:
I have used all sorts of 6146s and the original 2001 tubes.
Just use the same tubes. Don't mix Bs with As etc. All these tubes have worked for me.
Matching not necessary.
Wally
KC9INK

--- In TS-520_820_530_830@yahoogroups.com, "kenny" <kenny.macdougall@...> wrote:
>
> Hi ,
> Can any of you nice people tell me if 6146w valves will be ok for my TS530S.
> 73
> Kenny
> Scotland
>
>
>
>
> ----- Original Message -----
> From: Joseph Stiles
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Thursday, September 19, 2013 8:29 PM
> Subject: Re: [TS-520_820_530_830] Final tube question.
>
>
>
>
>
>
>
>
> Steve,
>
>
> I think this question was asked a few days ago..or maybe longer...can't remember.
>
>
> I my humble opinion..you are NOT going to see any real operational difference...same goes for "matched pairs" of 6146's....not necessary
> Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."
>
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>
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>
> 73 Joe
> WB7UQU
>
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>
> ---
> From: "stevetroyer56@..." <stevetroyer56@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, September 18, 2013 5:39 PM
> Subject: [TS-520_820_530_830] Final tube question.
>
>
>
>
>
>
>
> I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?
>

44795. Re: [TS-520_820_530_830] Re: Final tube question.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 15:45:50 UTC
From: kenny
Topic: 44708 Message: 44795

Thanks Wally.
73s
Kenny
Skye
----- Original Message -----
From: wallydoc
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 4:42 PM
Subject: [TS-520_820_530_830] Re: Final tube question.

Kenny:
I have used all sorts of 6146s and the original 2001 tubes.
Just use the same tubes. Don't mix Bs with As etc. All these tubes have worked for me.
Matching not necessary.
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--- In TS-520_820_530_830@yahoogroups.com, "kenny" <kenny.macdougall@...> wrote:
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> Kenny
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> To: TS-520_820_530_830@...m
> Sent: Thursday, September 19, 2013 8:29 PM
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> Steve,
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> I think this question was asked a few days ago..or maybe longer...can't remember.
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> Just make sure that since you replaced the finals that you "neutralize" them. Directions are in the "operators" & "service manuals."
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> I recently replaced my finals in my Kenwood TS820 with a set of NOS 6146B's. They have the black plates. Is there an advantage to the black plates or should I have used the grey plate version?
>

44796. Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 17:31:43 UTC
From: kk6ezq
Topic: 44701 Message: 44796

Wally,

Thanks for the input. I have resolved the problem, as you have probably read by now. The delays in the posts here (Yahoo?) are hard to understand.

In case you or others have this problem I will post my solution method:

Problem: The bandswitch shaft segment in the finals cage has stops at each end of travel, so finding the first position is easy. The bandswitch shaft segment that connects the wafers on the coil pack board rotates 360 degrees without stops. To find the position for each band I used and oscilliscope and a signal generator (my antenna analyzer). The coil pack board is all passive components, so I did not need power on the unit for this test. I connected the signal generator to the antenna connector on the 820S, and monitored the RG output pin on the coil pack board. I chose a starting spot on the shaft and began trying to discover what frequency each setting was tuned to. For example, at the first position on the shaft I swept the frequency generator from low to high (1 to 30 MHz) while monitoring the output on the scope - where the output was max was the resonant frequency of the RC networks. I then rotated the shaft CW to the next position and took another reading. Once I identified the following sequence I knew where the starting position was: 13.8 MHz, 1.6 MHz and 3.09 MHz. I took more reading but that was the info I needed.

Also, I made a drawing, took notes, marked the shaft, and took lots of pictures :) Amazing how smart I got after hitting my head against the wall for a week !!!!

Thanks again for the support. Maybe this proceedure, along with your good advice, will help someone else down the road.

'73
Steve
KK6EZQ

--- In TS-520_820_530_830@yahoogroups.com, "wallydoc" <wallydoc@...> wrote:
>
> Sreve'
> I had the same problem. Do not remember how exactly I solved it but I think I did this:
> The back switch has the detente. Set it to one end or the other.
> Check the front switches for continuity to the appropriate coils on the RF board. Line them up.
> I do not think you can hurt the receiver if you misalign the coil switches, It just won't work well.
> The back switch should be connected to all of the coil on the lowest freq setting. I think you can eyeball that part.
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> KC9INK
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> --- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@> wrote:
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> > Group,
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> > Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.
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> > Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.
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> > Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.
> >
> >
> > Steve
> > KK6EZQ
> > '73
> >
> >
> > --- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@> wrote:
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> > > Group,
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> > > I need help aligning three components on my TS 820S. The plastic bandswitch coupler was broken, so I purchase a metal one from K4EAA. After breaking I think the coil pack board section of the bandswitch shaft and the final unit shaft became misalligned. Also, during disassembly I think the front panel bandswitch knob became misaligned.
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> > > As many in this group know on the 820S the front panel bandswitch knob is connected to the coil pack shaft via a 'chain' type linkage.
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> > > So, I am seeking guidance in how to align those three components: 1) front panel bandswitch knob, 2) coil pack section of the bandswitch shaft, and 3) the final section of the bandswich shaft.
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> > > I have, without success so far, tried to navigate through the Kenwood schematics. The schematic does show 4 wafer swiches in the final unit - SW1-SW4 - but does not indicate how they align with 6 wafer switches on the coil pack board (the switches have no reference

designators), nor how they are mechanically aligned with the front panel linkage.
> > >
> > >
> > > Steve
> > > '73
> > >
> >
>

44797. Re: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 18:23:51 UTC
From: John Davidson
Topic: 44701 Message: 44797

To get "instant " answers, get on the telefone ! this is MAIL. like sending written letters by post office only a bit quicker.

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, September 21, 2013 10:55 PM
Subject: Re: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Steve,

At times, "YAHOO" seems to take forever..if not several days to "post" questions..etc. I myself..have posted a question to this board...and either NOT having it show up...or it showing up 1 to 3 days later. Most everyone here..works a "day job" in various parts of the United States or the "world." I myself did..until recently. I understand the "need" for immediate satisfaction/answer(s) to question(s)...but at times you must hold your breath. Sometimes..it takes time to analyze what you are asking...look at a specific schematic or rig...and give you a possible answer.
If, I may off a suggestion...BEFORE you work on a rig...especially if removing, modifying,...or anything else...take pictures, write notes, make diagrams...or whatever...so it is clear to you and, possibly others how it goes back together.

I can take a look at my 820S...but it may be a day or two, and report about my band switch alignment. I will agree that the 820(S) band switch is a pain in the a@*$ compared to the other hybrids. That's the BEST I can do.

73 Joe
WB7UQU

From: kk6ezq <kk6ezq@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 21, 2013 7:40 AM
Subject: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Group,

Me again. The original post here got no responses and I am baffled as t why. I am a new ham, and had a tremendous amount of support for an earlier question about how output power was calculated. Terry and Will were especially supportive.

Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.

Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.

Steve
KK6EZQ
'73

--- In TS-520_820_530_830@yahoogroups.com, "kk6ezq" <kk6ezq@...> wrote:
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> Group,
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>
>
> Steve
> '73
>

44798. Re: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 18:26:44 UTC
From: Joseph Stiles
Topic: 44701 Message: 44798

Steve,

  Darn...took the covers off the ol' 820S to document the bandswitch alignment for you...then read your post...OH WELL...
the fan needed a lube job anyway....hihi

  Glad u got it squared away

73 Joe
WB7UQU

From: kk6ezq <kk6ezq@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 21, 2013 9:43 PM
Subject: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment

Joe,

Didn't know about the delay. My post was Wednesday, so maybe hoping for some feedback by Friday was too much to ask. Following some other posts, though, it seems as many of the threads include multiple posts on the same day - suggesting the delay is not too long. Probably varies with internet provider, etc.

Thanks for the offer to check your rig but no need now. Thanks to the moral support and some checks to make from Terry, and some investigation and troubleshooting on my own, I am happy to report the rig is now receiving and transmitting :)

Your solution is a good one - take lots of pictures and make drawings before taking something apart. I know better than not to, but somehow just expected I could pull-it-off this time - probably cost me an extra week of down time.

Anyway, just a reminder for those "elmers" that continue to provide guidance and support. Thanks Terry and Joe. Sometimes just knowing you are there gives us the confidence we need - I call it moral support.

Thanks!!!!!!!!

Steve
KK6EZQ

'73

--- In TS-520_820_530_830@yahoogroups.com, Joseph Stiles <stilesjoseph@...> wrote:
>
> Steve,
>
> Â At times, "YAHOO" seems to take forever..if not several days to "post" questions..etc.

I myself..have posted a question to this
> board...and either NOT having it show up...or it showing up 1 to 3 days later. Most everyone here..works a "day job" in various
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> Â I can take a look at my 820S...but it may be a day or two, and report about my band switch alignment. I will agree
> that the 820(S) band switch is a pain in the a@*$ compared to the other hybrids. That's the BEST I can do.
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> 73Â Joe
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> _____
> From: kk6ezq <kk6ezq@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Saturday, September 21, 2013 7:40 AM
> Subject: [TS-520_820_530_830] Re: Ts-820S Band Switch Shaft Alignment
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> Not sure how the wording of the problem was interpreted - maybe it just sounds to demanding or something (maybe a few days is too short a time to look for a response). Anyway, I have many years of technician experience and was simply trying to be specific.
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> Please let me know if this is a problem you have seen. Can I be sure the schematic shows the position of the wafer switches as aligned when the JJY selection is made on the front panel bandswitch? The affected wafer switches are on the coil pack unit and the final unit.
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> KK6EZQ

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> > '73
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44799. Re: [TS-520_820_530_830] Group Co-Owner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 18:30:18 UTC
From: John Davidson
Topic: 44772 Message: 44799

Gordon, thanks for the various services you have rendered the ham community under several hats. , SKCC, Kenwood HYbrid advice and others. Sit back and relax now.
I also admire the other advisors and mentors who seem to have the wisdom of Soloman and the patience of Job with the few who don't always get the Ideas you are trying to convey to the many readers here.
Hats off from the many to the few good guys !
73...JD

From: "n6wk@..." <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 21, 2013 10:11 PM
Subject: [TS-520_820_530_830] Group Co-Owner

Guys and Girls, I have been Co-Owner of this group for many years. It was handed to myself and Walt from Coors Bill. He knew our Love for the hybrids and felt we would make great owners. I think we have done an outstanding job. This group is pretty easy, as it has always gotten along well except for a few sour apples. LOL. I will be deciding over the next few days who to turn my half the ownership to. My declining health prevents me from being as active as I once was. I want to Thank each and every one of you for contributing and /or being members of this great group.
Best 73,
Gordon
N6WK
Group Co-Owner

44800. RE: Re: [TS-520_820_530_830] RE: RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 19:10:06 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44800

I am missing your point? Why are you referencing this thread? We are discussing cathode meter shunts.

Totally different resistors and nothing to do with our hybrids and the cathode meter shunts acting as fuses.

Not to mention these poor chaps on this thread are clueless as to what they are for. Very sad that you would reference this thread to support the cathode fuse position if that is your intention?

Yes a "grid stopper" can limit SG current but not so much for SG protection but for limiting distortion when the tube is driven into positive grid current in audio amplifier service.

We do have 100 ohm grid stoppers in our hybrids in series with the 6146 screen grids and they have absolutely nothing to do with fusing or protecting the 6146 tube screen grids or the screen supply.

I am not going into a long winded discussion on the purpose of grid stopper resistors. You can Google on that and read why we have these 100 ohm resistors which probably appeared in the 50s transmitter designs and have been copied ever since. I will give you a hint .....parasitic oscillations.

Another hint is never put a fuse or a blocking diode in series with your screen grid. Good protection will protect both the supply and the tube. Modern protection would use a VDR at minimum.

Again I am confused why you would want anyone to read a thread about grid stopper resistors with responses from people who are clueless?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

http://vintageamps.com/plexiboard/viewtopic.php?f=1&t=105441&start=
(http://vintageamps.com/plexiboard/viewtopic.php?f=1&t=105441&start=30)30
(http://vintageamps.com/plexiboard/viewtopic.php?f=1&t=105441&start=30)

On 22/09/2013 12:26 AM, n7iqv@... wrote:

Clifford..

You should give some SERIOUS thought to un-doing your "upgrade" to your cathode resistors. The originals fail, butthey ALSO act like a fuse to prevent more serious damage in the finals section of the KW hybrids. Using wirewound resistors will increase the survivability of the resistors, but may cause other components to overheat or burn out completely in some circumstances. (We used to have similar problems with an old Motorola MPY series base station transmitter from the late 1960s. Frequent failures of the cathode resistors. We

tried the

wirewound trick, and discovered why the cheap resistors kept failing. The fix was NOT cheap.)

John/N7IQV

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Re final cathode resistors. Yes they are a known source of trouble.
Since they were combined in parallel and a bit stressed, it
is very common for one to go high and put both of them out. I have
replaced mine with a Wirewound 5 watt resistor. However I triple by
passed it with 3 different capacitor values and it works fine (and it
won't happen again).
Crite40

44801. Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 19:17:23 UTC
From: Mark Gilger
Topic: 44679 Message: 44801

Terry,
You helped Jan out on his 820 compressor
alignment a while back and would like to report
that he checked into the Saturday net and turned
it on. It sounded great. So your procedure works
a-ok. In his case he listened on another
receiver and just tweaked it in until it sounded good.

Thanks,
Mark, WB0IQK

At 09:24 AM 9/18/2013, wagstw46@... wrote:
>
>
>Lars:
>
>
>The compressor is one of the better ones if
>aligned properly. It is kind of unusual
>circuit. It is not a clipper in the IF chain
>like the TS830. It uses a Balanced Mod to to
>convert your mic audio into a 455khz DSBSC
>signal and processes it and then a Product
>Detector to convert it back to audio for input to your SSB Balanced Modulator.
>
>
>One of the biggest problems is people tweak on
>it without test gear and number one thing I find
>is they have tried to follow the procedure in
>the Service Manual and it is flawed. As I said
>this thing works by taking audio and applying it
>to its own Balanced Modulator that uses 455 khz
>as the LO. The manual has you set the LO for
>451khz. This is outside the 455khz ceramic IF
>filters frequency response curve. Have to get
>the signal into the pass band of the ceramic
>filter chain that follows. It is possible to
>have a bad filter, but I have never seen one.
>
>
>If you have a Frequency Counter you could just
>try setting TC-4 on IF board for 455kz at TP-3
>and see what effect that has. You really cant
>hurt anything by making this simple adjustment.
>I suppose with no counter you could listen to

>yourself on the Moni with headphones and make
>small step changes on TC-4 to see if any improvement.
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>To really align it you need in addition to a
>freq counter a good stable AF generator and a
>means of accurately measuring low level AF
>signals. AC millivolt meter is easiest, but O-scope also will work.
>
>
>Terry K9TW
>
>
>--- In TS-520_820_530_830@...m,
><ts-520_820_530_830@yahoogroups.com> wrote:
>
>Hi all
>
>Have a question
>
>I've got a TS-820 that sounds
>

44802. Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 19:19:12 UTC
From: Mark Gilger
Topic: 44679 Message: 44802

Excuse me, it was Lars that you helped, not Jan.
Old age creeping into the picture here.
Mark

At 03:17 PM 9/22/2013, Mark Gilger wrote:
>
>
>Terry,
>You helped Jan out on his 820 compressor
>alignment a while back and would like to report
>that he checked into the Saturday net and turned
>it on. It sounded great. So your procedure
>works a-ok. In his case he listened on another
>receiver and just tweaked it in until it sounded good.
>
>Thanks,
>Mark, WB0IQK
>
>At 09:24 AM 9/18/2013, wagstw46@... wrote:
>>
>>
>>Lars:
>>
>>
>>The compressor is one of the better ones if
>>aligned properly. It is kind of unusual
>>circuit. It is not a clipper in the IF chain
>>like the TS830. It uses a Balanced Mod to to
>>convert your mic audio into a 455khz DSBSC
>>signal and processes it and then a Product
>>Detector to convert it back to audio for input to your SSB Balanced Modulator.
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>>One of the biggest problems is people tweak on
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>>in the Service Manual and it is flawed. As I
>>said this thing works by taking audio and
>>applying it to its own Balanced Modulator that
>>uses 455 khz as the LO. The manual has you set
>>the LO for 451khz. This is outside the 455khz
>>ceramic IF filters frequency response
>>curve. Have to get the signal into the pass
>>band of the ceramic filter chain that follows.
>>It is possible to have a bad filter, but I have never seen one.

>>
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>>If you have a Frequency Counter you could just
>>try setting TC-4 on IF board for 455kz at TP-3
>>and see what effect that has. You really cant
>>hurt anything by making this simple adjustment.
>>I suppose with no counter you could listen to
>>yourself on the Moni with headphones and make
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>>To really align it you need in addition to a
>>freq counter a good stable AF generator and a
>>means of accurately measuring low level AF
>>signals. AC millivolt meter is easiest, but O-scope also will work.
>>
>>
>>Terry K9TW
>>
>>
>>--- In TS-520_820_530_830@yahoogroups.com,
>><ts-520_820_530_830@yahoogroups.com> wrote:
>>
>>Hi all
>>
>>Have a question
>>
>>I've got a TS-820 that sounds
>
>

44803. Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 19:20:09 UTC
From: Chris Maness
Topic: 44803 Message: 44803

In SSB and CW for the lower bands the background HF noise covers over a background white noise on my radio. However, on the higher bands where the band is quieter, I here white noise that is much broader than the 500Hz CW filter skirt. It is not from the AF stage because it decreases with the AF volume. Is this normal for this radio? Can anyone else verify this with a CW filter in the high bands?

There is a mod bulletin/article floating around the net that suggests a hash noise may be due to a bad transistor. However, if everyone else hears the same noise, I am not going to worry about it. Moreover if there is a mod for this problem, I would definitely be interested in the details. The noise is tolerable, but I would much prefer it be lower.

Here is the article in question:

http://www.radiomods.co.nz/kenwood/kenwoodts520.html

Thanks for the help guys. From this group I have received enough help to resurrect a nearly basket case TS-520S. I had fixed other problems back in 2009. Now I have a nearly perfectly working radio.

Thanks,
Chris Maness KQ6UP

44804. TS-820 service and alignment instrument...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 20:25:00 UTC
From: Rick
Topic: 44804 Message: 44804

I may have over looked it, but I can't recall anyone mentioning the use of a HP-410B VTVM for the RF and AF measurements on the Kenwood hybrid radios. Any pros/cons?

Thanks,

Rick/K5IAR

44805. RE: Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 20:48:12 UTC
From: <wagstw46@...>
Topic: 44679 Message: 44805

Thanks Mark:

In my experience it is pretty common to find the 455Khz LO mis-adjusted due to the wrong direction in the service manual. Need to get the audio in the passband of those ceramic filters.

If Lars can get access to a audio gen would be good to do the complete alignment so he can have accurate compression indications at given mic gain setting.

Take Care
Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,
You helped Jan out on his 820 compressor alignment a while back and would like to report that he checked into the Saturday net and turned it on. It sounded great. So your procedure works a-ok. In his case he listened on another receiver and just tweaked it in until it sounded good.

Thanks,
Mark, WB0IQK

At 09:24 AM 9/18/2013, wagstw46@... wrote:

Lars:

The compressor is one of the better ones if aligned properly. It is kind of unusual circuit. It is not a clipper in the IF chain like the TS830. It uses a Balanced Mod to to convert your mic audio into a 455khz DSBSC signal and processes it and then a Product Detector to convert it back to audio for input to your SSB Balanced Modulator.

One of the biggest problems is people tweak on it without test gear and number one thing I find is they have tried to follow the procedure in the Service Manual and it is flawed. As I said this thing works by taking audio and applying it to its own Balanced Modulator that uses 455 khz as the LO. The manual has you set the LO for 451khz. This is outside the 455khz ceramic IF filters frequency response curve. Have to get the signal into the pass band of the ceramic filter chain that follows. It is possible to have a bad filter, but I have never seen one.

If you have a Frequency Counter you could just try setting TC-4 on IF board for 455kz at TP-3 and see what effect that has. You really cant hurt anything by making this simple adjustment. I suppose with no counter you could listen to yourself on the Moni with headphones and make small step changes on TC-4 to see if any improvement.

To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all

Have a question

I've got a TS-820 that sounds

44806. RE: TS-820 service and alignment instrument...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 21:02:42 UTC
From: <wagstw46@...>
Topic: 44804 Message: 44806

Perfect meter for Hybrid work.

It has over 100meg input Z so can get on any tube grid and it is especially useful for AGC and ALC bus work. A Heath IM-18 or similar will pull AGC down on a TS-830 from approx 3.6vdc to around 3.0vdc and drive the S-meter up scale (you are reducing the gain of the RF and IF amps with your VTVM) and the HP-410C measures right at 3.6vdc. Bus doesnt know the 410C is connected. I use it to measure AGC threshold on all the hybrids that cross my bench before and after alignment.

Only problem with the 410B and 410C is they can be drifty and have problems with zero setting due to problems with the photo chopper and bad cal trim pots. Some of the 410C models have FET based solid state boards and no chopper, but I dont think same input Z. I do not think they put the solid state boards in the 410B model?

You can find the AC probe that goes with them but go pretty high on Ebay. They wont read very low levels of RF voltage but will read high levels. I have a couple of the original AC probes (use a special diode tube in them that gets it filament voltage thru the probe triax cable), but I only use them along with the HP453A 100:1 divider probe to measure things like the RF voltage on the plate of the 6146 finals or across the Tank circuit (around 525rms rf volts at 100 watts).

I use Boonton 92E or O-scope for most RF measurements.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I may have over looked it, but I can’t recall anyone mentioning the use of a HP-410B VTVM for the RF and AF measurements on the Kenwood hybrid radios. Any pros/cons?

Thanks,

Rick/K5IAR

44807. RE: Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 21:05:07 UTC
From: <wagstw46@...>
Topic: 44679 Message: 44807

No you are just thinking of another good guy and that is Jan N8CBX who runs the TS-820S and is building high power grid driven tetrode amp and when he gets it on air you will have to disconnect your antenna!

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Excuse me, it was Lars that you helped, not Jan. Old age creeping into the picture here.
Mark

At 03:17 PM 9/22/2013, Mark Gilger wrote:

Terry,
You helped Jan out on his 820 compressor alignment a while back and would like to report that he checked into the Saturday net and turned it on. It sounded great. So your procedure works a-ok. In his case he listened on another receiver and just tweaked it in until it sounded good.

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Mark, WB0IQK

At 09:24 AM 9/18/2013, wagstw46@... wrote:

Lars:

The compressor is one of the better ones if aligned properly. It is kind of unusual circuit. It is not a clipper in the IF chain like the TS830. It uses a Balanced Mod to to convert your mic audio into a 455khz DSBSC signal and processes it and then a Product Detector to convert it back to audio for input to your SSB Balanced Modulator.

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To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all

Have a question

I've got a TS-820 that sounds

44808. RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 21:20:54 UTC
From: <wagstw46@...>
Topic: 44803 Message: 44808

Chris;

If you are referring to the so called "Service Bulletin" Number 21 I would not give you 10 cents for about 95% of what it contains. Be very careful to analyze any of what it directs you to do before performing it. If not sure come here and ask.

Q3 on the TS520 is the Transmit Mixer. If it is causing noise in receive mode then it must not be biased off and easy to tell as Q3 is in a socket so just pull it to see if noise goes away.

The RF board on the TS520S is different than the TS520 and the TX Mixer for the 520S is Q1.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

In SSB and CW for the lower bands the background HF noise covers over a background white noise on my radio. However, on the higher bands where the band is quieter, I here white noise that is much broader than the 500Hz CW filter skirt. It is not from the AF stage because it decreases with the AF volume. Is this normal for this radio? Can anyone else verify this with a CW filter in the high bands?

There is a mod bulletin/article floating around the net that suggests a hash noise may be due to a bad transistor. However, if everyone else hears the same noise, I am not going to worry about it. Moreover if there is a mod for this problem, I would definitely be interested in the details. The noise is tolerable, but I would much prefer it be lower.

Here is the article in question:

http://www.radiomods.co.nz/kenwood/kenwoodts520.html

Thanks for the help guys. From this group I have received enough help to resurrect a nearly basket case TS-520S. I had fixed other problems back in 2009. Now I have a nearly perfectly working radio.

Thanks,
Chris Maness KQ6UP

44809. Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 21:18:13 UTC
From: clifford wright
Topic: 44735 Message: 44809

I actually used a 4.7 Ohm 5 watt wirewound to replace the 2 10 Ohm Carbons as I have had bad experiences with carbon resistors in similar places before. BTW metal film resistors are slightly inductive too as they frequently have an etched spiral track in the film to set the resistance value. Also I like the inherent reliability of under run wire wound resistors. As long as it is HIGHLY bypassed at all likely frequencies there should be no problem at all.
Hence the triple bypass capacitors of different values so there is NO possibility of self resonance.
Crite40

44810. RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 21:50:00 UTC
From: <wagstw46@...>
Topic: 44803 Message: 44810

Some people call broad band noise as "hash" noise. I am not really sure what hash noise is or if I ever heard it. I suppose it would blanket the spectrum?

If it is an external RFI source might look at computer and peripherals especially if any of them have a switcher supply in them.

Maybe generated by one of the new CFl lamps if you are using them.

When you remove antenna or put rig on dummy load does the S-meter drop to zero and if you run RF to max and turn of the AF gain do you hear a nice smooth hiss? That would be normal noise produced internally by the receiver.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

In SSB and CW for the lower bands the background HF noise covers over a background white noise on my radio. However, on the higher bands where the band is quieter, I here white noise that is much broader than the 500Hz CW filter skirt. It is not from the AF stage because it decreases with the AF volume. Is this normal for this radio? Can anyone else verify this with a CW filter in the high bands?

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Here is the article in question:

http://www.radiomods.co.nz/kenwood/kenwoodts520.html

Thanks for the help guys. From this group I have received enough help to resurrect a nearly basket case TS-520S. I had fixed other problems back in 2009. Now I have a nearly perfectly working radio.

Thanks,
Chris Maness KQ6UP

44811. RE: Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 22:10:37 UTC
From: Mark Gilger
Topic: 44679 Message: 44811

Terry,
Have you been listing to the Saturday net on the sly without checking in?
Mark

At 05:05 PM 9/22/2013, wagstw46@... wrote:
>
>
>No you are just thinking of another good guy and
>that is Jan N8CBX who runs the TS-820S and is
>building high power grid driven tetrode amp and
>when he gets it on air you will have to disconnect your antenna!
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>Terry
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>
>--- In TS-520_820_530_830@yahoogroups.com,
><ts-520_820_530_830@...m> wrote:
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>Excuse me, it was Lars that you helped, not Jan.
>Old age creeping into the picture here.
>Mark
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>At 03:17 PM 9/22/2013, Mark Gilger wrote:
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>>Terry,
>>You helped Jan out on his 820 compressor
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>>that he checked into the Saturday net and
>>turned it on. It sounded great. So your
>>procedure works a-ok. In his case he listened
>>on another receiver and just tweaked it in until it sounded good.
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>>Thanks,
>>Mark, WB0IQK
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>>>Lars:
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>>>The compressor is one of the better ones if

>>>aligned properly. It is kind of unusual
>>>circuit. It is not a clipper in the IF chain
>>>like the TS830. It uses a Balanced Mod to to
>>>convert your mic audio into a 455khz DSBSC
>>>signal and processes it and then a Product
>>>Detector to convert it back to audio for input to your SSB Balanced Modulator.
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>>>One of the biggest problems is people tweak on
>>>it without test gear and number one thing I
>>>find is they have tried to follow the
>>>procedure in the Service Manual and it is
>>>flawed. As I said this thing works by taking
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>>>Modulator that uses 455 khz as the LO. The
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>>>outside the 455khz ceramic IF filters
>>>frequency response curve. Have to get the
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>>>freq counter a good stable AF generator and a
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>>>Terry K9TW
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>>>--- In TS-520_820_530_830@yahoogroups.com,
>>><ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>>Hi all
>>>
>>>Have a question
>>>
>>>I've got a TS-820 that sounds
>

>

44812. Kenwood Hybrid Net Update (Sept. 22, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 22:22:34 UTC
From: Mark Gilger
Topic: 44812 Message: 44812

The Saturday□s net on 40 meter had 16 stations
checking in under Good band conditions. There
were 1 new check-ins, KD4RE. Out of those, there was:

```
4 running TS-520(x)
1running TS-530(x)
5 running TS-820(x)
3 unning TS-830S
0 running TS-900

I was running my TS-940. The rest were running
non hybrids of one model or another.
```

The Sunday□s 20 meter net had 4 stations checking
in under poor band conditions. Out of those, there was:

```
0 running TS-520(x)
0 running TS-530(x)
0 running TS-820(x)
0 running TS-830S

I was running my TS-940. Seems everyone today was
running a solid state radio of one type or another.
```

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

```
If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
```

<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20

December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70

January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87

February 2013, Saturday☐s net total = 103, Sundays total = 87

March 2013, Saturday☐s, net total = 112, Sunday☐s total =39

April 2013, Saturday☐s net total = 52, Sunday☐s total = 29

May 2013, Saturday☐s net total = 45, Sunday☐s total = 50

June 2013, Saturday☐s net total = 30, Sunday☐s total = 27

July 2013, Saturday☐s net total = 63, Sunday☐s total = 41

August 2013, Saturday☐s net total = 82, Sunday☐s total = 50

September 2013, Saturday☐s net total = 11, Sunday☐s total = 20 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44813. Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 22:29:54 UTC
From: Chris Maness
Topic: 44803 Message: 44813

On Sun, Sep 22, 2013 at 2:50 PM, <wagstw46@...> wrote:

>
>
> Some people call broad band noise as "hash" noise. I am not really sure
> what hash noise is or if I ever heard it. I suppose it would blanket the
> spectrum?
>
>
> If it is an external RFI source might look at computer and peripherals
> especially if any of them have a switcher supply in them.
>
>
> Definitely internal source because the noise is independent of
antenna/dummy load configurations.

> Maybe generated by one of the new CFl lamps if you are using them.
>
See above.

>
> When you remove antenna or put rig on dummy load does the S-meter drop to
> zero and if you run RF to max and turn of the AF gain do you hear a nice
> smooth hiss? That would be normal noise produced internally by the
> receiver.
>
Yes, this is the hiss I am referring to. However, it is a bit more than I am used to on a typical radio even for its vintage. It is MUCH broader than the CW filter. There are two layers of this white noise (this is not the HF background noise on the band). The louder one is effected by the RF Gain/AGC and the audio gain. There is a much fainter one that seems to be due to the audio stage by itself. It is still present even if the RF GAIN is set to minimum (AGC Voltage Max). That tells me its origin is after the CW filter, but before the audio filter. If this is normal, I am not going to worry about it. However, reiterating -- it is much louder than many other radios I have used. However, when the wide filter is in line, it blends in with the HF background noise to the point I have not noticed it before. It is entirely possible that this is normal for the design. It just seems like the greatest noise would be generated at the stage of greatest gain. I would imagine this would be before that CW filter, and therefore the Nyquest/Shot noise would be shaped by the filter also. Just my book thoughts and observations speaking -- not from experience.

The shape of the noise frequency response in relationship to the HF background noise makes it REALLY stand out on the high bands. An external

audio band pass filter would cure this if I found it too annoying, but if there is something wrong inside I would like to fix it.

Tnx es
73 de KQ6UP

> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> In SSB and CW for the lower bands the background HF noise covers over a
> background white noise on my radio. However, on the higher bands where the
> band is quieter,! I here white noise that is much broader than the 500Hz CW
> filter skirt. It is not from the AF stage because it decreases with the AF
> volume. Is this normal for this radio? Can anyone else verify this with a
> CW filter in the high bands?
>
> There is a mod bulletin/article floating around the net that suggests a
> hash noise may be due to a bad transistor. However, if everyone else hears
> the same noise, I am not going to worry about it. Moreover if there is a
> mod for this problem, I would definitely be interested in the details. The
> noise is tolerable, but I would much prefer it be lower.
>
> Here is the article in question:
>
> http://www.radiomods.co.nz/kenwood/kenwoodts520.html
>
> Thanks for the help guys. From this group I have received enough help to
> resurrect a nearly basket case TS-520S. I had fixed other problems back in
> 2009. Now I have a nearly perfectly working radio.
>
> Thanks,
> Chris Maness KQ6UP
>
>
>
>

44814. RE: [TS-520_820_530_830] RE: TS-820 service and alignment instrument...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 22:51:53 UTC
From: Rick
Topic: 44804 Message: 44814

Thanks, Terry for the info. Thankfully, I already have the AC probe and even have an extra tube for it. I also have an old Heathkit VTVM and an RCA RF probe adaptor that slips on the end of the Heathkit probe to do the more sensitive measurements.

I think I'm about ready to dive back into the TS-820 I was working on before medical issues (triple bypass) sidelined me for a while. I would have sworn I had a sweep generator from my TV repair days, but I can't seem to find it now. The years have a way of hiding things or making them disappear all together.

Do you or anyone on the reflector have any suggestions for a reliable, yet not too expensive, sweep generator capable of the slow sweep required?

My old scope is limping along like me, but I think it'll do the trick.

Thanks again for the information. I'm sure I'll be asking more questions as this project gets under way.

Rick/K5IAR

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of wagstw46@...
Sent: Sunday, September 22, 2013 4:03 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: TS-820 service and alignment instrument...

Perfect meter for Hybrid work.

It has over 100meg input Z so can get on any tube grid and it is especially useful for AGC and ALC bus work. A Heath IM-18 or similar will pull AGC down on a TS-830 from approx 3.6vdc to around 3.0vdc and drive the S-meter up scale (you are reducing the gain of the RF and IF amps with your VTVM) and the HP-410C measures right at 3.6vdc. Bus doesnt know the 410C is connected. I use it to measure AGC threshold on all the hybrids that cross my bench before and after alignment.

Only problem with the 410B and 410C is they can be drifty and have problems with zero setting due to problems with the photo chopper and bad cal trim pots. Some of the 410C models have FET based solid state boards and no chopper, but I dont think same input Z. I do not think they put the solid state boards in the 410B model?

You can find the AC probe that goes with them but go pretty high on Ebay. They wont read very low levels of RF voltage but will read high levels. I have a couple of the original AC probes (use a special diode tube in them that gets it filament voltage thru the probe triax cable), but I only use them along with the HP453A 100:1 divider probe to measure things like the RF voltage on the plate of the 6146 finals or across the Tank circuit (around 525rms rf volts at 100 watts).

I use Boonton 92E or O-scope for most RF measurements.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I may have over looked it, but I can't recall anyone mentioning the use of a HP-410B VTVM for the RF and AF measurements on the Kenwood hybrid radios. Any pros/cons?

Thanks,

Rick/K5IAR

44815. Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 23:06:20 UTC
From: Jan Servaites
Topic: 44679 Message: 44815

HA! Thanks Terry for the kind words, but yeah, when the 4CX1500B is finally built, I hope I might be as strong as WB0IQK (Mark).
73
Jan N8CBX

wagstw46@... wrote:

No you are just thinking of another good guy and that is Jan N8CBX who runs the TS-820S and is building high power grid driven tetrode amp and when he gets it on air you will have to disconnect your antenna!

Terry

--- In TS-520_820_530_830@yahoogroups.com, wrote:

Excuse me, it was Lars that you helped, not Jan. Old age creeping into the picture here.
Mark

At 03:17 PM 9/22/2013, Mark Gilger wrote:

Terry,
You helped Jan out on his 820 compressor alignment a while back and would like to report that he checked into the Saturday net and turned it on. It sounded great. So your procedure works a-ok. In his case he listened on another receiver and just tweaked it in until it sounded good.

Thanks,
Mark, WB0IQK

At 09:24 AM 9/18/2013, wagstw46@... wrote:

Lars:

The compressor is one of the better ones if aligned properly. It is kind of unusual circuit. It is not a clipper in the IF chain like the TS830. It uses a Balanced Mod to to convert your mic audio into a 455khz DSBSC signal and processes it and then a Product Detector to convert it back to audio for input to your SSB Balanced Modulator.

One of the biggest problems is people tweak on it without test gear and number one thing I find is they have tried to follow the procedure in the Service Manual and it is flawed. As I said this thing works by taking audio and applying it to its own Balanced Modulator that uses 455 khz as the LO. The manual has you set the LO for 451khz. This is outside the 455khz ceramic IF filters frequency response curve. Have to get the signal into the pass band of the ceramic filter chain that follows. It is possible to have a bad filter, but I have never seen one.

If you have a Frequency Counter you could just try setting TC-4 on IF board for 455kz at TP-3 and see what effect that has. You really cant hurt anything by making this simple

adjustment. I suppose with no counter you could listen to yourself on the Moni with headphones and make small step changes on TC-4 to see if any improvement.

To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, wrote:

Hi all

Have a question

I've got a TS-820 that sounds

44816. Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-22 23:04:08 UTC
From: Mark Gilger
Topic: 44679 Message: 44816

Gosh, now I'll be forced into upgrading my
L4B. Maybe two in parallel might do the trick...
Mark

At 07:06 PM 9/22/2013, Jan Servaites wrote:
>
>
>HA! Thanks Terry for the kind words, but yeah,
>when the 4CX1500B is finally built, I hope I
>might be as strong as WB0IQK (Mark).
>73
>Jan N8CBX
>
><mailto:wagstw46@...>wagstw46@... wrote:
>>Â
>>
>>No you are just thinking of another good guy
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>>
>>
>>Terry Â
>>
>>
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>><mailto:TS-520_820_530_830@yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
>><mailto:ts-520_820_530_830@yahoogroups.com><ts-520_820_530_830@yahoogroups.com>
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>>>Terry,
>>>You helped Jan out on his 820 compressor
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>>>report that he checked into the Saturday net
>>>and turned it on. It sounded great.Â So your
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>>>listened on another receiver and just tweaked it in until it sounded good.

>>>
>>>Thanks,
>>>Mark, WB0IQK
>>>
>>>At 09:24 AM 9/18/2013, wagstw46@... wrote:
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>>>>
>>>>Lars:
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>>>>To really align it you need in addition to a
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>>>>signals. AC millivolt meter is easiest, but O-scope also will work.
>>>>
>>>>

>>>>Terry K9TWÂ
>>>>
>>>>
>>>>--- In
>>>><mailto:TS-520_820_530_830@yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
>>>><mailto:ts-520_820_530_830@yahoogroups.com><ts-520_820_530_830@yahoogroups.com>
>>>>wrote:
>>>>
>>>>Hi all
>>>>
>>>>Have a question
>>>>
>>>>I've got a TS-820 that sounds
>

44817. TS-830S external VFO with DDS

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 00:36:22 UTC
From: <va7deo@...>
Topic: 44817 Message: 44817

I'm looking for the pinout descriptions for the external VFO plug so I can use a DDS as an external VFO. The TS-830S manual I have doesn't have the pinouts for all the rear connections.

44818. RE: Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 01:41:24 UTC
From: <wagstw46@...>
Topic: 44679 Message: 44818

Jan:

Ray is strong here near South Bend Ind, but must say that Mark normally beats the "school bus". Maybe Marks 40 meter rhombic?

I will be interested to hear you and Jimmy.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

HA! Thanks Terry for the kind words, but yeah, when the 4CX1500B is finally built, I hope I might be as strong as WB0IQK (Mark).
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Jan N8CBX

wagstw46@... wrote:

No you are just thinking of another good guy and that is Jan N8CBX who runs the TS-820S and is building high power grid driven tetrode amp and when he gets it on air you will have to disconnect your antenna!

Terry

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To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all

Have a question

I've got a TS-820 that sounds

44819. RE: RE: [TS-520_820_530_830] RE: TS-820 service and alignment instrument...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 02:10:26 UTC
From: <wagstw46@...>
Topic: 44804 Message: 44819

PHA+R29vZCB0aGF0IHlvdSBoYXZlIHRoZSAxMTAzNkEgcHJvYmUgYW5kIHh0cmEgdHViZS4gU291bmRzIGxpa2UgeW
91IGFyZSBnb29kIHRvIGdvIGZvciBSRiB2b2x0YWdlIG1lYXN1cmVtZW50LiBBICZuYnNwO211c3QgZm9yIGRpYWdu
b3NpbmcgbG93IG9yIG5vIFJGIGRyaXZlLiZuYnNwOzwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2Zvbn
Qtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fu
cy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+PGJyPjwvcD48cC
BzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWls
eTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2
ZvbnQtc3R5bGU6bm9ybWFsOyI+V2VsbCBhIFRWIHN3ZWVwIGdlbiBpc250IHRvbyBnb29kIGZvciB0aGUgbmFycm93
IGJhbmR3aWR0aCB4dGFsIElGIGZpbHRlcnMgb3IgQlBGIHlvdSB3aWxsIHdhbnQgdG8gbG9vayBhdCBpbiB0aGVzZS
BoeWJyaWRzLiZuYnNwOzwvcD48cD48YnI+PC9wPjxwIHN0eWxlPSJjb2xvcjpyZ2IoMCwgMCwgMCk7Zm9udC1zaXpl
OjEzLjMzMzMzMzAxNTQ0MTg5NXB4O2ZvbnQtZmFtaWx5OmFyaWFsLCBoZWx2ZXRpY2EsIGNsZWFuLCBzYW5zLXNlcm
lmO2JhY2tncm91bmQtY29sb3I6dHJhbnNwYXJlbnQ7Zm9udC1zdHlsZTpub3JtYWw7Ij5VbmZvcnR1bmF0ZWx5IFN3
ZWVwIGdlbnMgYXJlIG5vdCBjaGVhcC4gV2F2ZXRlayAyMDAxLzIwMDIgY2FuIGJlIGhhZCBmb3IgYXJvdW5kICQyMD
AuIFdhdmV0ZWsgMTA4MC8xMDgxIGFyZSBuaWNlIGJ1dCBtaW5pbXVtIGFyb3VuZCAkNTAwLjwvcD48cCBzdHlsZT0i
Y29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbC
wgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5
bGU6bm9ybWFsOyI+PGJyPjwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMz
MwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3Jv
dW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+TmV4dCBzdGVwIHVwIGFyb3VuZCAkMTQwMC
BpcyBhIHIgcG9ydCBVU0IgVk5BIGxpa2UgdGhlIEFycmF5IFNvbHV0aW9ucyBvciB0aGUgUmlnb2wgRFM4MTUtVEcg
c3BlY3RydW0gYW5hbHl6ZXIuICZuYnNwOzwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZT
oxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJp
ZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+PGJyPjwvcD48cCBzdHlsZT
0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlh
bCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3
R5bGU6bm9ybWFsOyI+VGhlcmUgbWF5IGJlIGEgRERTIFN3ZWVwIGdlbiBhdmFpbGFibGUgdGhhdCBJIGFtIG5vdCBm
YW1pbGlhciB3aXRoLiBNYXliZSBldmVuIGEga2l0PzwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2Zvbn
Qtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fu
cy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+PGJyPjwvcD48cC
BzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWls
eTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2
ZvbnQtc3R5bGU6bm9ybWFsOyI+SSBsaWtlIHRoZSBXYXZldGVrcyBhcyB0aGV5IGhhdmUgZnJvbnQgcGFuZWwgYm5j
IGlucHV0IGZvciBNYXJrZXIgc2lnbmFscy4mbmJzcDs8L3A+PHAgc3R5bGU9ImNvbG9yOnJnYigwLCAwLCAwKTtmb2
50LXNpemU6MTMuMzMzMzMzMDE1NDQxODk1cHg7Zm9udC1mYW1pbHk6YXJpYWwsIGhlbHZldGljYSwgY2xlYW4sIHNh
bnMtc2VyaWY7YmFja2dyb3VuZC1jb2xvcjp0cmFuc3BhcmVudDtmb250LXN0eWxlOm5vcm1hbDsiPjxicj48L3A+PH
Agc3R5bGU9ImNvbG9yOnJnYigwLCAwLCAwKTtmb250LXNpemU6MTMuMzMzMzMzMDE1NDQxODk1cHg7Zm9udC1mYW1p
bHk6YXJpYWwsIGhlbHZldGljYSwgY2xlYW4sIHNhbnMtc2VyaWY7YmFja2dyb3VuZC1jb2xvcjp0cmFuc3BhcmVudD
tmb250LXN0eWxlOm5vcm1hbDsiPkkgaGF2ZSBhIGNvdXBsZSBvZiBzdGVudHMgZnJvbSAyMDA1IGhlYXJ0IGF0dGFj
ayBhbmQgaG9wZWZ1bGx5IG5vIGJ5cGFzcyBpbiBteSBmdXR1cmUuIFdpbGwgY3Jvc3MgdGhhdCBicmlkZ2Ugd2hlbi
9pZiBuZWVkIHRvLiBSZWNlbnRseSBoYWQgYmxvb2QgY2xvdHMgaW4gYm90aCBsdW5ncyBzbyBkb2RnZWQgYSBidWxs
ZXQgYW5kIGx1Y2t5IHRvIGJlIHR5cGluZyB0aGlzIG5vdy4gJm5ic3A7SnVzdCBzYXcgZG9jIG9uIEZyaWRheSBhbm
Qgd2lsbCBiZSBvbiBYYXJlbHRvIHVudGlsIGF0IGxlYXN0IERlYy4gQmFjayB0byByaWRpbmcgbXkgYmlrZSBub3cg
YW5kIGp1c3QgdGFraW5nIG9uZSBkYXkgYXQgYSB0aW1lLjwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2
ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwg

c2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+PGJyPjwvcD
48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMzMwMTU0NDE4OTVweDtmb250LWZh
bWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW
50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+SWYgeW91IGdldCB0aGUgNDEwQiB0cnkgbWVhc3VyaW5nIHRoZSBBR0MgYnVz
IHZvbHRhZ2Ugd2l0aCBpdCAmbmJzcDt0aGVuIHVzZSB5b3VyIEhlYXRoIFZUVk0gYW5kIGFueSBhbmQgYWxsIERNTX
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pWZXJkYW5hO2ZvbnQtd2VpZ2h0Om5vcm1hbDt9CiN5Z3Jwcy15aXYtMTMwMzg3ODEyMiBwLnlncnBzLXlpdi0xMzAz
ODc4MTIyYWQ4OCwgI3lncnBzLXlpdi0xMzAzODc4MTIyIGxpLnlncnBzLXlpdi0xMzAzODc4MTIyYWQ4OCwgI3lncn
BzLXlpdi0xMzAzODc4MTIyIGRpdi55Z3Jwcy15aXYtMTMwMzg3ODEyMmFkODgKCXttYXJnaW4tcmlnaHQ6MGluO21h
cmdpbi1sZWZ0OjBpbjtmb250LXNpemU6MTIuMHB0O2ZvbnQtZmFtaWx5OiJUaW1lcyBOZXcgUm9tYW4iO30KI3lncn
BzLXlpdi0xMzAzODc4MTIyIHAueWdycHMteWl2LTEzMDM4NzgxMjJhZDg5LCAjeWdycHMteWl2LTEzMDM4NzgxMjIg
bGkueWdycHMteWl2LTEzMDM4NzgxMjJhZDg5LCAjeWdycHMteWl2LTEzMDM4NzgxMjIgZGl2LnlncnBzLXlpdi0xMz
AzODc4MTIyYWQ4OQoJe21hcmdpbi1yaWdodDowaW47bWFyZ2luLWJvdHRvbTo3LjVwdDttYXJnaW4tbGVmdDowaW47
Zm9udC1zaXplOjEyLjBwdDtmb250LWZhbWlseToiVGltZXMgTmV3IFJvbWFuIjt9CiN5Z3Jwcy15aXYtMTMwMzg3OD
EyMiBwLnlncnBzLXlpdi0xMzAzODc4MTIydW5kZXJsaW5lMzYsICN5Z3Jwcy15aXYtMTMwMzg3ODEyMiBsaS55Z3Jw
cy15aXYtMTMwMzg3ODEyMnVuZGVybGluZTM2LCAjeWdycHMteWl2LTEzMDM4NzgxMjIgZGl2LnlncnBzLXlpdi0xMz
AzODc4MTIydW5kZXJsaW5lMzYKCXttYXJnaW4tcmlnaHQ6MGluO21hcmdpbi1sZWZ0OjBpbjtmb250LXNpemU6MTIu
MHB0O2ZvbnQtZmFtaWx5OiJUaW1lcyBOZXcgUm9tYW4iO3RleHQtZGVjb3JhdGlvbjp1bmRlcmxpbmU7fQojeWdycH
MteWl2LTEzMDM4NzgxMjIgc3Bhbi55Z3Jwcy15aXYtMTMwMzg3ODEyMnlzaG9ydGN1dHM0NgoJe2ZvbnQtZmFtaWx5
OlZlcmRhbmE7Zm9udC13ZWlnaHQ6Ym9sZDt9CiN5Z3Jwcy15aXYtMTMwMzg3ODEyMiBzcGFuLnlncnBzLXlpdi0xMz
AzODc4MTIyeXNob3J0Y3V0czQ3Cgl7Zm9udC1mYW1pbHk6VmVyZGFuYTtmb250LXdlaWdodDpub3JtYWw7fQojeWdy
cHMteWl2LTEzMDM4NzgxMjIgcC55Z3Jwcy15aXYtMTMwMzg3ODEyMmFkOTAsICN5Z3Jwcy15aXYtMTMwMzg3ODEyMi
BsaS55Z3Jwcy15aXYtMTMwMzg3ODEyMmFkOTAsICN5Z3Jwcy15aXYtMTMwMzg3ODEyMiBkaXYueWdycHMteWl2LTEz
MDM4NzgxMjJhZDkwCgl7bWFyZ2luLXJpZ2h0OjBpbjttYXJnaW4tbGVmdDowaW47Zm9udC1zaXplOjEyLjBwdDtmb2
50LWZhbWlseToiVGltZXMgTmV3IFJvbWFuIjt9CiN5Z3Jwcy15aXYtMTMwMzg3ODEyMiBwLnlncnBzLXlpdi0xMzAz
ODc4MTIyYWQ5MSwgI3lncnBzLXlpdi0xMzAzODc4MTIyIGxpLnlncnBzLXlpdi0xMzAzODc4MTIyYWQ5MSwgI3lncn
BzLXlpdi0xMzAzODc4MTIyIGRpdi55Z3Jwcy15aXYtMTMwMzg3ODEyMmFkOTEKCXttYXJnaW4tcmlnaHQ6MGluO21h
cmdpbi1ib3R0b206Ny41cHQ7bWFyZ2luLWxlZnQ6MGluO2ZvbnQtc2l6ZToxMi4wcHQ7Zm9udC1mYW1pbHk6IlRpbW
VzIE5ldyBSb21hbiI7fQojeWdycHMteWl2LTEzMDM4NzgxMjIgcC55Z3Jwcy15aXYtMTMwMzg3ODEyMnVuZGVybGlu
ZTM3LCAjeWdycHMteWl2LTEzMDM4NzgxMjIgbGkueWdycHMteWl2LTEzMDM4NzgxMjJ1bmRlcmxpbmUzNywgI3lncn
BzLXlpdi0xMzAzODc4MTIyIGRpdi55Z3Jwcy15aXYtMTMwMzg3ODEyMnVuZGVybGluZTM3Cgl7bWFyZ2luLXJpZ2h0
OjBpbjttYXJnaW4tbGVmdDowaW47Zm9udC1zaXplOjEyLjBwdDtmb250LWZhbWlseToiVGltZXMgTmV3IFJvbWFuIj
t0ZXh0LWRlY29yYXRpb246dW5kZXJsaW5lO30KI3lncnBzLXlpdi0xMzAzODc4MTIyIHNwYW4ueWdycHMteWl2LTEz
MDM4NzgxMjJ5c2hvcnRjdXRzNDgKCXtmb250LWZhbWlseTpWZXJkYW5hO2ZvbnQtd2VpZ2h0OmJvbGQ7fQojeWdycH
MteWl2LTEzMDM4NzgxMjIgc3Bhbi55Z3Jwcy15aXYtMTMwMzg3ODEyMnlzaG9ydGN1dHM0OQoJe2ZvbnQtZmFtaWx5
OlZlcmRhbmE7Zm9udC13ZWlnaHQ6bm9ybWFsO30KI3lncnBzLXlpdi0xMzAzODc4MTIyIHAueWdycHMteWl2LTEzMD
M4NzgxMjJhZDkyLCAjeWdycHMteWl2LTEzMDM4NzgxMjIgbGkueWdycHMteWl2LTEzMDM4NzgxMjJhZDkyLCAjeWdy
cHMteWl2LTEzMDM4NzgxMjIgZGl2LnlncnBzLXlpdi0xMzAzODc4MTIyYWQ5MgoJe21hcmdpbi1yaWdodDowaW47bW
(Message over 64 KB, truncated)

44820. RE: RE: Re: [TS-520_820_530_830] RE: Compressor adjustment...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 02:37:44 UTC
From: <wagstw46@...>
Topic: 44679 Message: 44820

Yes Mark when I am working on the bench I monitor. Not often any tech questions you cant handle. Not much I can add other than to the numbers.

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,
Have you been listing to the Saturday net on the sly without checking in?
Mark

At 05:05 PM 9/22/2013, wagstw46@... wrote:

No you are just thinking of another good guy and that is Jan N8CBX who runs the TS-820S and is building high power grid driven tetrode amp and when he gets it on air you will have to disconnect your antenna!

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Excuse me, it was Lars that you helped, not Jan. Old age creeping into the picture here.
Mark

At 03:17 PM 9/22/2013, Mark Gilger wrote:

Terry,
You helped Jan out on his 820 compressor alignment a while back and would like to report that he checked into the Saturday net and turned it on. It sounded great. So your procedure works a-ok. In his case he listened on another receiver and just tweaked it in until it sounded good.

Thanks,
Mark, WB0IQK

At 09:24 AM 9/18/2013, wagstw46@... wrote:

Lars:

The compressor is one of the better ones if aligned properly. It is kind of unusual circuit. It is not a clipper in the IF chain like the TS830. It uses a Balanced Mod to to convert your mic audio into a 455khz DSBSC signal and processes it and then a Product Detector to convert it back to audio for input to your SSB Balanced Modulator.

One of the biggest problems is people tweak on it without test gear and number one thing I find is they have tried to follow the procedure in the Service Manual and it is flawed. As I said this thing works by taking audio and applying it to its own Balanced Modulator that uses 455 khz as the LO. The manual has you set the LO for 451khz. This is outside the 455khz ceramic IF filters frequency response curve. Have to get the signal into the pass

band of the ceramic filter chain that follows. It is possible to have a bad filter, but I have never seen one.

If you have a Frequency Counter you could just try setting TC-4 on IF board for 455kz at TP-3 and see what effect that has. You really cant hurt anything by making this simple adjustment. I suppose with no counter you could listen to yourself on the Moni with headphones and make small step changes on TC-4 to see if any improvement.

To really align it you need in addition to a freq counter a good stable AF generator and a means of accurately measuring low level AF signals. AC millivolt meter is easiest, but O-scope also will work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all

Have a question

I've got a TS-820 that sounds

44821. RE: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 02:41:07 UTC
From: <wagstw46@...>
Topic: 44803 Message: 44821

Been a very long time since I have thought or read about Thermal or Shot noise. I think some guy Kelvin is involved too!

Maybe a You tube video for the other TS520S owners with CW filters installed would help?

Terry
K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Sun, Sep 22, 2013 at 2:50 PM, <wagstw46@...> wrote:

Some people call broad band noise as "hash" noise. I am not really sure what hash noise is or if I ever heard it. I suppose it would blanket the spectrum?

If it is an external RFI source might look at computer and peripherals especially if any of them have a switcher supply in them.

Definitely internal source because the noise is independent of antenna/dummy load configurations.

Maybe generated by one of the new CFl lamps if you are using them.

See above.

When you remove antenna or put rig on dummy load does the S-meter drop to zero and if you run RF to max and turn of the AF gain do you hear a nice smooth hiss? That would be normal noise produced internally by the receiver.

Yes, this is the hiss I am referring to. However, it is a bit more than I am used to on a typical radio even for its vintage. It is MUCH broader than the CW filter. There are two layers of this white noise (this is not the HF background noise on the band). The louder one is effected by the RF Gain/AGC and the audio gain. There is a much fainter one that seems to be due to the audio stage by itself. It is still present even if the RF GAIN is set to minimum (AGC Voltage Max). That tells me its origin is after the CW filter, but before the audio filter. If this is normal, I am not going to worry about it. However, reiterating -- it is much louder than many other radios I have used. However, when the wide filter is in line, it blends in with the HF background noise to the point I have not noticed it before. It is entirely possible that this is normal for the design. It just seems like the greatest noise would be generated at the stage of greatest gain. I would imagine this would be before that CW filter, and therefore the Nyquest/Shot noise would be shaped by the filter also. Just my book thoughts and observations speaking -- not from experience.

The shape of the noise frequency response in relationship to the HF background noise makes it REALLY stand out on the high bands. An external audio band pass filter would cure this

if I found it too annoying, but if there is something wrong inside I would like to fix it.

Tnx es
73 de KQ6UP

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

In SSB and CW for the lower bands the background HF noise covers over a background white noise on my radio. However, on the higher bands where the band is quieter,! I here white noise that is much broader than the 500Hz CW filter skirt. It is not from the AF stage because it decreases with the AF volume. Is this normal for this radio? Can anyone else verify this with a CW filter in the high bands?

There is a mod bulletin/article floating around the net that suggests a hash noise may be due to a bad transistor. However, if everyone else hears the same noise, I am not going to worry about it. Moreover if there is a mod for this problem, I would definitely be interested in the details. The noise is tolerable, but I would much prefer it be lower.

Here is the article in question:

http://www.radiomods.co.nz/kenwood/kenwoodts520.html

Thanks for the help guys. From this group I have received enough help to resurrect a nearly basket case TS-520S. I had fixed other problems back in 2009. Now I have a nearly perfectly working radio.

Thanks,
Chris Maness KQ6UP

44822. 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 03:14:18 UTC
From: <yioutta_99@...>
Topic: 44822 Message: 44822

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay? .....Possibly the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44823. Re: [TS-520_820_530_830] 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 03:30:24 UTC
From: Joseph Stiles
Topic: 44822 Message: 44823

Steve,

  Anything's possible but, I doubt the "send/rcv" switch is bad. I would more than likely suspect RL-2.
It's on the bottom of the rig, next to the final amplifier board, under the metal shield.
DO NOT ATTEMPT
TO REMOVE THIS WITHOUT FIRST MAKING SURE THAT ALL THE HIGH VOLTAGE IS GONE!
This relay has contacts that can be cleaned by various methods. Contact cleaner and some card stock works good.
Try this first. Then clean your band switch wafer contacts. Kinda gave yourself a clue...80-meters has not been used in
a long time...could equal gunk on the contacts.....went to 20meters and it worked fine.

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay?
 .....Possibly the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44824. Re: [TS-520_820_530_830] 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 03:39:24 UTC
From: Joseph Stiles
Topic: 44822 Message: 44824

Steve,

  I would suspect RL-2 first, it's under the metal shield by the final amp board. UNPLUG RIG!, let it sit, then check
to see if there's anymore high voltage lurking around. Remove shield...remove relay (it pulls out), you will need a fine
screwdriver or similar tool to remove the plastic cover from the relay. Use some card stock wetted with contact cleaner
and clean all the contacts...some canned air comes in handy here. Re-install relay and check for operation.
There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
may have gotten some corrosion on them from no use, but worked correctly on 20 meters. Clean all the bandswitch wafer
contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be fine now

73 Joe
WB7UQU

_____
From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

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After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay?
 .....Possibly the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44825. Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 03:41:33 UTC
From: clifford wright
Topic: 44735 Message: 44825

I was interested to see the suggestion that the 10 Ohm cathode resistors were a sort of safety fuse!!
The actual final current is measured across them as a shunt and if they fail this can do terrible things to the TS820's meter. In fact mine is a replacement because of this very problem and it took a lot of searching to find a suitable meter, even then it required another external shunt as it was more sensitive than the original.
So, A fuse that can't be replaced unless you dismantle the unit and expose the 800 volt power!!!! That just ain't good design in my book.
Safe, reliable and stable resistors in that place are much more important.
As to final amp strains. Well that is definitely true, it is easy to damage even 6146B's in the TS 820.
But isn't that what the meter is for. Also the original fan is very inadequate, mine has been replaced with a 12 volt computer fan and the case modified to improve airflow.
But then some of these problems are also due to Kenwood's poor final tank circuit design.
It means that the final can be slightly less than 50% efficient on certain bands.
All my home brew linears approach 68% on 14 MHz. Thats a Helluva lot less wasted heat.

Sorry to be an old anti appliance operator type, but if you don't know your Volts, Amps and Watts why are you involved with Ham radio at all?
These days it is no longer a question of merely wanting to communicate.

44826. Re: [TS-520_820_530_830] TS-830S external VFO with DDS

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 00:57:28 UTC
From: Timothy Johnston
Topic: 44817 Message: 44826

It should be on page 13 of the TS-830s instruction manual, table in the
upper left corner. If you dont have it, look here:

http://www.n6wk.com/kenwood/TS-830S_Instruction_manual.pdf

Tj Johnston, K4TFJ ==
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

On Sun, Sep 22, 2013 at 8:36 PM, <va7deo@...> wrote:

> **
>
>
> I'm looking for the pinout descriptions for the external VFO plug so I can
> use a DDS as an external VFO. The TS-830S manual I have doesn't have the
> pinouts for all the rear connections.
>
>

44827. RE: Re: [TS-520_820_530_830] TS-830S external VFO with DDS

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 04:34:48 UTC
From: <va7deo@...>
Topic: 44817 Message: 44827

Thanks. I was looking at the service manual.

I'll guess that the VFO control pin is what switches from the internal to external VFO. I'll have a look at the schematics to see if I can verify that.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

It should be on page 13 of the TS-830s instruction manual, table in the upper left corner. If you dont have it, look here:

http://www.n6wk.com/kenwood/TS-830S_Instruction_manual.pdf

Tj Johnston, K4TFJ ==========
Webpage: K4TFJ's Internet QTH (http://www.qsl.net/k4tfj/) YouTube Channel: K4TFJ Projects (http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w)

On Sun, Sep 22, 2013 at 8:36 PM, <va7deo@...> wrote:

I'm looking for the pinout descriptions for the external VFO plug so I can use a DDS as an external VFO. The TS-830S manual I have doesn't have the pinouts for all the rear connections.

44828. RE: 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 10:27:35 UTC
From: <wagstw46@...>
Topic: 44822 Message: 44828

What happens when you try to key the rig with the Mic PTT?

Keying the rigs aux and TR relays is not band dependent.

If you can key rig with the Mic PTT reliably then problem is the Send/Receive switch.

If you cannot key rig with the PTT then go to VOX board and ground SS terminal and measure RL terminal. Should see 12vdc on RL each time you ground SS.

Not likely bad relay closing coil.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

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I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44829. RE: Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 11:13:48 UTC
From: <wagstw46@...>
Topic: 44735 Message: 44829

A voice of reason from the wilderness! Thank You Clifford.

Try Bob Mansker for an original 500ua meter movement. Also see them from time to time on Ebay in the $20.00 range.

As to EASY to damage the 6146 finals here is how to do it for certain:

1. Anode to suppressor grid arc over due to internal out-gassing and air inleakage around seals. NOS spares sitting on shelf for 30 plus years are susceptable. I have done hi-pot testing on variety of used pulls and NOS and get wide range of leakage current. Tubes must be able to withstand approx 1400 volts RF swing at the anode at 100 watts output. I test to minimum of 1600vdc to simulate this condition. Some spares cannot hold off that level while others will show less than 5ua leakage current. Some can hold off up to 2000 vdc or more.

2. Thermal run away. If you lose the negative operating bias on the control grids (can happen while trying to adjust the bias voltage pot to set resting plate current to 60ma). Plate current will peg very hard and plates glow cherry red and deform before you can act to unkey the rig.

3. If radio has been QRO modified and routinely loaded to 300 ma or more. This wont cause instant failure like 1 and 2 above but can shorten the tube life.

4. Mis-tuning when loading the rig is kind of a myth as to it causing tube damage or cathode meter shunt failure. Not likely to cause instant failure. Long off resonant key down time isnt good, but not likely to cause catastrophic failure. If you are experienced you can play with this and observe plate current for various combinations of Plate Load and Tune capacitor positions and note the plate current or measure the IR drop across the 5 ohm meter shunts.

As to inefficient Tank about only place that it is a problem is on 10 meters in my experience. Common problem for multi-band tanks as the designer is stuck with high level of parasitic capacitance that prevents them from using optimum LC ratios and optimum Q in both the Driver stage tank and the pi-network. You will see no capacitors used in the Driver stage tank circuits on higher bands due to parasitic capacitance that exists from the internal capacitance of the tubes and the circuit pc traces and bandswitch. That capacitance is significant and you are forced to use an inductor that will resonate with it that is not optimum LC ratio.

If you were a 160 thru 10 meter designer where would you place the compromise and where would it be easiest to correct using external means? Of course on 10 meters. Very easy to compensate for transmitter in-efficiency by employing a high gain directive antenna on 10 meters that would not be possible on 160 or even 80 meters.

So we have all pretty much come to accept that our multi-band transmitters, transceivers, and high power linear amps that it is "normal" to have lower output power on 10 meters and perhaps somewhat lower on 15 meters. Also, not easy to make a solenoid wound Plate choke that offers optimum inductance across this broad range but that is another subject.

Thanks for putting on your Fundamentals thinking hat.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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The actual final current is measured across them as a shunt and if they
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case modified to improve airflow.
But then some of these problems are also due to Kenwood's poor final
tank circuit design.
It means that the final can be slightly less than 50% efficient on
certain bands.
All my home brew linears approach 68% on 14 MHz. Thats a Helluva lot
less wasted heat.

Sorry to be an old anti appliance operator type, but if you don't know
your Volts, Amps and Watts why are you involved with Ham radio at all?
These days it is no longer a question of merely wanting to communicate.

44830. Cathode resistors as fuses

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 14:25:49 UTC
From: Mike
Topic: 44830 Message: 44830

I continue to read that some hams appear to believe the cathode resistors act as fuses to protect the final amplifier in the event of improper tuningof the final amplifier. What I have not seen from any of these hams isany supporting facts to support such a notion other than they read it on a website and/or a fellow ham told them so.

I mean on disrespect towards anyone so please don't take any of what I am going to say and show, the wrong way.I am simply showing you that the cathode resistors are not acting as fuses.

Go to Gordon's website and download the TS-830's high resolution schematic.

Use the 1.36VDC cathode voltage and the 5 ohms (four 20 ohm resistors connected in parallel) to calculate the transmit cathode current and power dissipation levels in the cathode circuit. Each cathode resistor is 20 ohms and each resistor is rated at 1/2 watt. Connecting four 1/2 watt 20 ohm resistors in parallel equals a power rating of 2 wattsand a total resistance of 5 ohms.

The cathode current with 1.36VDC cathode voltage is .272 amps (272ma)

1.36 / 5 = .272 amps

The power consumed in the cathode circuit is .36992 watts (370mw)

.272 x .272 x 5 = .36992 watts (370mw)

Each cathode resistor will have .068 amps (68ma) flowing through it

1.36 / 20 = .068 amps (68ma)

Each cathode resistor will dissipate .09248 watts (92mw)

.068 x .068 x 20 = .09248 watts (92mw)

Even if the cathode current rises to a significantly higher level of 390ma from improperly tuning the final amplifier, the cathode voltage will rise to 1.95VDC:

.390 x 5 = 1.95VDC

The cathode current with 1.95VDC cathode voltage is:

1.95 / 5 = .390 amps (390ma)

and the power dissipated in the cathode circuit will be.7605 watts (760mw)

.390 x .390 x 5 = .7605 watts (760mw)

Each cathode resistor will have .0975 amps (97.5ma) flowing through them

1.95 / 20 = .0975 amps (97.5ma)

and each cathode resistor will dissipate .190125 watts (190mw)

.0975 x .0975 x 20 = .190125 watts (190mw).

This clearly shows even with 390ma of cathode current due to improper tuning of the final amplifier, the power dissipated in each cathode resistor and the total power dissipated in the cathode circuitdoes not equal or exceed the individual cathode resistor's 1/2 watt power rating nor does it equal or exceed the total 2 watt power rating of all 4 cathode resistors connected in parallel! The calculations above simply do not support the belief that the cathode resistors act as fuses, it's that simple. The cathode resistors, even with 390ma of cathode current due to improper tuning of the final amplifier, will NOT blow/explode/crack/burn up or fail as many hams seem to think/believe they will! The calculation figures simply do not support such a beliefanda resistors does not act the same way a fuse does in a circuit.

73
Mike W5RKL

44831. Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 15:53:58 UTC
From: Don
Topic: 44540 Message: 44831

Terry

To make tracing easier i went and had the TS 830 color schematic blown up to 2x3,a lot better on old eyes to follow.
I took all the voltages from the abbreviation schematic,to make sure i had not missed any on the connectors.
The one we did not discuss was the minus 6 volts.I had it on the counter unit,but not on the audio or IF board.I was able to trace the wire back to the -6 volt switch board and found it had broken off.
After soldering the wire back on the post i now had white noise,if that's what you call it when i turned the rig on
I now have the whole front panel removed to get at the +0.5 switch as three wire's have broken off that switch.
Needed a good cleaning anyway.

I still have very week signal's or high attenuation on all bands.The high bands have higher s-meter reading on the SSG than the lower bands,with 21 MHz being the strongest.
Question
My Rf board is good except for the mixer and ant coils.
Is there any were one can get sub's for these coils.The rubber band trick works ok,but makes it harder to adjust the coils.
Once i get it back together i can go on with the injection steps on the IF board
I tried to get a Rf probe on Ebay for my VTVM but got outbid,so will roll my own.
Which diode would you recommend for a RF probe.

I am not sure on how many owners had this Ebay special before me,but even the wire's are dull in color compared to my other rigs.
The only reason i have not flogged it off,as it makes a good training radio for me to learn on.

73

Don/Ve2ud

On 15/09/2013 8:10 AM, wagstw46@... wrote:
>
> Don
>
>
> Use a low level to inject 8.830 at RIF on IF board and couple output
> of sig gen thru about a .01uf cap. Nothing more than 5 mv. Also, a
> couple of the cans will have very little effect on signal level on
> the S-meter as you turn the core. Do not worry about those at this

> time. If you get some improvement in S-meter indication suggest you
> lower the sig gen level and make a 2nd pass. What you are looking for
> is something that has been grossly mis-tuned that will make IF chain
> come alive.
>
>
> If doing IFT alignment does not produce significant improvement in Rx
> sensitivity then I think time to remove the IF board and do good
> visual inspection on all the molex pins under magnification and look
> at all the traces for damage and signs of cobbled repairs. Can have
> lifted pads and traces, solder bridging, wire jumpers, maybe even a
> blown trace etc.
>
>
> I am pretty sure I had you measure Carrier Oscillator and VBT Osc
> previously and you reported they were to spec. I think we also
> measured all the DC supply voltages to the board.
>
>
> We have not yet tried injecting signals in to the IF filters and
> measuring the output to verify filters are good.
>
>
> We can do signal injection/tracing next to find where the attenuation
> is occurring or you can pull board and do good visual. If you have
> already done that then only thing left (assuming that all necessary
> signals and DC inputs are present on the board) is to do signal
> injection/tracing.
>
>
> I have to trust you when you report back that you have the signals and
> voltages I ask you to check and that you have the test gear to detect
> and measure these required inputs and know how to use them. I am not
> there to witness any of these measurements. I can tell you however it
> is pretty common for me to hear back from someone I am trying to help
> that previously reported findings were not correct.
>
>
> I mean no disrespect it is just a pretty common for this to happen.
>
>
> Terry K9TW
>
>
>
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> <ts-520_820_530_830@yahoogroups.com> wrote:
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> Terry
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> Hate this new format,as i never got your reply by email
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> Ok will have a look at that section
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>
> 73
>
> Don/Ve2ud
>
>
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> I believe you are saying that when you inject 8.830 @500mv from your
> RF sig gen into the RIF terminal on the IF board you have a loud high
> frequency tone that you can vary with the audio gain pot (not tunable
> with the VFO), but the S-meter level is only at S1?
>
>
> I think we measured RFG at Conn 8 with RF gain pot full CW? It should
> be 3.6vdc
>
>
> I think we measured AGC bus voltage at Conn 15? .Need to use nothing
> less than a 10 meg DMM. It will pull the AGC bus down from 3.6 to
> close to 3.0vdc or slightly less.
>
>
> Have you measured these two voltages? Normally if the AGC bus voltage
> is low the S-meter will be driven up scale with no signal applied
> unless the S-meter driver circuit is bad.
>
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> Have you ever performed the IFT alignment? You can perform the
> procedure in the maintenance section of the operating manual or the
> steps in the service manual.
>
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Terry
>

> Now i remember what i said about loud but no s-meter
> reading,it is this test i did and now i have redid it with the
> 8.8830 injection at conn 6
>
> I got S1 meter reading with 500 mv injection in con 6 and same
> on the RF board con 5 pin 2
>
>
> Don
>
>
> So trusting that the audio board is working as it should and
> can process the output of the Product Detector, then the
> problem now is very weak Marker and very weak off air signals
> and low or no S-meter indication. Dont worry about weak moni
> at this point.
>
>
> So this is place I would use RF sig generator and split the
> problem. Is it on the IF board or the RF board (or both but
> not likely). If you want to work back from the Audio Board
> then I would inject 8.830 mhz into the RIF terminal on the IF
> board and see if you can hear it loud and good S meter
> indication. If you can then move on to the RF board. If you
> cannot get back and we can talk about signal injection/tracing
> on the IF board.
>
>
> Inject 8.830mhz at Conn 6 on IF board. You dont need any
> modulation. -73dBM/50uv should give approx S6. -53dBm/500uv
> should give approx S9. -33dBm/5mv should give approx +20 over.
>
>
> Terry K9TW
>
>

44832. RE: RE: [TS-520_820_530_830] RE: TS-820 service and alignment instrument...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 16:02:04 UTC
From: Rick
Topic: 44804 Message: 44832

Again, thanks for the tip, Terry. Man, they are right proud of those sweep generators. I'll keep my eyes open for something I can afford. I realized after you mentioned it the old TV sweep generator wouldn't do the job. That's one less thing I have to look for. It seems I am always searching for something.

I'm sorry to hear about the stents and blood clots in the lungs. You were wise to take care of it while stents were still an option. I made the mistake of waiting too long and the arteries of the heart were just too blocked to use stents. It's my understanding they are extremely successful. I too am on blood thinners, Pradaxa and will be for the rest of my life. It's great you're able to ride again. I walk as best I can. I unfortunately also have a very bad back which limits my activity. Oh,,, the trials and tribulations of getting old never seem to cease. I agree with you completely, it's best to take it one day at a time.

Thanks again for your assistance.

Rick/K5IAR

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of wagstw46@...
Sent: Sunday, September 22, 2013 9:10 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: RE: RE: [TS-520_820_530_830] RE: TS-820 service and alignment instrument...

Good that you have the 11036A probe and xtra tube. Sounds like you are good to go for RF voltage measurement. A must for diagnosing low or no RF drive.

Well a TV sweep gen isnt too good for the narrow bandwidth xtal IF filters or BPF you will want to look at in these hybrids.

Unfortunately Sweep gens are not cheap. Wavetek 2001/2002 can be had for around $200. Wavetek 1080/1081 are nice but minimum around $500.

Next step up around $1400 is a 2 port USB VNA like the Array Solutions or the Rigol DS815-TG spectrum analyzer.

There may be a DDS Sweep gen available that I am not familiar with. Maybe even a kit?

I like the Waveteks as they have front panel bnc input for Marker signals.

I have a couple of stents from 2005 heart attack and hopefully no bypass in my future. Will cross that bridge when/if need to. Recently had blood clots in both lungs so dodged a bullet and lucky to be typing this now. Just saw doc on Friday and will be on Xarelto until at least Dec. Back to riding my bike now and just taking one day at a time.

If you get the 410B try measuring the AGC bus voltage with it then use your Heath VTVM and any and all DMMs or VOMs that you have. Fun to see what happens with each meter and when the receiver shuts down and S-meter drives near full scale you will understand importance of meter input Z for hybrid work.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Thanks, Terry for the info. Thankfully, I already have the AC probe and even have an extra tube for it. I also have an old Heathkit VTVM and an RCA RF probe adaptor that slips on the end of the Heathkit probe to do the more sensitive measurements.

I think I'm about ready to dive back into the TS-820 I was working on before medical issues (triple bypass) sidelined me for a while. I would have sworn I had a sweep generator from my TV repair days, but I can't seem to find it now. The years have a way of hiding things or making them disappear all together.

Do you or anyone on the reflector have any suggestions for a reliable, yet not too expensive, sweep generator capable of the slow sweep required?

My old scope is limping along like me, but I think it'll do the trick.

Thanks again for the information. I'm sure I'll be asking more questions as this project gets under way.

Rick/K5IAR

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of wagstw46@...
Sent: Sunday, September 22, 2013 4:03 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: TS-820 service and alignment instrument...

Perfect meter for Hybrid work.

It has over 100meg input Z so can get on any tube grid and it is especially useful for AGC and ALC bus work. A Heath IM-18 or similar will pull AGC down on a TS-830 from approx 3.6vdc to around 3.0vdc and drive the S-meter up scale (you are reducing the gain of the RF and IF amps with your VTVM) and the HP-410C measures right at 3.6vdc. Bus doesnt know the 410C is connected. I use it to measure AGC threshold on all the hybrids that cross my bench

before and after alignment.

Only problem with the 410B and 410C is they can be drifty and have problems with zero setting due to problems with the photo chopper and bad cal trim pots. Some of the 410C models have FET based solid state boards and no chopper, but I dont think same input Z. I do not think they put the solid state boards in the 410B model?

You can find the AC probe that goes with them but go pretty high on Ebay. They wont read very low levels of RF voltage but will read high levels. I have a couple of the original AC probes (use a special diode tube in them that gets it filament voltage thru the probe triax cable), but I only use them along with the HP453A 100:1 divider probe to measure things like the RF voltage on the plate of the 6146 finals or across the Tank circuit (around 525rms rf volts at 100 watts).

I use Boonton 92E or O-scope for most RF measurements.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I may have over looked it, but I can't recall anyone mentioning the use of a HP-410B VTVM for the RF and AF measurements on the Kenwood hybrid radios. Any pros/cons?

Thanks,

Rick/K5IAR

44833. Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 16:34:29 UTC
From: Chris Maness
Topic: 44833 Message: 44833

Had a nice discussion about keeping tubes alive on a old timer's round table a few days. The consensus with the old timer's was that tube rigs should be kept on 24/7 to extend their life. I am certain there is a point of diminishing returns with this statement. If one used the radio once per day, or just a couple of time per week would it not be better to shut 'er down for the in between time. There is also the issue of diminishing returns with mains power being consumed versus the cost of new tubes.

I also do not run at greater than 100Watts.

Terry had mentioned some NOS 6146B's were gassy. That is disconcerting. I did not know the were sealed against the base. I guess that is where sweep tubes have the advantage. I have yet to come across a bad NOS tube. However, I have only messed with the small 12AX7 types.

Terry, if we send you tubes can you verify that these babies won't arc over? I wouldn't even mind if you charged me a fee for this. I am thinking of getting a set and putting them away for a rainy day. I am really enjoying my 520 Sugar -- white noise on CW and all :D I have been working DX on 40m. This is something new to me.

73 de KQ6UP
Chris Maness

44834. Re: [TS-520_820_530_830] Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 16:44:45 UTC
From: K5MYJ
Topic: 44833 Message: 44834

One thing that works well is to keep the filaments powered at a reduced voltage. Even reducing the voltage 10% extends the life a lot.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Chris Maness
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 9:34 AM
Subject: [TS-520_820_530_830] Extending The Life of Tubes?

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44835. Re: [TS-520_820_530_830] Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 16:47:36 UTC
From: Bob
Topic: 44833 Message: 44835

I also have a TS-520...love the rig.

As to the issue of gassy NOS tubes, I think it's more a gamble than a solid fact. I've used many a NOS with no problems, but that's not to say that it can't happen, there is always that risk. I just try to make sure the seller of the tubes has some kind of guarantee, or a disclaimer that says otherwise.

As to the keeping the valves lit all the time to make 'em last longer, that's hard to say. But I think your argument is correct; this may be a point of diminishing returns. The benefits may not outweigh the cost in the long run.

Bob< KD5MHQ

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 10:34 AM
Subject: [TS-520_820_530_830] Extending The Life of Tubes?

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Chris Maness

44836. RE: Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 18:30:57 UTC
From: <wagstw46@...>
Topic: 44540 Message: 44836

Yes I have the big schematic as well. Have one laminated and other real dog eared one that I mark on and one brand new in the mailing tube as a spare. Very helpful.

If you have no -6 at audio board then you will have no Receive bias RB1 at RF amp on RF board. You want to turn off Q1 RF amp in transmit mode. You will also have no cutoff bias (TB) for the TIF amp on the IF board. Also will have no AGC action as -6 supplies AGC amp transistor Q10. Also, the -6 is used to back bias the agc detector diodes to set the AGC threshold. So missing it at Audio and IF boards is a big deal. I thought we had talked about it when we discussed S-meter action. Perhaps not. Lot of ground has been covered.

Yes this rig sure is a mess and will present a challenge and as you say a learning experience for you. This is one if on the bench would be no way to bill all the hours you would have in it. I dont work on them any more.

I wrote a pretty detailed primer on why need single diode and multi-diode probe and what characteristics you should look for in a diode, but dont remember what Message number it is. Not sure with this new format if you could ever find it. Things like that probably should go in the files section. Maybe you can try searching on RF probes? It is important to understand that the diode is seeing the peak and what the PIV will be in selecting a diode. We dont care too much about flat frequency response and real precise voltage measuring.

If you can find a germanium signal diode that is what I would opt for. They will give you the best sensitivity. 1n34A, 1n60, 1n270 will all work. Dont use a silicon fast switcher like a 1n914 or 1n4148. They will work but barrier voltage is too high. If you cant find a germanium then a Schottky like a 1n5711 will work. Scotts Elecronics (crystal set parts) state side sells them on his website.

Just remember that you cant get on plate of Driver tube or the control grids of the 6146 finals with a single diode probe. Approx 30 to 35 volts is max and will destroy the diode attempting to measure the RF drive levels at those two locations. I would make a 3 diode probe for the higher RF voltage levels you will want to measure. It wont be good for low levels so you use the 1 diode probe for that. This is why Heath offered the 309C and the PK-3.

Terry K9TW

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So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals

and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44837. RE: Re: [TS-520_820_530_830] Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 19:11:33 UTC
From: <wagstw46@...>
Topic: 44833 Message: 44837

I am not saying that all NOS 6146 that have set around for 35 years will off gas or have air in-leakage at the pin to glass interface seal area.

I am saying it is very likely wont have a pure inert vacuum environment and this is the primary reason for tube arc overs other than foreign conductive objects inside the envelope and I think American mfg standards and QC was good and not likely any foreign objects or conductive hairs bridging the space between the elements.

What started me on this journey is I had 4 sets of 6146B supposedly NOS spares. Two GE and two RCA. I had them for years and never used them. I popped the cathode resistors one day in a QSO when I keyed the mic and started speaking. I picked the pieces of cathode resistors out of rig, replaced them and installed set of the GE NOS spares, neutralized them and put covers back on. Next day loaded rig and was going to work some CW. Keyed the rig again and bang.

Went thru same repair again and installed set of the RCA NOS spares. This time left covers off. Loaded rig and all was fine. About 3 days later bang again. This time my 500ua panel meter bit the dust.

This is when I wrote Tom Rauch W8JI and asked for some help and posted on QRZ and got all the usual responses about how the cathode "fuses" were doing there job. I even had guys trying to convince me that they were not only fuses but cathode bias resistors and degenerative feedback resistors. All of course BS. Even got those who said problem was with the KW rig as they ran Heath transceivers and never experienced a blown cathode meter shunt resistor since building the rig new in the 70s. .

Tom saw this and threw the BS flag. He runs many boatanchor rigs with 6146 finals in them and years ago bought 6146 tubes in the case lot. He also has a DC hipot and tests them before using and finds a pretty high leakage rate. He suggested that I try Sylvania 6146W JAN tubes. I use them now and have had good luck with them. He also helped me with the mod to protect the panel meter. I have added MOVs on the screen grids and a HV supply glitch resistor. I no longer have any open cathode resistors. Knock on wood.

The point is you really dont know if your spare 6146 finals that have been sitting on your shelf are NOS or not. You may be able to decipher the date code and it is likely they are 25 to 30 years old since they have not been manufactured state side in many years. That fact alone tells you that there is some risk in using. No amount of "cooking" or "gettering" is going to help. You can install them and they may work fine or they may arc over and pop your cathode resistors. Many people install new cathode resistors and try it again and things are fine and tube does not arc over again. I never do that as my panel meter is worth more than any 6146 tube and I dont want to stress it multiple times or the HV caps or the HV rectifier diodes or the power transformer.

So again no way to tell if you have a NOS spare or any spare that is a viable spare when you reach for it other than to DC hipot and see what leakage current you have in a stepped high voltage test. DC hipot is of course not a common piece of test gear in most ham shacks . So absent installing protection on your final board it is as Bob says a gamble.

Up to you how you deal with it.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I also have a TS-520...love the rig.

As to the issue of gassy NOS tubes, I think it's more a gamble than a solid fact. I've used many a NOS with no problems, but that's not to say that it can't happen, there is always that risk. I just try to make sure the seller of the tubes has some kind of guarantee, or a disclaimer that says otherwise.

As to the keeping the valves lit all the time to make 'em last longer, that's hard to say. But I think your argument is correct; this may be a point of diminishing returns. The benefits may not outweigh the cost in the long run.

Bob< KD5MHQ

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 10:34 AM
Subject: [TS-520_820_530_830] Extending The Life of Tubes?

Had a nice discussion about keeping tubes alive on a old timer's round table a few days. The consensus with the old timer's was that tube rigs should be kept on 24/7 to extend their life. I am certain there is a point of diminishing returns with this statement. If one used the radio once per day, or just a couple of time per week would it not be better to shut 'er down for the in between time. There is also the issue of diminishing returns with mains power being consumed versus the cost of new tubes.

I also do not run at greater than 100 Watts.

Terry had mentioned some NOS 6146B's were gassy. That is disconcerting. I did not know the were sealed against the base. I guess that is where sweep tubes have the advantage. I have yet to come across a bad NOS tube. However, I have only messed with the small 12AX7 types.

Terry, if we send you tubes can you verify that these babies won't arc over? I wouldn't even mind if you charged me a fee for this. I am thinking of getting a set and putting them away for a rainy day. I am really enjoying my 520 Sugar -- white noise on CW and all :D I have been working DX on 40m. This is something new to me.

73 de KQ6UP
Chris Maness

44838. Re: Re: [TS-520_820_530_830] Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 19:17:54 UTC
From: Chris Maness
Topic: 44833 Message: 44838

Good info Terry. Is there a write up on the details of this protection circuitry? If mine go south one day, I don't want the horror of killing my meter.

Thanks,
Chris KQ6UP

On Mon, Sep 23, 2013 at 12:11 PM, <wagstw46@...> wrote:

>
>
> I am not saying that all NOS 6146 that have set around for 35 years will
> off gas or have air in-leakage at the pin to glass interface seal area.
>
>
> I am saying it is very likely wont have a pure inert vacuum environment
> and this is the primary reason for tube arc overs other than foreign
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> and QC was good and not likely any foreign objects or conductive hairs
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> spares. Two GE and two RCA. I had them for years and never used them. I
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> started speaking. I picked the pieces of cathode resistors out of rig,
> replaced them and installed set of the GE NOS spares, neutralized them and
> put covers back on. Next day loaded rig and was going to work some CW.
> Keyed the rig again and bang.
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> again. This time my 500ua panel meter bit the dust.
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> on QRZ and got all the usual responses about how the cathode "fuses" were
> doing there job. I even had guys trying to convince me that they were not
> only fuses but cathode bias resistors and degenerative feedback resistors.
> All of course BS. Even got those who said problem was with the KW rig as
> they ran Heath transceivers and never experienced a blown cathode meter
> shunt resistor since building the rig new in the 70s. .
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> a DC hipot and tests them before using and finds a pretty high leakage
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> course not a common piece of test gear in most ham shacks . So absent
> installing protection on your final board it is as Bob says a gamble.
>
>
> Up to you how you deal with it.
>
>
> Terry K9TW
>
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> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
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> I also have a TS-520...love the rig.
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> As to the issue of gassy NOS tubes, I think it's more a gamble than a
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> point of diminishing returns. The benefits may not outweigh the cost in the
> long run.

>
> Bob< KD5MHQ
>
> From: Chris Maness <chris@...>
>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Monday, September 23, 2013 10:34 AM
> Subject: [TS-520_820_530_830] Extending The Life of Tubes?
>
>
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>
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> I did not know the were sealed against the base. I guess that is where
> sweep tubes have the advantage. I have yet to come across a bad NOS tube.
> However, I have only messed with the small 12AX7 types.
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> thinking of getting a set and putting them away for a rainy day. I am
> really enjoying my 520 Sugar -- white noise on CW and all :D I have been
> working DX on 40m. This is something new to me.
>
> 73 de KQ6UP
> Chris Maness
>
>
>
>
>

44839. Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 19:27:49 UTC
From: Don
Topic: 44540 Message: 44839

Terry

Yes that was well spent money.I also got one of the PLL board and it
came out real nice.$10 EACH.
As i am lucky to have four good working hybrids,three ts830's and one
ts520s,this Ebay special has been a good training rig with your help.
If it was not for this forum,i would be up well you know S--- creek with
out the paddle.
I don't like to pawn off junk to other hams or anybody else.I would
ratter sell it as parts or throw it in the creek.
No we did not talk about the -6 volts,well i had made mention of it,but
i guess it was not were you wanted me to test.
You made no mention of a source for coils for the RF board.Do you know
the inductance for them.Maybe i could rewind them.
The coils with the bigger slugs have not been a problem like the smaller
ones,3.5,7 MHZ.
I do have a L/C from alldigital.
Thanks for pointing that out about the different probes as i did not
know that.
I just did a startpage search on the probes and found the pk3 schematic
with the three diodes.
Guess i will build the two or buy the two different ones on Ebay.
I see on Ebay there is a PK1 too.
I see they are advertising cougar women on our group site now hi hi.

73's
Don/Ve2ud

On 23/09/2013 2:30 PM, wagstw46@... wrote:
>
> Yes I have the big schematic as well. Have one laminated and other
> real dog eared one that I mark on and one brand new in the mailing
> tube as a spare. Very helpful.
>
>
> If you have no -6 at audio board then you will have no Receive bias
> RB1 at RF amp on RF board. You want to turn off Q1 RF amp in transmit
> mode. You will also have no cutoff bias (TB) for the TIF amp on the IF
> board. Also will have no AGC action as -6 supplies AGC amp transistor
> Q10. Also, the -6 is used to back bias the agc detector diodes to set
> the AGC threshold. So missing it at Audio and IF boards is a big deal.
> I thought we had talked about it when we discussed S-meter action.
> Perhaps not. Lot of ground has been covered.
>
>
> Yes this rig sure is a mess and will present a challenge and as you

> say a learning experience for you. This is one if on the bench would
> be no way to bill all the hours you would have in it. I dont work on
> them any more.
>
>
> I wrote a pretty detailed primer on why need single diode and
> multi-diode probe and what characteristics you should look for in a
> diode, but dont remember what Message number it is. Not sure with this
> new format if you could ever find it. Things like that probably should
> go in the files section. Maybe you can try searching on RF probes? It
> is important to understand that the diode is seeing the peak and what
> the PIV will be in selecting a diode. We dont care too much about flat
> frequency response and real precise voltage measuring.
>
>
> If you can find a germanium signal diode that is what I would opt for.
> They will give you the best sensitivity. 1n34A, 1n60, 1n270 will all
> work. Dont use a silicon fast switcher like a 1n914 or 1n4148. They
> will work but barrier voltage is too high. If you cant find a
> germanium then a Schottky like a 1n5711 will work. Scotts Elecronics
> (crystal set parts) state side sells them on his website.
>
>
> Just remember that you cant get on plate of Driver tube or the control
> grids of the 6146 finals with a single diode probe. Approx 30 to 35
> volts is max and will destroy the diode attempting to measure the RF
> drive levels at those two locations. I would make a 3 diode probe for
> the higher RF voltage levels you will want to measure. It wont be good
> for low levels so you use the 1 diode probe for that. This is why
> Heath offered the 309C and the PK-3.
>
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
> Terry
>
> To make tracing easier i went and had the TS 830 color schematic blown
> up to 2x3,a lot better on old eyes to follow.
> I took all the voltages from the abbreviation schematic,to make sure i
> had not missed any on the connectors.
> The one we did not discuss was the minus 6 volts.I had it on the
> counter unit,but not on the audio or IF board.I was able to trace the
> wire back to the -6 volt switch board and found it had broken off.
> After soldering the wire back on the post i now had white noise,if

> that's what you call it when i turned the rig on
> I now have the whole front panel removed to get at the +0.5 switch as
> three wire's have broken off that switch.
> Needed a good cleaning anyway.
>
> I still have very week signal's or high attenuation on all bands.The
> high bands have higher s-meter reading on the SSG than the lower
> bands,with 21 MHz being the strongest.
> Question
> My Rf board is good except for the mixer and ant coils.
> Is there any were one can get sub's for these coils.The rubber band
> trick works ok,but makes it harder to adjust the coils.
> Once i get it back together i can go on with the injection steps on
> the IF board
> I tried to get a Rf probe on Ebay for my VTVM but got outbid,so will
> roll my own.
> Which diode would you recommend for a RF probe.
>
> I am not sure on how many owners had this Ebay special before me,but
> even the wire's are dull in color compared to my other rigs.
> The only reason i have not flogged it off,as it makes a good training
> radio for me to learn on.
>
> 73
>
> Don/Ve2ud
>
>
>
>
> On 15/09/2013 8:10 AM, wagstw46@... <mailto:wagstw46@...> wrote:
>>
>> Don
>>
>>
>> Use a low level to inject 8.830 at RIF on IF board and couple
>> output of sig gen thru about a .01uf cap. Nothing more than 5 mv.
>> Also, a couple of the cans will have very little effect on
>> signal level on the S-meter as you turn the core. Do not worry
>> about those at this time. If you get some improvement in S-meter
>> indication suggest you lower the sig gen level and make a 2nd
>> pass. What you are looking for is something that has been grossly
>> mis-tuned that will make IF chain come alive.
>>
>>
>> If doing IFT alignment does not produce significant improvement
>> in Rx sensitivity then I think time to remove the IF board and do
>> good visual inspection on all the molex pins under magnification
>> and look at all the traces for damage and signs of cobbled
>> repairs. Can have lifted pads and traces, solder bridging, wire

>> jumpers, maybe even a blown trace etc.
>>
>>
>> I am pretty sure I had you measure Carrier Oscillator and VBT Osc
>> previously and you reported they were to spec. I think we also
>> measured all the DC supply voltages to the board.
>>
>>
>> We have not yet tried injecting signals in to the IF filters and
>> measuring the output to verify filters are good.
>>
>>
>> We can do signal injection/tracing next to find where the
>> attenuation is occurring or you can pull board and do good
>> visual. If you have already done that then only thing left
>> (assuming that all necessary signals and DC inputs are present on
>> the board) is to do signal injection/tracing.
>>
>>
>> I have to trust you when you report back that you have the
>> signals and voltages I ask you to check and that you have the
>> test gear to detect and measure these required inputs and know
>> how to use them. I am not there to witness any of these
>> measurements. I can tell you however it is pretty common for me
>> to hear back from someone I am trying to help that previously
>> reported findings were not correct.
>>
>>
>> I mean no disrespect it is just a pretty common for this to happen.
>>
>>
>> Terry K9TW
>>
>>
>>
>> --- In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com>
>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> Terry
>>
>> Hate this new format,as i never got your reply by email
>>
>> Ok will have a look at that section
>>
>>
>> 73
>>
>> Don/Ve2ud

>>
>>
>>
>> --- In ts-520_820_530_830@yahoogroups.com
>> <mailto:ts-520_820_530_830@yahoogroups.com>, <wagstw46@...>
>> <mailto:wagstw46@...> wrote:
>>
>> Don
>>
>>
>> I believe you are saying that when you inject 8.830 @500mv from
>> your RF sig gen into the RIF terminal on the IF board you have a
>> loud high frequency tone that you can vary with the audio gain
>> pot (not tunable with the VFO), but the S-meter level is only at S1?
>>
>>
>> I think we measured RFG at Conn 8 with RF gain pot full CW? It
>> should be 3.6vdc
>>
>>
>> I think we measured AGC bus voltage at Conn 15? .Need to use
>> nothing less than a 10 meg DMM. It will pull the AGC bus down
>> from 3.6 to close to 3.0vdc or slightly less.
>>
>>
>> Have you measured these two voltages? Normally if the AGC bus
>> voltage is low the S-meter will be driven up scale with no signal
>> applied unless the S-meter driver circuit is bad.
>>
>>
>> Have you ever performed the IFT alignment? You can perform the
>> procedure in the maintenance section of the operating manual or
>> the steps in the service manual.
>>
>>
>> Terry K9TW
>>
>>
>>
>> --- In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com>
>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> Terry
>>
>> Now i remember what i said about loud but no s-meter
>> reading,it is this test i did and now i have redid it
>> with the 8.8830 injection at conn 6
>>

>> I got S1 meter reading with 500 mv injection in con 6 and
>> same on the RF board con 5 pin 2
>>
>>
>> Don
>>
>>
>> So trusting that the audio board is working as it should
>> and can process the output of the Product Detector, then
>> the problem now is very weak Marker and very weak off air
>> signals and low or no S-meter indication. Dont worry
>> about weak moni at this point.
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>> So this is place I would use RF sig generator and split
>> the problem. Is it on the IF board or the RF board (or
>> both but not likely). If you want to work back from the
>> Audio Board then I would inject 8.830 mhz into the RIF
>> terminal on the IF board and see if you can hear it loud
>> and good S meter indication. If you can then move on to
>> the RF board. If you cannot get back and we can talk
>> about signal injection/tracing on the IF board.
>>
>>
>> Inject 8.830mhz at Conn 6 on IF board. You dont need any
>> modulation. -73dBM/50uv should give approx S6.
>> -53dBm/500uv should give approx S9. -33dBm/5mv should
>> give approx +20 over.
>>
>>
>> Terry K9TW
>>
>
>

44840. RE: Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 21:09:48 UTC
From: <wagstw46@...>
Topic: 44540 Message: 44840

Sorry I forgot about the Drive and Mixer coils. I know of no source for them other than from a RF board. As you may be aware RF boards in any shape go for a premium. Usually well over $100 and scarce.

Might ask on this forum if anyone has one that they are using to harvest parts from. Otherwise I think you are looking at buying a tech special and they arent cheap on Ebay.

I do not know what the inductance is for any of them other than L41. I have measured it and I do that with the slug tuned even with top of the former.

If your problem is that they do not hold their position have you tried wrapping teflon plumbers tape on the cores and re-inserting them? I find this works much better than rubber bands. Holds them in place and they dont tend to gall or sieze in place.

Terry K9TW

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Terry

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I do have a L/C from alldigital.
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I just did a startpage search on the probes and found the pk3 schematic with the three diodes.
Guess i will build the two or buy the two different ones on Ebay.
I see on Ebay there is a PK1 too.
I see they are advertising cougar women on our group site now hi hi.

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Hate this new format,as i never got your reply by email

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I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

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Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44841. Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 21:21:10 UTC
From: Don
Topic: 44540 Message: 44841

Would the teflon plumbers tape change or hinder the inductanceIt is very thin,so i would think not.
That would be a better way to go

Thanks
Don/Ve2ud

On 23/09/2013 5:09 PM, wagstw46@... wrote:
>
> Sorry I forgot about the Drive and Mixer coils. I know of no source
> for them other than from a RF board. As you may be aware RF boards in
> any shape go for a premium. Usually well over $100 and scarce.
>
>
> Might ask on this forum if anyone has one that they are using to
> harvest parts from. Otherwise I think you are looking at buying a tech
> special and they arent cheap on Ebay.
>
>
> I do not know what the inductance is for any of them other than L41. I
> have measured it and I do that with the slug tuned even with top of
> the former.
>
>
> If your problem is that they do not hold their position have you tried
> wrapping teflon plumbers tape on the cores and re-inserting them? I
> find this works much better than rubber bands. Holds them in place and
> they dont tend to gall or sieze in place.
>
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> Yes that was well spent money.I also got one of the PLL board and it
> came out real nice.$10 EACH.
> As i am lucky to have four good working hybrids,three ts830's and one
> ts520s,this Ebay special has been a good training rig with your help.
> If it was not for this forum,i would be up well you know S--- creek

> with out the paddle.
> I don't like to pawn off junk to other hams or anybody else.I would
> ratter sell it as parts or throw it in the creek.
> No we did not talk about the -6 volts,well i had made mention of
> it,but i guess it was not were you wanted me to test.
> You made no mention of a source for coils for the RF board.Do you know
> the inductance for them.Maybe i could rewind them.
> The coils with the bigger slugs have not been a problem like the
> smaller ones,3.5,7 MHZ.
> I do have a L/C from alldigital.
> Thanks for pointing that out about the different probes as i did not
> know that.
> I just did a startpage search on the probes and found the pk3
> schematic with the three diodes.
> Guess i will build the two or buy the two different ones on Ebay.
> I see on Ebay there is a PK1 too.
> I see they are advertising cougar women on our group site now hi hi.
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>> real precise voltage measuring.
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44842. RE: Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 21:54:16 UTC
From: <n6wk@...>
Topic: 44540 Message: 44842

Don, where did you see an ad for Cougars on here? Message number?

Thanks,
Gordon
N6WK

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Guess i will build the two or buy the two different ones on Ebay.
I see on Ebay there is a PK1 too.
I see they are advertising cougar women on our group site now hi hi.

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Don

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So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44843. Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:02:02 UTC
From: Don
Topic: 44540 Message: 44843

Gordon
It is on the front home page of the Yahoo group to the right.The add
changes now and then
It was not placed as a message
Think you are too old for cougars now gordon hi hi

Don

On 23/09/2013 5:54 PM, n6wk@... wrote:
>
> Don, where did you see an ad for Cougars on here? Message number?
>
>
> Thanks,
>
> Gordon
>
> N6WK
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Terry
>
> Yes that was well spent money.I also got one of the PLL board and it
> came out real nice.$10 EACH.
> As i am lucky to have four good working hybrids,three ts830's and one
> ts520s,this Ebay special has been a good training rig with your help.
> If it was not for this forum,i would be up well you know S--- creek
> with out the paddle.
> I don't like to pawn off junk to other hams or anybody else.I would
> ratter sell it as parts or throw it in the creek.
> No we did not talk about the -6 volts,well i had made mention of
> it,but i guess it was not were you wanted me to test.
> You made no mention of a source for coils for the RF board.Do you know
> the inductance for them.Maybe i could rewind them.
> The coils with the bigger slugs have not been a problem like the
> smaller ones,3.5,7 MHZ.
> I do have a L/C from alldigital.
> Thanks for pointing that out about the different probes as i did not
> know that.
> I just did a startpage search on the probes and found the pk3
> schematic with the three diodes.

> Guess i will build the two or buy the two different ones on Ebay.
> I see on Ebay there is a PK1 too.
> I see they are advertising cougar women on our group site now hi hi.
>
> 73's
> Don/Ve2ud
>
>
> On 23/09/2013 2:30 PM, wagstw46@...
> <mailto:wagstw46@...> wrote:
>>
>> Yes I have the big schematic as well. Have one laminated and
>> other real dog eared one that I mark on and one brand new in the
>> mailing tube as a spare. Very helpful.
>>
>>
>> If you have no -6 at audio board then you will have no Receive
>> bias RB1 at RF amp on RF board. You want to turn off Q1 RF amp in
>> transmit mode. You will also have no cutoff bias (TB) for the TIF
>> amp on the IF board. Also will have no AGC action as -6 supplies
>> AGC amp transistor Q10. Also, the -6 is used to back bias the agc
>> detector diodes to set the AGC threshold. So missing it at Audio
>> and IF boards is a big deal. I thought we had talked about it
>> when we discussed S-meter action. Perhaps not. Lot of ground has
>> been covered.
>>
>>
>> Yes this rig sure is a mess and will present a challenge and as
>> you say a learning experience for you. This is one if on the
>> bench would be no way to bill all the hours you would have in it.
>> I dont work on them any more.
>>
>>
>> I wrote a pretty detailed primer on why need single diode and
>> multi-diode probe and what characteristics you should look for in
>> a diode, but dont remember what Message number it is. Not sure
>> with this new format if you could ever find it. Things like that
>> probably should go in the files section. Maybe you can try
>> searching on RF probes? It is important to understand that the
>> diode is seeing the peak and what the PIV will be in selecting a
>> diode. We dont care too much about flat frequency response and
>> real precise voltage measuring.
>>
>>
>> If you can find a germanium signal diode that is what I would opt
>> for. They will give you the best sensitivity. 1n34A, 1n60, 1n270
>> will all work. Dont use a silicon fast switcher like a 1n914 or
>> 1n4148. They will work but barrier voltage is too high. If you
>> cant find a germanium then a Schottky like a 1n5711 will work.
>> Scotts Elecronics (crystal set parts) state side sells them on

>> his website.
>>
>>
>> Just remember that you cant get on plate of Driver tube or the
>> control grids of the 6146 finals with a single diode probe.
>> Approx 30 to 35 volts is max and will destroy the diode
>> attempting to measure the RF drive levels at those two locations.
>> I would make a 3 diode probe for the higher RF voltage levels you
>> will want to measure. It wont be good for low levels so you use
>> the 1 diode probe for that. This is why Heath offered the 309C
>> and the PK-3.
>>
>>
>> Terry K9TW
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>> --- In TS-520_820_530_830@yahoogroups.com
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>> Terry
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>> To make tracing easier i went and had the TS 830 color schematic
>> blown up to 2x3,a lot better on old eyes to follow.
>> I took all the voltages from the abbreviation schematic,to make
>> sure i had not missed any on the connectors.
>> The one we did not discuss was the minus 6 volts.I had it on the
>> counter unit,but not on the audio or IF board.I was able to trace
>> the wire back to the -6 volt switch board and found it had broken
>> off.
>> After soldering the wire back on the post i now had white
>> noise,if that's what you call it when i turned the rig on
>> I now have the whole front panel removed to get at the +0.5
>> switch as three wire's have broken off that switch.
>> Needed a good cleaning anyway.
>>
>> I still have very week signal's or high attenuation on all
>> bands.The high bands have higher s-meter reading on the SSG than
>> the lower bands,with 21 MHz being the strongest.
>> Question
>> My Rf board is good except for the mixer and ant coils.
>> Is there any were one can get sub's for these coils.The rubber
>> band trick works ok,but makes it harder to adjust the coils.
>> Once i get it back together i can go on with the injection steps
>> on the IF board
>> I tried to get a Rf probe on Ebay for my VTVM but got outbid,so
>> will roll my own.

>> Which diode would you recommend for a RF probe.
>>
>> I am not sure on how many owners had this Ebay special before
>> me,but even the wire's are dull in color compared to my other rigs.
>> The only reason i have not flogged it off,as it makes a good
>> training radio for me to learn on.
>>
>> 73
>>
>> Don/Ve2ud
>>
>>
>>
>>
>> On 15/09/2013 8:10 AM, wagstw46@... <mailto:wagstw46@...> wrote:
>>>
>>> Don
>>>
>>>
>>> Use a low level to inject 8.830 at RIF on IF board and
>>> couple output of sig gen thru about a .01uf cap. Nothing
>>> more than 5 mv. Also, a couple of the cans will have very
>>> little effect on signal level on the S-meter as you turn the
>>> core. Do not worry about those at this time. If you get
>>> some improvement in S-meter indication suggest you lower the
>>> sig gen level and make a 2nd pass. What you are looking for
>>> is something that has been grossly mis-tuned that will make
>>> IF chain come alive.
>>>
>>>
>>> If doing IFT alignment does not produce significant
>>> improvement in Rx sensitivity then I think time to remove
>>> the IF board and do good visual inspection on all the molex
>>> pins under magnification and look at all the traces for
>>> damage and signs of cobbled repairs. Can have lifted pads
>>> and traces, solder bridging, wire jumpers, maybe even a
>>> blown trace etc.
>>>
>>>
>>> I am pretty sure I had you measure Carrier Oscillator and
>>> VBT Osc previously and you reported they were to spec. I
>>> think we also measured all the DC supply voltages to the board.
>>>
>>>
>>> We have not yet tried injecting signals in to the IF filters
>>> and measuring the output to verify filters are good.
>>>
>>>
>>> We can do signal injection/tracing next to find where the
>>> attenuation is occurring or you can pull board and do good

>>> visual. If you have already done that then only thing left
>>> (assuming that all necessary signals and DC inputs are
>>> present on the board) is to do signal injection/tracing.
>>>
>>>
>>> I have to trust you when you report back that you have the
>>> signals and voltages I ask you to check and that you have
>>> the test gear to detect and measure these required inputs
>>> and know how to use them. I am not there to witness any of
>>> these measurements. I can tell you however it is pretty
>>> common for me to hear back from someone I am trying to help
>>> that previously reported findings were not correct.
>>>
>>>
>>> I mean no disrespect it is just a pretty common for this to
>>> happen.
>>>
>>>
>>> Terry K9TW
>>>
>>>
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>>> <ts-520_820_530_830@yahoogroups.com>
>>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>> Terry
>>>
>>> Hate this new format,as i never got your reply by email
>>>
>>> Ok will have a look at that section
>>>
>>>
>>> 73
>>>
>>> Don/Ve2ud
>>>
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>>>
>>> --- In ts-520_820_530_830@yahoogroups.com
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>>> Don
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>>> I believe you are saying that when you inject 8.830 @500mv
>>> from your RF sig gen into the RIF terminal on the IF board
>>> you have a loud high frequency tone that you can vary with

>>> the audio gain pot (not tunable with the VFO), but the
>>> S-meter level is only at S1?
>>>
>>>
>>> I think we measured RFG at Conn 8 with RF gain pot full CW?
>>> It should be 3.6vdc
>>>
>>>
>>> I think we measured AGC bus voltage at Conn 15? .Need to use
>>> nothing less than a 10 meg DMM. It will pull the AGC bus
>>> down from 3.6 to close to 3.0vdc or slightly less.
>>>
>>>
>>> Have you measured these two voltages? Normally if the AGC
>>> bus voltage is low the S-meter will be driven up scale with
>>> no signal applied unless the S-meter driver circuit is bad.
>>>
>>>
>>> Have you ever performed the IFT alignment? You can perform
>>> the procedure in the maintenance section of the operating
>>> manual or the steps in the service manual.
>>>
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>>> Terry K9TW
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>>> --- In TS-520_820_530_830@yahoogroups.com
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>>> <ts-520_820_530_830@yahoogroups.com>
>>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>> Terry
>>>
>>> Now i remember what i said about loud but no s-meter
>>> reading,it is this test i did and now i have redid
>>> it with the 8.8830 injection at conn 6
>>>
>>> I got S1 meter reading with 500 mv injection in con
>>> 6 and same on the RF board con 5 pin 2
>>>
>>>
>>> Don
>>>
>>>
>>> So trusting that the audio board is working as it
>>> should and can process the output of the Product
>>> Detector, then the problem now is very weak Marker
>>> and very weak off air signals and low or no S-meter
>>> indication. Dont worry about weak moni at this point.

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>>> So this is place I would use RF sig generator and
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>>> mhz into the RIF terminal on the IF board and see if
>>> you can hear it loud and good S meter indication. If
>>> you can then move on to the RF board. If you cannot
>>> get back and we can talk about signal
>>> injection/tracing on the IF board.
>>>
>>>
>>> Inject 8.830mhz at Conn 6 on IF board. You dont need
>>> any modulation. -73dBM/50uv should give approx S6.
>>> -53dBm/500uv should give approx S9. -33dBm/5mv
>>> should give approx +20 over.
>>>
>>>
>>> Terry K9TW
>>>
>>
>
>

44844. RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:18:21 UTC
From: <wagstw46@...>
Topic: 44833 Message: 44844

Chris:

I can test your 6146 finals for you but need to have some discussion about what that means . My test set is very similar to what you can see on K8CU website. Mine goes to 5KV and is current limited to approx 100ua. I used a microwave oven transformer, capacitor, and rectifier. It cannot hurt your tubes.

I can measure the ua leakage current and mark them on the shield ring with a Sharpie, but not much value to you if you cant repeat test when you reach for them which could be years from now.

I cannot guarantee they will not arc over now and I cannot guarantee they wont 2 or 3 years down road when you reach for them. If they test good now (by my definition of good) very likely they will be OK in RF service if installed when you get them back.

One of the problems is no one knows what the acceptance criteria or test voltage should be. No published data I can find for 6146 tubes. EIMAC has bulletins on hi-potting their high power transmitter tubes that gives the dc test voltage and the acceptable leakage current.

So in addition to not being able to guarantee they would not arc over when you need them here is other thing to think about:

1. There is the round trip packing and shipping cost. I wont charge you to test them.
2. There is the jeopardy from damage/breakage during transit. Even if you heavy bubble wrap the 500 lb gorillas will do their best to break them!
3. What you will know is that per K9TWs acceptance criteria and experience with testing that in 10/2013 your 6146 finals did not have excessive leakage current and were able to hold off typical voltage level that would be seen in KW RF service. You wont know if they have deteriorated when you reach for them. To ameliorate that you could start a program of rotating your spares on an annual basis. You could do a spring tune up and cleaning with a good visual inspection and lube the fan and VFO gear train and rotate the finals.

Here is how I arrived at my test procedure and acceptance criteria. No one has validated this:

What is the approx RF voltage swing at the anode at 100 watts out and assuming 840vdc anode voltage?

840 x .9 x .707 = 535rms rf volts and 535 x 2.828 = 1513 rf volts Peak to Peak. So I add a little to that and use 1600 vdc to simulate the RF swing that the 6146 finals see. I am able to measure the actual rf voltage across the Tank using HP410c and HP453A and it measures very close to 525 volts so the above formula is valid for approximations.

On my test set with the test leads installed and power on at 2000vdc I have approx 7 to 10 ua leakage current. I subtract this base value from any readings I get during the step voltage vs leakage current test.

I connect plus lead to the anode and minus lead the cathode (same as suppressor grid which is physically closest element to the anode) .

1. Start at 1000vdc and record ua leakage.
2. Increase to 1100 vdc and record ua leakage
3. Increase to 1200 vdc and record ua leakage
4. Increase to 1300 vdc and record ua leakage
5. Increase to 1400 vdc and record ua leakage
6. Increase to 1500 vdc and record ua leakage
7. Increase to 1600 vdc and record ua leakage

If tube holds off 1600 vdc I usually see something on the order of 15ua leakage.

At each step I hold it there for a few ,moments and see if the ua leakage is jumping around. I try to see if the leakage is increasing in a linear manner.

If the tube arcs over it will peg the ua meter and I immediately back down the voltage. I try to anticipate arc over and catch it but not easy to do. If meter is flicking at each step not a good sign.

If it arcs over I repeat the test and sometimes it will then be able to hold off 1600vdc. Other times it will arc over again and if it does then I trash it.

So only ones I keep as spares are those who hold off 1600vdc on first or 2nd pass at around 15ua leakage.

I have some that will hold off 2000vdc on first pass. Dont normally test to this level but have done it to see what is the max and have seen one that would hold off 2500vdc.

Not sure what they would see in pulse service?

So let me know what you want to do. Might take off list for details on shipping etc.

You can go to WB4HFN web site where Mark WB0IQK has posted my final board mod under the Kenwood section of the site.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Had a nice discussion about keeping tubes alive on a old timer's round table a few days. The consensus with the old timer's was that tube rigs should be kept on 24/7 to extend their life. I am certain there is a point of diminishing returns with this statement. If one used the radio once per day, or just a couple of time per week would it not be better to shut 'er down for the in between time. There is also the issue of diminishing returns with mains power being consumed versus the cost of new tubes.

I also do not run at greater than 100Watts.

Terry had mentioned some NOS 6146B's were gassy. That is disconcerting. I did not know the were sealed against the base. I guess that is where sweep tubes have the advantage. I have yet to come across a bad NOS tube. However, I have only messed with the small 12AX7 types.

Terry, if we send you tubes can you verify that these babies won't arc over? I wouldn't even mind if you charged me a fee for this. I am thinking of getting a set and putting them

away for a rainy day. I am really enjoying my 520 Sugar -- white noise on CW and all :D I have been working DX on 40m. This is something new to me.

73 de KQ6UP
Chris Maness

44845. RE: Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:31:12 UTC
From: <wagstw46@...>
Topic: 44540 Message: 44845

No only metal in the core will change the inductance.

Inductance is related to the permeability of the core material. A vacuum and essentially non-ferrous materials have a permeability of 1.

Brass and aluminum are special cases seen typically at VHF. Work opposite of iron cores. Inductance is reduced as you turn the brass core into the coil.

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Would the teflon plumbers tape change or hinder the inductanceIt is very thin,so i would think not.
That would be a better way to go

Thanks
Don/Ve2ud

On 23/09/2013 5:09 PM, wagstw46@... wrote:

Sorry I forgot about the Drive and Mixer coils. I know of no source for them other than from a RF board. As you may be aware RF boards in any shape go for a premium. Usually well over $100 and scarce.

Might ask on this forum if anyone has one that they are using to harvest parts from. Otherwise I think you are looking at buying a tech special and they arent cheap on Ebay.

I do not know what the inductance is for any of them other than L41. I have measured it and I do that with the slug tuned even with top of the former.

If your problem is that they do not hold their position have you tried wrapping teflon plumbers tape on the cores and re-inserting them? I find this works much better than rubber bands. Holds them in place and they dont tend to gall or sieze in place.

Terry K9TW

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Terry

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I have to trust you when you report back that you have the signals and voltages I ask you to check and that you have the test gear to detect and measure these required inputs and know how to use them. I am not there to witness any of these measurements. I can tell you however it is pretty common for me to hear back from someone I am trying to help that previously reported findings were not correct.

I mean no disrespect it is just a pretty common for this to happen.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Hate this new format,as i never got your reply by email

Ok will have a look at that section

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I think we measured RFG at Conn 8 with RF gain pot full CW? It should be 3.6vdc

I think we measured AGC bus voltage at Conn 15? .Need to use nothing less than a 10 meg DMM. It will pull the AGC bus down from 3.6 to close to 3.0vdc or slightly less.

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--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

Now i remember what i said about loud but no s-meter reading,it is this test i did and now i have redid it with the 8.8830 injection at conn 6

I got S1 meter reading with 500 mv injection in con 6 and same on the RF board con 5 pin 2

Don

So trusting that the audio board is working as it should and can process the output of the Product Detector, then the problem now is very weak Marker and very weak off air signals and low or no S-meter indication. Dont worry about weak moni at this point.

So this is place I would use RF sig generator and split the problem. Is it on the IF board or the RF board (or both but not likely). If you want to work back from the Audio Board then I would inject 8.830 mhz into the RIF terminal on the IF board and see if you can hear it loud and good S meter indication. If you can then move on to the RF board. If you cannot get back and we can talk about signal injection/tracing on the IF board.

Inject 8.830mhz at Conn 6 on IF board. You dont need any modulation. -73dBM/50uv should give approx S6. -53dBm/500uv should give approx S9. -33dBm/5mv should give approx +20 over.

Terry K9TW

44846. RE: TS-830S external VFO with DDS

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 05:10:18 UTC
From: <va7deo@...>
Topic: 44817 Message: 44846

I also found this is a previous post by w5rkl.

The external VFO DIN socket has an embedded switch and controls the internal VFO's power. When the external VFO is not plugged into the 530 then the DIN socket embedded switch closes, allowing power to be applied to the internal VFO.

It looks like there is lots of information here in old posts, trick is to know what to look for.

--- In ts-520_820_530_830@yahoogroups.com, <va7deo@...> wrote:

Thanks. I was looking at the service manual.

I'll guess that the VFO control pin is what switches from the internal to external VFO. I'll have a look at the schematics to see if I can verify that.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

It should be on page 13 of the TS-830s instruction manual, table in the upper left corner. If you dont have it, look here:

http://www.n6wk.com/kenwood/TS-830S_Instruction_manual.pdf

Tj Johnston, K4TFJ ==========
Webpage: K4TFJ's Internet QTH (http://www.qsl.net/k4tfj/) YouTube Channel: K4TFJ Projects (http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w)

On Sun, Sep 22, 2013 at 8:36 PM, <va7deo@...> wrote:

I'm looking for the pinout descriptions for the external VFO plug so I can use a DDS as an external VFO. The TS-830S manual I have doesn't have the pinouts for all the rear connections.

44847. RE: Re: [TS-520_820_530_830] RE: Short in my TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:14:15 UTC
From: clifford wright
Topic: 44735 Message: 44847

Yes my meter was able to be fitted into the same space, but it turned out to be a 100uA movement, so I had to fit an extra shunt. However I had it in my junk box!!!
Zl1BDA

44848. Re: Cathode resistors as fuses

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:19:30 UTC
From: clifford wright
Topic: 44830 Message: 44848

The problem Mike, seems to be that if any one of the resistors fails, or changes in value
you tend to get a runaway situation. My final was never run at such a high cathode current,
but that was exactly what happened. The whole idea of using such small resistors in a hot
environment with and appreciable current flowing is simply not good design practice.
Kenwood's are pretty good but they were by no means perfect even in the late 1970's.
Zl1BDA.

44849. Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:31:20 UTC
From: n6wk@...
Topic: 44540 Message: 44849

Definately too Old Don.. hi hi..
I'm too old to even be Cougar bait.
If it's an ad,then it's from yahoo.

Thanks,
Gordon
N6WK

On 9/23/2013 3:02 PM, Don wrote:
>
> Gordon
> It is on the front home page of the Yahoo group to the right.The add
> changes now and then
> It was not placed as a message
> Think you are too old for cougars now gordon hi hi
>
> Don
>
>
>
> On 23/09/2013 5:54 PM, n6wk@... wrote:
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>> Don, where did you see an ad for Cougars on here? Message number?
>>
>>
>> Thanks,
>>
>> Gordon
>>
>> N6WK
>>
>>
>>
>> --- In TS-520_820_530_830@yahoogroups.com,
>> <ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> Terry
>>
>> Yes that was well spent money.I also got one of the PLL board and it
>> came out real nice.$10 EACH.
>> As i am lucky to have four good working hybrids,three ts830's and one
>> ts520s,this Ebay special has been a good training rig with your help.
>> If it was not for this forum,i would be up well you know S--- creek
>> with out the paddle.
>> I don't like to pawn off junk to other hams or anybody else.I would

>> ratter sell it as parts or throw it in the creek.
>> No we did not talk about the -6 volts,well i had made mention of
>> it,but i guess it was not were you wanted me to test.
>> You made no mention of a source for coils for the RF board.Do you
>> know the inductance for them.Maybe i could rewind them.
>> The coils with the bigger slugs have not been a problem like the
>> smaller ones,3.5,7 MHZ.
>> I do have a L/C from alldigital.
>> Thanks for pointing that out about the different probes as i did not
>> know that.
>> I just did a startpage search on the probes and found the pk3
>> schematic with the three diodes.
>> Guess i will build the two or buy the two different ones on Ebay.
>> I see on Ebay there is a PK1 too.
>> I see they are advertising cougar women on our group site now hi hi.
>>
>> 73's
>> Don/Ve2ud
>>
>>
>> On 23/09/2013 2:30 PM, wagstw46@...
>> <mailto:wagstw46@...> wrote:
>>>
>>> Yes I have the big schematic as well. Have one laminated and
>>> other real dog eared one that I mark on and one brand new in the
>>> mailing tube as a spare. Very helpful.
>>>
>>>
>>> If you have no -6 at audio board then you will have no Receive
>>> bias RB1 at RF amp on RF board. You want to turn off Q1 RF amp
>>> in transmit mode. You will also have no cutoff bias (TB) for the
>>> TIF amp on the IF board. Also will have no AGC action as -6
>>> supplies AGC amp transistor Q10. Also, the -6 is used to back
>>> bias the agc detector diodes to set the AGC threshold. So
>>> missing it at Audio and IF boards is a big deal. I thought we
>>> had talked about it when we discussed S-meter action. Perhaps
>>> not. Lot of ground has been covered.
>>>
>>>
>>> Yes this rig sure is a mess and will present a challenge and as
>>> you say a learning experience for you. This is one if on the
>>> bench would be no way to bill all the hours you would have in
>>> it. I dont work on them any more.
>>>
>>>
>>> I wrote a pretty detailed primer on why need single diode and
>>> multi-diode probe and what characteristics you should look for
>>> in a diode, but dont remember what Message number it is. Not
>>> sure with this new format if you could ever find it. Things like
>>> that probably should go in the files section. Maybe you can try

>>> searching on RF probes? It is important to understand that the
>>> diode is seeing the peak and what the PIV will be in selecting a
>>> diode. We dont care too much about flat frequency response and
>>> real precise voltage measuring.
>>>
>>>
>>> If you can find a germanium signal diode that is what I would
>>> opt for. They will give you the best sensitivity. 1n34A, 1n60,
>>> 1n270 will all work. Dont use a silicon fast switcher like a
>>> 1n914 or 1n4148. They will work but barrier voltage is too high.
>>> If you cant find a germanium then a Schottky like a 1n5711 will
>>> work. Scotts Elecronics (crystal set parts) state side sells
>>> them on his website.
>>>
>>>
>>> Just remember that you cant get on plate of Driver tube or the
>>> control grids of the 6146 finals with a single diode probe.
>>> Approx 30 to 35 volts is max and will destroy the diode
>>> attempting to measure the RF drive levels at those two
>>> locations. I would make a 3 diode probe for the higher RF
>>> voltage levels you will want to measure. It wont be good for low
>>> levels so you use the 1 diode probe for that. This is why Heath
>>> offered the 309C and the PK-3.
>>>
>>>
>>> Terry K9TW
>>>
>>>
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>>> --- In TS-520_820_530_830@yahoogroups.com
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>>> <ts-520_820_530_830@yahoogroups.com>
>>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>>
>>> Terry
>>>
>>> To make tracing easier i went and had the TS 830 color schematic
>>> blown up to 2x3,a lot better on old eyes to follow.
>>> I took all the voltages from the abbreviation schematic,to make
>>> sure i had not missed any on the connectors.
>>> The one we did not discuss was the minus 6 volts.I had it on the
>>> counter unit,but not on the audio or IF board.I was able to
>>> trace the wire back to the -6 volt switch board and found it had
>>> broken off.
>>> After soldering the wire back on the post i now had white
>>> noise,if that's what you call it when i turned the rig on
>>> I now have the whole front panel removed to get at the +0.5
>>> switch as three wire's have broken off that switch.
>>> Needed a good cleaning anyway.

>>>
>>> I still have very week signal's or high attenuation on all
>>> bands.The high bands have higher s-meter reading on the SSG than
>>> the lower bands,with 21 MHz being the strongest.
>>> Question
>>> My Rf board is good except for the mixer and ant coils.
>>> Is there any were one can get sub's for these coils.The rubber
>>> band trick works ok,but makes it harder to adjust the coils.
>>> Once i get it back together i can go on with the injection steps
>>> on the IF board
>>> I tried to get a Rf probe on Ebay for my VTVM but got outbid,so
>>> will roll my own.
>>> Which diode would you recommend for a RF probe.
>>>
>>> I am not sure on how many owners had this Ebay special before
>>> me,but even the wire's are dull in color compared to my other rigs.
>>> The only reason i have not flogged it off,as it makes a good
>>> training radio for me to learn on.
>>>
>>> 73
>>>
>>> Don/Ve2ud
>>>
>>>
>>>
>>>
>>> On 15/09/2013 8:10 AM, wagstw46@... <mailto:wagstw46@...>
>>> wrote:
>>>>
>>>> Don
>>>>
>>>>
>>>> Use a low level to inject 8.830 at RIF on IF board and
>>>> couple output of sig gen thru about a .01uf cap. Nothing
>>>> more than 5 mv. Also, a couple of the cans will have very
>>>> little effect on signal level on the S-meter as you turn
>>>> the core. Do not worry about those at this time. If you
>>>> get some improvement in S-meter indication suggest you
>>>> lower the sig gen level and make a 2nd pass. What you are
>>>> looking for is something that has been grossly mis-tuned
>>>> that will make IF chain come alive.
>>>>
>>>>
>>>> If doing IFT alignment does not produce significant
>>>> improvement in Rx sensitivity then I think time to remove
>>>> the IF board and do good visual inspection on all the molex
>>>> pins under magnification and look at all the traces for
>>>> damage and signs of cobbled repairs. Can have lifted pads
>>>> and traces, solder bridging, wire jumpers, maybe even a
>>>> blown trace etc.

>>>>
>>>>
>>>> I am pretty sure I had you measure Carrier Oscillator and
>>>> VBT Osc previously and you reported they were to spec. I
>>>> think we also measured all the DC supply voltages to the
>>>> board.
>>>>
>>>>
>>>> We have not yet tried injecting signals in to the IF
>>>> filters and measuring the output to verify filters are good.
>>>>
>>>>
>>>> We can do signal injection/tracing next to find where the
>>>> attenuation is occurring or you can pull board and do good
>>>> visual. If you have already done that then only thing left
>>>> (assuming that all necessary signals and DC inputs are
>>>> present on the board) is to do signal injection/tracing.
>>>>
>>>>
>>>> I have to trust you when you report back that you have the
>>>> signals and voltages I ask you to check and that you have
>>>> the test gear to detect and measure these required inputs
>>>> and know how to use them. I am not there to witness any of
>>>> these measurements. I can tell you however it is pretty
>>>> common for me to hear back from someone I am trying to help
>>>> that previously reported findings were not correct.
>>>>
>>>>
>>>> I mean no disrespect it is just a pretty common for this to
>>>> happen.
>>>>
>>>>
>>>> Terry K9TW
>>>>
>>>>
>>>>
>>>> --- In TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>>>> <ts-520_820_530_830@yahoogroups.com>
>>>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>>
>>>> Terry
>>>>
>>>> Hate this new format,as i never got your reply by email
>>>>
>>>> Ok will have a look at that section
>>>>
>>>>
>>>> 73
>>>>

>>>> Don/Ve2ud
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>>>> --- In ts-520_820_530_830@yahoogroups.com
>>>> <mailto:ts-520_820_530_830@yahoogroups.com>, <wagstw46@...>
>>>> <mailto:wagstw46@...> wrote:
>>>>
>>>> Don
>>>>
>>>>
>>>> I believe you are saying that when you inject 8.830 @500mv
>>>> from your RF sig gen into the RIF terminal on the IF board
>>>> you have a loud high frequency tone that you can vary with
>>>> the audio gain pot (not tunable with the VFO), but the
>>>> S-meter level is only at S1?
>>>>
>>>>
>>>> I think we measured RFG at Conn 8 with RF gain pot full
>>>> CW? It should be 3.6vdc
>>>>
>>>>
>>>> I think we measured AGC bus voltage at Conn 15? .Need to
>>>> use nothing less than a 10 meg DMM. It will pull the AGC
>>>> bus down from 3.6 to close to 3.0vdc or slightly less.
>>>>
>>>>
>>>> Have you measured these two voltages? Normally if the AGC
>>>> bus voltage is low the S-meter will be driven up scale with
>>>> no signal applied unless the S-meter driver circuit is bad.
>>>>
>>>>
>>>> Have you ever performed the IFT alignment? You can perform
>>>> the procedure in the maintenance section of the operating
>>>> manual or the steps in the service manual.
>>>>
>>>>
>>>> Terry K9TW
>>>>
>>>>
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>>>> --- In TS-520_820_530_830@yahoogroups.com
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>>>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>>
>>>> Terry
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>>>> Now i remember what i said about loud but no
>>>> s-meter reading,it is this test i did and now i

>>>> have redid it with the 8.8830 injection at conn 6
>>>>
>>>> I got S1 meter reading with 500 mv injection in con
>>>> 6 and same on the RF board con 5 pin 2
>>>>
>>>>
>>>> Don
>>>>
>>>>
>>>> So trusting that the audio board is working as it
>>>> should and can process the output of the Product
>>>> Detector, then the problem now is very weak Marker
>>>> and very weak off air signals and low or no
>>>> S-meter indication. Dont worry about weak moni at
>>>> this point.
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>>>> So this is place I would use RF sig generator and
>>>> split the problem. Is it on the IF board or the RF
>>>> board (or both but not likely). If you want to work
>>>> back from the Audio Board then I would inject 8.830
>>>> mhz into the RIF terminal on the IF board and see
>>>> if you can hear it loud and good S meter
>>>> indication. If you can then move on to the RF
>>>> board. If you cannot get back and we can talk about
>>>> signal injection/tracing on the IF board.
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>>>> Inject 8.830mhz at Conn 6 on IF board. You dont
>>>> need any modulation. -73dBM/50uv should give approx
>>>> S6. -53dBm/500uv should give approx S9. -33dBm/5mv
>>>> should give approx +20 over.
>>>>
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>>>> Terry K9TW
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>>>
>>
>
>

--

44850. Re: [TS-520_820_530_830] RE: RE: Ebay Special

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-23 22:52:31 UTC
From: Don
Topic: 44540 Message: 44850

Gordon
That makes two of us hi hi
Yes add is from Yahoo

cheers
Don/Ve2ud

On 23/09/2013 6:31 PM, n6wk@... wrote:
>
> Definately too Old Don.. hi hi..
> I'm too old to even be Cougar bait.
> If it's an ad,then it's from yahoo.
>
> Thanks,
> Gordon
> N6WK
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> On 9/23/2013 3:02 PM, Don wrote:
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>> It is on the front home page of the Yahoo group to the right.The add
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>>> Yes that was well spent money.I also got one of the PLL board and it
>>> came out real nice.$10 EACH.
>>> As i am lucky to have four good working hybrids,three ts830's and
>>> one ts520s,this Ebay special has been a good training rig with your
>>> help.
>>> If it was not for this forum,i would be up well you know S--- creek
>>> with out the paddle.
>>> I don't like to pawn off junk to other hams or anybody else.I would
>>> ratter sell it as parts or throw it in the creek.
>>> No we did not talk about the -6 volts,well i had made mention of
>>> it,but i guess it was not were you wanted me to test.
>>> You made no mention of a source for coils for the RF board.Do you
>>> know the inductance for them.Maybe i could rewind them.
>>> The coils with the bigger slugs have not been a problem like the
>>> smaller ones,3.5,7 MHZ.
>>> I do have a L/C from alldigital.
>>> Thanks for pointing that out about the different probes as i did not
>>> know that.
>>> I just did a startpage search on the probes and found the pk3
>>> schematic with the three diodes.
>>> Guess i will build the two or buy the two different ones on Ebay.
>>> I see on Ebay there is a PK1 too.
>>> I see they are advertising cougar women on our group site now hi hi.
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>>> 73's
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>>> On 23/09/2013 2:30 PM, wagstw46@...
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>>>> Yes I have the big schematic as well. Have one laminated and
>>>> other real dog eared one that I mark on and one brand new in
>>>> the mailing tube as a spare. Very helpful.
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>>>> If you have no -6 at audio board then you will have no Receive
>>>> bias RB1 at RF amp on RF board. You want to turn off Q1 RF amp
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>>>> I took all the voltages from the abbreviation schematic,to make

>>>> sure i had not missed any on the connectors.
>>>> The one we did not discuss was the minus 6 volts.I had it on
>>>> the counter unit,but not on the audio or IF board.I was able to
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>>>>> and know how to use them. I am not there to witness any of
>>>>> these measurements. I can tell you however it is pretty
>>>>> common for me to hear back from someone I am trying to
>>>>> help that previously reported findings were not correct.
>>>>>
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>>>>> I mean no disrespect it is just a pretty common for this
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>>>>> Terry K9TW
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>>>>> Terry
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>>>>> Hate this new format,as i never got your reply by email
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>>>>> you have a loud high frequency tone that you can vary with
>>>>> the audio gain pot (not tunable with the VFO), but the
>>>>> S-meter level is only at S1?
>>>>>
>>>>>
>>>>> I think we measured RFG at Conn 8 with RF gain pot full
>>>>> CW? It should be 3.6vdc
>>>>>
>>>>>
>>>>> I think we measured AGC bus voltage at Conn 15? .Need to
>>>>> use nothing less than a 10 meg DMM. It will pull the AGC
>>>>> bus down from 3.6 to close to 3.0vdc or slightly less.
>>>>>
>>>>>
>>>>> Have you measured these two voltages? Normally if the AGC
>>>>> bus voltage is low the S-meter will be driven up scale
>>>>> with no signal applied unless the S-meter driver circuit
>>>>> is bad.
>>>>>
>>>>>
>>>>> Have you ever performed the IFT alignment? You can perform
>>>>> the procedure in the maintenance section of the operating
>>>>> manual or the steps in the service manual.
>>>>>
>>>>>
>>>>> Terry K9TW
>>>>>

>>>>>
>>>>>
>>>>> --- In TS-520_820_530_830@yahoogroups.com
>>>>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>>>>> <ts-520_820_530_830@yahoogroups.com>
>>>>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>
>>>>> Terry
>>>>>
>>>>> Now i remember what i said about loud but no
>>>>> s-meter reading,it is this test i did and now i
>>>>> have redid it with the 8.8830 injection at conn 6
>>>>>
>>>>> I got S1 meter reading with 500 mv injection in
>>>>> con 6 and same on the RF board con 5 pin 2
>>>>>
>>>>>
>>>>> Don
>>>>>
>>>>>
>>>>> So trusting that the audio board is working as it
>>>>> should and can process the output of the Product
>>>>> Detector, then the problem now is very weak Marker
>>>>> and very weak off air signals and low or no
>>>>> S-meter indication. Dont worry about weak moni at
>>>>> this point.
>>>>>
>>>>>
>>>>> So this is place I would use RF sig generator and
>>>>> split the problem. Is it on the IF board or the RF
>>>>> board (or both but not likely). If you want to
>>>>> work back from the Audio Board then I would inject
>>>>> 8.830 mhz into the RIF terminal on the IF board
>>>>> and see if you can hear it loud and good S meter
>>>>> indication. If you can then move on to the RF
>>>>> board. If you cannot get back and we can talk
>>>>> about signal injection/tracing on the IF board.
>>>>>
>>>>>
>>>>> Inject 8.830mhz at Conn 6 on IF board. You dont
>>>>> need any modulation. -73dBM/50uv should give
>>>>> approx S6. -53dBm/500uv should give approx S9.
>>>>> -33dBm/5mv should give approx +20 over.
>>>>>
>>>>>
>>>>> Terry K9TW
>>>>>
>>>>
>>>
>>

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> --
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>

44851. RE: Re: Cathode resistors as fuses

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 00:18:43 UTC
From: <wagstw46@...>
Topic: 44830 Message: 44851

Clifford:

You need to think about this a little more. You are not seeing tube run away when cathode resistors begin to fail. You are seeing false high plate current if you were to have a domino failure of the cathode resistors.

6146 plate current is not dependent on whether you have 5 ohms or 20 ohms in the cathode. Plate current is determined by the Screen Grid voltage and the negative operating bias on the control grids. As long as you still have nominal -60vdc bias on the control grids no way for tubes to run away.

This false high plate current occurs anytime you remove a resistor from a parallel combination because the cathode resistance now goes up and for a given amount of plate current the IR drop across the remaining resistors goes up. Your plate current meter is a ua movement configured with a series meter multiplier resistor to measure the IR drop across the cathode resistors. It is a voltmeter. Maximum voltage it can read is E = IR or E = 350ma x 5 ohms = 1.75vdc. That is 0.40vdc across the meter movement and 1.35vdc across the multiplier. Each of the 35 meter divisions represent .05vdc across the meter movement.

It is normal for cathode resistors to age high. I often find them around 7 to 8 ohms. This is a conservative failure as it causes the IR drop to be higher for a given plate current and the OP thinks he is loading to higher plate current than what he really is.

With rig loaded to 200ma plate current the IR drop across the 5 ohm cathode resistance is .200 x 5 = 1.0vdc. If the cathode resistors have aged high to 8 ohms then you have an IR drop of .200 x 8 = 1.6vdc. The plate current meter will now read 320ma and not the 200 ma that is actually flowing.

In a TS520 with two 10 ohm cathode resistors in parallel for 5 ohms and 200ma plate current the IR drop will be E=IR or E = .200 x 5 = 1.0vdc. Now for some reason one resistor fails open in the scenario you describe. The 200ma plate current does not run away. The 6146 finals do not care if there is 10 or 5 ohms in the cathode. What happens is you now have twice the the ohmic value of cathode resistance or 10 ohms. Now E=IR or E = .200 x 10 = 2.0vdc. The plate current meter circuit that is designed to measure a maximum of 1.75vdc is now slammed against the peg and the OP thinks his tubes are glowing red.

I think you need to rethink the KW hybrid design. The plate current metering circuit works just fine.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The problem Mike, seems to be that if any one of the resistors fails, or
changes in value
you tend to get a runaway situation. My final was never run at such a
high cathode current,

but that was exactly what happened. The whole idea of using such small resistors in a hot
environment with and appreciable current flowing is simply not good design practice.
Kenwood's are pretty good but they were by no means perfect even in the late 1970's.
Zl1BDA.

44852. RE: RE: Re: Cathode resistors as fuses

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 00:38:24 UTC
From: <wagstw46@...>
Topic: 44830 Message: 44852

I have an error.

The .05vdc per meter graduation is across the meter circuit (series multiplier and meter movement) and not the meter movement itself. 1.75vdc / 35 = 0.05 vdc. So for each division on the meter you need 0.05 vdc IR drop across the cathode meter shunts which the "voltmeter" is measuring.

So if you are reading 320 ma on IP position (hope you are not) then there is 32 x .05 = 1.6vdc being dropped across your cathode resistors. I = E/R or I = 1.6vdc/5ohms = .320 or 320ma. The Ip "voltmeter" is measuring 1.6vdc at 200 ma.

There is actually 0.0114vdc per each of the 35 graduations on the meter movement itself. So for 200ma there is 1 vdc IR drop across the cathode resistors. The Ip "voltmeter" is measuring this 1.0 vdc. The meter movement sees .0114 x 20 or .288vdc and the series multiplier has 1.0 - .288 = 0.712vdc across it.

Sorry but easy for errors to creep in whenever doing calcs.

Point remains losing cathode resistor does not result in final plate current increase or runaway. It results in false high Ip indication due to higher IR drop across a now higher cathode resistance.

Terry .

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Clifford:

You need to think about this a little more. You are not seeing tube run away when cathode resistors begin to fail. You are seeing false high plate current if you were to have a domino failure of the cathode resistors.

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It is normal for cathode resistors to age high. I often find them around 7 to 8 ohms. This is a conservative failure as it causes the IR drop to be higher for a given plate current and the OP thinks he is loading to higher plate current than what he really is.

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In a TS520 with two 10 ohm cathode resistors in parallel for 5 ohms and 200ma plate current the IR drop will be E=IR or E = .200 x 5 = 1.0vdc. Now for some reason one resistor fails open in the scenario you describe. The 200ma plate current does not run away. The 6146 finals do not care if there is 10 or 5 ohms in the cathode. What happens is you now have twice the the ohmic value of cathode resistance or 10 ohms. Now E=IR or E = .200 x 10 = 2.0vdc. The plate current meter circuit that is designed to measure a maximum of 1.75vdc is now slammed against the peg and the OP thinks his tubes are glowing red.

I think you need to rethink the KW hybrid design. The plate current metering circuit works just fine.

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you tend to get a runaway situation. My final was never run at such a high cathode current,
but that was exactly what happened. The whole idea of using such small resistors in a hot
environment with and appreciable current flowing is simply not good design practice.
Kenwood's are pretty good but they were by no means perfect even in the late 1970's.
Zl1BDA.

44853. Re: [TS-520_820_530_830] RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 00:53:51 UTC
From: Chris Maness
Topic: 44833 Message: 44853

Terry, can you do a little write up on how to modify the final and/or meter circuitry to protect the movement during a flash over?

Thanks,
Chris KQ6UP
On Sep 23, 2013 3:18 PM, <wagstw46@...> wrote:

>
>
> Chris:
>
>
> I can test your 6146 finals for you but need to have some discussion about
> what that means . My test set is very similar to what you can see on K8CU
> website. Mine goes to 5KV and is current limited to approx 100ua. I used a
> microwave oven transformer, capacitor, and rectifier. It cannot hurt your
> tubes.
>
>
> I can measure the ua leakage current and mark them on the shield ring with
> a Sharpie, but not much value to you if you cant repeat test when you reach
> for them which could ! be years from now.
>
>
> I cannot guarantee they will not arc over now and I cannot guarantee they
> wont 2 or 3 years down road when you reach for them. If they test good now
> (by my definition of good) very likely they will be OK in RF service if
> installed when you get them back.
>
>
> One of the problems is no one knows what the accept! ance criteria or test
> voltage should be. No published data I can find for 6146 tubes. EIMAC has
> bulletins on hi-potting their high power transmitter tubes that gives the
> dc test voltage and the acceptable leakage current.
>
>
> So in addition to not being able to guarantee they would not arc over when
> you need them here is other thing to think about:
>
>
> 1. There is the round trip packing and shipping cost. I wont charge you to
> test them.
>
> 2. There is the jeopardy from damage/breakage during transit. Even if you
> heavy bubble wrap the 500 lb gorillas will do their best to break them!

>
> 3. What you will know is that per K9TWs acceptance criteria and experience
> with testing that in 10/2013 your 6146 finals did not have excessive
> leakage current and were able to hold off typical voltage level that would
> be seen in KW RF service. You wont know if they have deteriorated when you
> reach for them. To ameliorate that you could start a program of rotating
> your spares on an annual basis. You could do a! spring tune up and cleaning
> with a good visual inspection and lube the fan and VFO gear train and
> rotate the finals.
>
>
> Here is how I arrived at my test procedure and acceptance criteria. No one
> has validated this:
>
>
> What is the approx RF voltage swing at the anode at 100 watts out and
> assuming 840vdc anode voltage?
>
>
> 840 x .9 x .707 = 535rms rf volts and 535 x 2.828 = 1513 rf volts Peak to
> Peak. So I add a little to that and use 1600 vdc to simulate the RF swing
> that the 6146 finals see. I am able to measure the actual rf voltage across
> the Tank using HP410c and HP453A and it measures very close to 525 volts so
> the above formula is valid for approximations.
>
>
> On my test set with the test leads installed and power on at 2000vdc! I
> have approx 7 to 10 ua leakage current. I subtract this base value from any
> readings I get during the step voltage vs leakage current test.
>
>
> I connect plus lead to the anode and minus lead the cathode (same as
> suppressor grid which is physically closest element to the anode) .
>
>
> 1. Start at 1000vdc and record ua leakage.
>
> 2. Increase to 1100 vdc and record ua leakage
>
> 3. Increase to 1200 vdc and record ua leakage
>
> 4. Increase to 1300 vdc and record ua leakage
>
> 5. Increase to 1400 vdc and record ua leakage
>
> 6. Increase to 1500 vdc and record ua leakage
>
> 7. Increase to 1600 vdc and record ua leakage
>
>

> If tube holds off 1600 vdc I usually see something on the order of 15ua
> leakage.
>
>
> At each step I hold it there for a few ,moments and see if the ua leakage
> is jumping around. I try to see if the leakage is increasing in a linear
> manner! .
>
>
> If the tube arcs over it will peg the ua meter and I immediately back down
> the voltage. I try to anticipate arc over and catch it but not easy to do.
> If meter is flicking at each step not a good sign.
>
>
> If it arcs over I repeat the test and sometimes it will then be able to
> hold off 1600vdc. Other times it will arc over again and ! if it does then
> I trash it.
>
> So only ones I keep as spares are those who hold off 1600vdc on first or
> 2nd pass at around 15ua leakage.
>
>
> I have some that will hold off 2000vdc on first pass. Dont normally test
> to this level but have done it to see what is the max and have seen one
> that would hold off 2500vdc.
>
>
> Not sure what they would see in pulse service?
>
>
> So let me know what you want to do. Might take off list for details on
> shipping etc.
>
>
> You can go to WB4HFN web site where Mark WB0IQK has posted my final board
> mod under the Kenwood section of the site.
>
>
> Terry K9TW
>
>
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> Had a nice discussion about keeping tubes alive on a old timer's round
> table a few days. The consensus with the old timer's was that tube rigs
> should be kept on 24/7 to extend their life. I am certain there is a point

> of diminishing returns with this statement. If one used the radio once per
> day, or just a couple of time p! er week would it not be better to shut 'er
> down for the in between time. There is also the issue of diminishing
> returns with mains power being consumed versus the cost of new tubes.
>
> I also do not run at greater than 100Watts.
>
> Terry had mentioned some NOS 6146B's were gassy. That is disconcerting.
> I did not know the were sealed against the base. I guess that is where
> sweep tubes have the advantage. I have yet to come across a bad NOS tube.
> However, I have only messed with the small 12AX7 types.
>
> Terry, if we send you tubes can you verify that these babies won't arc
> over? I wouldn't even mind if you charged me a fee for this. I am
> thinking of getting a set and putting them away for a rainy day. I am
> really enjoying my 520 Sugar -- white noise on CW and all :D I have been
> working DX on 40m. This is something new to me.
>
> 73 de KQ6UP
> Chris Maness
>
>
>
>

44854. RE: Re: [TS-520_820_530_830] RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 00:57:12 UTC
From: <wagstw46@...>
Topic: 44833 Message: 44854

Could you not find it on Marks and Rons WB4HFN website? I will go look and make sure Mark didnt pull it down?

If he did I can do that but have done it several times in recent past. Will get back to you.

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, can you do a little write up on how to modify the final and/or meter circuitry to protect the movement during a flash over?

Thanks,
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On Sep 23, 2013 3:18 PM, <wagstw46@...> wrote:

Chris:

I can test your 6146 finals for you but need to have some discussion about what that means . My test set is very similar to what you can see on K8CU website. Mine goes to 5KV and is current limited to approx 100ua. I used a microwave oven transformer, capacitor, and rectifier. It cannot hurt your tubes.

I can measure the ua leakage current and mark them on the shield ring with a Sharpie, but not much value to you if you cant repeat test when you reach for them which could ! be years from now.

I cannot guarantee they will not arc over now and I cannot guarantee they wont 2 or 3 years down road when you reach for them. If they test good now (by my definition of good) very likely they will be OK in RF service if installed when you get them back.

One of the problems is no one knows what the accept! ance criteria or test voltage should be. No published data I can find for 6146 tubes. EIMAC has bulletins on hi-potting their high power transmitter tubes that gives the dc test voltage and the acceptable leakage current.

So in addition to not being able to guarantee they would not arc over when you need them here is other thing to think about:

1. There is the round trip packing and shipping cost. I wont charge you to test them.
2. There is the jeopardy from damage/breakage during transit. Even if you heavy bubble wrap the 500 lb gorillas will do their best to break them!
3. What you will know is that per K9TWs acceptance criteria and experience with testing that in 10/2013 your 6146 finals did not have excessive leakage current and were able to hold off typical voltage level that would be seen in KW RF service. You wont know if they have deteriorated when you reach for them. To ameliorate that you could start a program of

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At each step I hold it there for a few ,moments and see if the ua leakage is jumping around. I try to see if the leakage is increasing in a linear manner! .

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Not sure what they would see in pulse service?

So let me know what you want to do. Might take off list for details on shipping etc.

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Chris Maness

44855. RE: RE: Re: Cathode resistors as fuses

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 01:03:06 UTC
From: <wagstw46@...>
Topic: 44830 Message: 44855

OK remove last statement

Meter circuit is not just fine from standpoint if cathode shunts blow open it does present an open cathode and the cathode will rise toward SG voltage and will climb to over 100vdc and that represents jeopardy for the panel meter.

When I said it was fine I meant in reference to the voltmeter method, its accuracy and if the shunts drift high it puts rig in a conservative position due to high false plate current readings.

The design does not result in tube run away if cathode resistors experience a domino failure. If they did that I would agree design was severely flawed.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Clifford:

You need to think about this a little more. You are not seeing tube run away when cathode resistors begin to fail. You are seeing false high plate current if you were to have a domino failure of the cathode resistors.

6146 plate current is not dependent on whether you have 5 ohms or 20 ohms in the cathode. Plate current is determined by the Screen Grid voltage and the negative operating bias on the control grids. As long as you still have nominal -60vdc bias on the control grids no way for tubes to run away.

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finals do not care if there is 10 or 5 ohms in the cathode. What happens is you now have twice the the ohmic value of cathode resistance or 10 ohms. Now E=IR or E = .200 x 10 = 2.0vdc. The plate current meter circuit that is designed to measure a maximum of 1.75vdc is now slammed against the peg and the OP thinks his tubes are glowing red.

I think you need to rethink the KW hybrid design. The plate current metering circuit works just fine.

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environment with and appreciable current flowing is simply not good design practice.
Kenwood's are pretty good but they were by no means perfect even in the late 1970's.
Zl1BDA.

44856. RE: Re: [TS-520_820_530_830] RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 01:05:11 UTC
From: Chris Maness
Topic: 44833 Message: 44856

I don't think I have explored that site.

Chris
On Sep 23, 2013 5:57 PM, <wagstw46@...> wrote:

>
>
> Could you not find it on Marks and Rons WB4HFN website? I will go look and
> make sure Mark didnt pull it down?
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>
> If he did I can do that but have done it several times in recent past.
> Will get back to you.
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> Terry
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> I can measure the ua leakage current and mark them on the shield ring with
> a Sharpie, but not much value to you if you cant repeat test when you reach
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> I cannot guarantee they will not arc over now and I cannot guarantee they
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> Not sure what they would see in pulse service?

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44857. RE: Re: [TS-520_820_530_830] RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 01:05:52 UTC
From: <wagstw46@...>
Topic: 44833 Message: 44857

Chris here is the mod. I recently within last month showed the calcs on how to size the MOVs. Should be easy to find if this new format still supports searches.

Terry K9TW

http://www.wb4hfn.com/KENWOOD/Articles/Technical_EX-004.pdf

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Thanks,
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I can measure the ua leakage current and mark them on the shield ring with a Sharpie, but not much value to you if you cant repeat test when you reach for them which could ! be years from now.

I cannot guarantee they will not arc over now and I cannot guarantee they wont 2 or 3 years down road when you reach for them. If they test good now (by my definition of good) very likely they will be OK in RF service if installed when you get them back.

One of the problems is no one knows what the accept! ance criteria or test voltage should be. No published data I can find for 6146 tubes. EIMAC has bulletins on hi-potting their high power transmitter tubes that gives the dc test voltage and the acceptable leakage current.

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44858. RE: RE: Re: [TS-520_820_530_830] RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 01:22:44 UTC
From: <wagstw46@...>
Topic: 44833 Message: 44858

See message 43912 for how I sized the MOVs for SG protection. There is an error in last sentence about rigs primary fuse ratings. Check your manual for proper size for 120vac primary fusing.

If you do anything at all suggest you install the 3 silicon diodes across the cathode resistors to limit maximum IR drop across them to approx 2vdc.

Terry K9TW

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Chris Maness

44859. RE: RE: Re: [TS-520_820_530_830] RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 01:26:57 UTC
From: <wagstw46@...>
Topic: 44833 Message: 44859

Last sentence of my response on hi-potting your finals?

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I don't think I have explored that site.

Chris

On Sep 23, 2013 5:57 PM, <wagstw46@...> wrote:

Could you not find it on Marks and Rons WB4HFN website? I will go look and make sure Mark didnt pull it down?

If he did I can do that but have done it several times in recent past. Will get back to you.

Terry

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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44860. RE: Re: [TS-520_820_530_830] 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 03:31:27 UTC
From: <yioutta_99@...>
Topic: 44822 Message: 44860

Thanks Joe..and the rest of the thread.

Tonight the switched worked. overtime and on 80 meters as well as 20 meters. Either I have an intermindant or perhaps i didnt give the heater enough time to warm up. But now that its working, its hard to trouble shoot. If i have to go in for another reason, I'll check the relay and get it cleaned up..or replaced. The good news is I went and got some more canned air for the occasion and it was on sale for 10 bucks for 3 cans. so now i am well stocked.

Thanks everybody.

steve

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I would suspect RL-2 first, it's under the metal shield by the final amp board. UNPLUG RIG!, let it sit, then check
to see if there's anymore high voltage lurking around. Remove shield...remove relay (it pulls out), you will need a fine
screwdriver or similar tool to remove the plastic cover from the relay. Use some card stock wetted with contact cleaner
and clean all the contacts...some canned air comes in handy here. Re-install relay and check for operation.
There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
may have gotten some corrosion on them from no use, but worked correctly on 20 meters. Clean all the bandswitch wafer
contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be fine now

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay? .....Possibly the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44861. Re: Re: [TS-520_820_530_830] 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 05:15:34 UTC
From: Joseph Stiles
Topic: 44822 Message: 44861

Steve,

Glad that it "fixed itself." Just remember that usually when an "intermittent" problem starts...at the most
inopportune time...it will become "chronic."

Did you by chance give it an "eye poke" or a "head bonk?" sointenly....nyuk...nyuk

73 Joe
WB7UQU

From: "yioutta_99@yahoo.com" <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 8:31 PM
Subject: RE: Re: [TS-520_820_530_830] 520s send/rec switch not working

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There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
may have gotten some corrosion on them from no use, but worked correctly on 20 meters. Clean all the bandswitch wafer
contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be

fine now

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay?
 .....Possibly the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44862. New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 05:19:13 UTC
From: <n6wk@...>
Topic: 44862 Message: 44862

I have decided that Joe, WB7UQU, is a perfect fit as a new Co-Owner of the group. I will step down to a Moderator position and let Joe share the Owner chores. Joe has been a contributing member of the group for years. I have expressed to him how I think the group should continue to be run. Please welcome Joe to his new position.
Thanks to all for the kind words and best wishes.73,
Gordon
N6WK

44863. RE: New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 05:29:50 UTC
From: <kb8dns@...>
Topic: 44862 Message: 44863

Welcome Joe, to your new charge!

73 Rod KB8DNS

--- In ts-520_820_530_830@yahoogroups.com, <n6wk@...> wrote:

I have decided that Joe, WB7UQU, is a perfect fit as a new Co-Owner of the group. I will step down to a Moderator position and let Joe share the Owner chores. Joe has been a contributing member of the group for years. I have expressed to him how I think the group should continue to be run. Please welcome Joe to his new position.
Thanks to all for the kind words and best wishes.73,
Gordon
N6WK

44864. Re: [TS-520_820_530_830] New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 05:39:26 UTC
From: A.C. Fulcher
Topic: 44862 Message: 44864

Best of luck to Joe, and know he will do a fine job just as you have!!!|
73, A.C.

From: "n6wk@..." <n6wk@n6wk.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 10:19 PM
Subject: [TS-520_820_530_830] New Co-Owner decided

I have decided that Joe, WB7UQU, is a perfect fit as a new Co-Owner of the group. I will step down to a Moderator position and let Joe share the Owner chores. Joe has been a contributing member of the group for years. I have expressed to him how I think the group should continue to be run. Please welcome Joe to his new position.
Thanks to all for the kind words and best wishes.73,
Gordon
N6WK

44865. RE: Extending The Life of Tubes?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 05:35:19 UTC
From: <kb8dns@...>
Topic: 44833 Message: 44865

I agree with this as vacuum tubes are considered a consumable item. Reducing the voltage also means keeping check on the power supply and capacitors. I use audio amps that have push pulls of 6BQ5s and I find 8BQ5s work well and are more robust.

73 Rod KB8DNS

--- In ts-520_820_530_830@yahoogroups.com, <macklinbob@...> wrote:

One thing that works well is to keep the filaments powered at a reduced voltage. Even reducing the voltage 10% extends the life a lot.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----

From: Chris Maness

To: TS-520_820_530_830@yahoogroups.com

Sent: Monday, September 23, 2013 9:34 AM

Subject: [TS-520_820_530_830] Extending The Life of Tubes?

Had a nice discussion about keeping tubes alive on a old timer's round table a few days. The consensus with the old timer's was that tube rigs should be kept on 24/7 to extend their life. I am certain there is a point of diminishing returns with this statement. If one used the radio once per day, or just a couple of time per week would it not be better to shut 'er down for the in between time. There is also the issue of diminishing returns with mains power being consumed versus the cost of new tubes.

I also do not run at greater than 100Watts.

Terry had mentioned some NOS 6146B's were gassy. That is disconcerting. I did not know the were sealed against the base. I guess that is where sweep tubes have the advantage. I have yet to come across a bad NOS tube. However, I have only messed with the small 12AX7 types.

Terry, if we send you tubes can you verify that these babies won't arc over? I wouldn't even mind if you charged me a fee for this. I am thinking of getting a set and putting them away for a rainy day. I am really enjoying my 520 Sugar -- white noise on CW and all :D I have been working DX on 40m. This is something new to me.

73 de KQ6UP

Chris Maness

44866. New Group Photo

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 06:27:48 UTC
From: <n6wk@...>
Topic: 44866 Message: 44866

I changed the group Photo today. This is Ray Stevens, AK6E, radio station. Thanks Ray for sharing your station with the Group. It l;ooks great and sounds great on the air!

73,
Gordon
N6WK

44867. RE: New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 06:10:35 UTC
From: <paul_munsel@...>
Topic: 44862 Message: 44867

I've never cared for the "Changing of the Guard" when you have a good leader. I have learned though, not only is change needed sometimes, but it usually is good after getting settled. Thank you for you time and efforts for all of us. I am not real active, other than reading, but am always here and will assist in any way I can with the new co-owner.
73,
Paul N5XMV

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have decided that Joe, WB7UQU, is a perfect fit as a new Co-Owner of the group. I will step down to a Moderator position and let Joe share the Owner chores. Joe has been a contributing member of the group for years. I have expressed to him how I think the group should continue to be run. Please welcome Joe to his new position.
Thanks to all for the kind words and best wishes.73,
Gordon
N6WK

44868. RE: New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 10:18:57 UTC
From: <dlbowders@...>
Topic: 44862 Message: 44868

Excellent choice Gordon. Joe will do well. Congrats Joe and thanks to you Gordon. Just sit back now and enjoy operating.

73, K5HFG, Don

---In ts-520_820_530_830@yahoogroups.com, <paul_munsel@...> wrote:

I've never cared for the "Changing of the Guard" when you have a good leader. I have learned though, not only is change needed sometimes, but it usually is good after getting settled. Thank you for you time and efforts for all of us. I am not real active, other than reading, but am always here and will assist in any way I can with the new co-owner.
73,
Paul N5XMV

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have decided that Joe, WB7UQU, is a perfect fit as a new Co-Owner of the group. I will step down to a Moderator position and let Joe share the Owner chores. Joe has been a contributing member of the group for years. I have expressed to him how I think the group should continue to be run. Please welcome Joe to his new position.
Thanks to all for the kind words and best wishes.73,
Gordon
N6WK

44869. Re: [TS-520_820_530_830] New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 11:31:36 UTC
From: Richard Batte
Topic: 44862 Message: 44869

Thanks for all you have done with the group Gordon and all the best to you.....73 de Rick, N4MBI

On Tue, Sep 24, 2013 at 1:19 AM, <n6wk@n6wk.com> wrote:

> **
>
>
> I have decided that Joe, WB7UQU, is a perfect fit as a new Co-Owner of the
> group. I will step down to a Moderator position and let Joe share the Owner
> chores. Joe has been a contributing member of the group for years. I have
> expressed to him how I think the group should continue to be run. Please
> welcome Joe to his new position.
> Thanks to all for the kind words and best wishes.73,
> Gordon
> N6WK
>
>

44870. Re: [TS-520_820_530_830] New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 12:38:30 UTC
From: Don
Topic: 44862 Message: 44870

This tasty Canadian,wish's Gordon all the best,and a big Welcome to Joe :-)

73's

Don/Ve2ud/Ve2dzo

On 24/09/2013 7:31 AM, Richard Batte wrote:
> Thanks for all you have done with the group Gordon and all the best to
> you.....73 de Rick, N4MBI
>
>
> On Tue, Sep 24, 2013 at 1:19 AM, <n6wk@...
> <mailto:n6wk@...>> wrote:
>
> I have decided that Joe, WB7UQU, is a perfect fit as a new
> Co-Owner of the group. I will step down to a Moderator position
> and let Joe share the Owner chores. Joe has been a contributing
> member of the group for years. I have expressed to him how I think
> the group should continue to be run. Please welcome Joe to his new
> position.
> Thanks to all for the kind words and best wishes.73,
> Gordon
> N6WK
>
>
>

44871. Parallel resistance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 14:11:55 UTC
From: W5RKL
Topic: 44871 Message: 44871

For those member who are interested in learning about resistors in parallel, I uploaded a video that discusses that subject. The video is available at the following link:

http://n6wk.com/w5rkl/Basic%20Ohms%20Law/Parallel%20Resistors.wmv

73
Mike W5RKL

44872. OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 15:34:17 UTC
From: Chris Maness
Topic: 44872 Message: 44872

I am looking for a technician in my area that can fix a radio, and resolve an Ebay dispute. The radio is an FT-107M. Any recommendations or suggestions would be great. There is a ham tech at the local CB store here near me in Fontana, CA. However, he has not returned my call.

Thanks,
Chris Maness KQ6UP

44873. Re: [TS-520_820_530_830] New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 15:57:46 UTC
From: Gregory Graham
Topic: 44862 Message: 44873

Gordon
For those of us that have only been on this site less than a year,
could you take a few minutes and give us some history of this great
effort. When did it start, who started it, and just a little
history. Maybe a short profile of the Hams that have put in the work
to make it work so well. Great effort and Thanks for your service.

Gregory NR6C

On 9/24/2013 4:31 AM, Richard Batte wrote:
> Thanks for all you have done with the group Gordon and all the best to
> you.....73 de Rick, N4MBI
>
>
> On Tue, Sep 24, 2013 at 1:19 AM, <n6wk@...
> <mailto:n6wk@...>> wrote:
>
> I have decided that Joe, WB7UQU, is a perfect fit as a new
> Co-Owner of the group. I will step down to a Moderator position
> and let Joe share the Owner chores. Joe has been a contributing
> member of the group for years. I have expressed to him how I think
> the group should continue to be run. Please welcome Joe to his new
> position.
> Thanks to all for the kind words and best wishes.73,
> Gordon
> N6WK
>
>
>

44874. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 16:57:51 UTC
From: Joseph Stiles
Topic: 44872 Message: 44874

Chris,

In the "files" section of this board there's info there and also at wb4hfn.com look for the "Kenwwood Net Home Page" then look for the "Kenwood information there is a list of names, locations and contact info for rig repair. I can not recall off the top IF there's one within easy driving distance of ur qth

73 Joe
WB7UQU

From: Chris Maness <chris@chrismaness.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 8:34 AM
Subject: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

I am looking for a technician in my area that can fix a radio, and resolve an Ebay dispute. The radio is an FT-107M. Any recommendations or suggestions would be great. There is a ham tech at the local CB store here near me in Fontana, CA. However, he has not returned my call.

Thanks,
Chris Maness KQ6UP

44875. greetings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 17:09:31 UTC
From: Joseph Stiles
Topic: 44875 Message: 44875

Greeting Group!

Well, as you figured...I'm one of the new co-owners. I've got some big shoes to fill. I will endeavor
to do my best. This is a great group! Let's PLEASE keep it that way. I will thank Gordon-n6wk,
Mike-w5rkl, and Terry-k9tw for their knowledge and expertise, they were, and still are, a big help
to me and, many others..TNX!

My background: EX Radioman USCG, first ticket 1977 and still wb7uqu. Most of my adult life was spent as a professional
firefighter, firefighter/paramedic and later Fire Lieutenant with the City of Tacoma WA Fire Dept. I retired after 33 years of service
I still am on a rather steeplearning curve as far as in depth diagnostics and radio theory...but getting better. That's all for now.

QRU?

73 Joe
WB7UQU

44876. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 17:14:59 UTC
From: Steve Berman
Topic: 44872 Message: 44876

Chris,
You might try Charles Turner in Lancaster, CA. He's listed on Eham.net under Turner Radio. Probably can also find by Google search.

I wouldn't trust any CB repair facility. Most of the techs in those places are hamburgers.

73,
Steve, N6HK
Precision Collins Services
Tehachapi CA 93561

-----Original Message-----

From: Joseph Stiles
Sent: 24 Sep 2013 17:00:53 GMT
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Chris,

In the "files" section of this board there's info there and also at wb4hfn.com look for the "Kenwwood Net Home Page" then look for the "Kenwood information there is a list of names, locations and contact info for rig repair. I can not recall off the top IF there's one within easy driving distance of ur qth

73 Joe
WB7UQU

From: Chris Maness <chris@chrismaness.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 8:34 AM
Subject: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

I am looking for a technician in my area that can fix a radio, and resolve an Ebay dispute. The radio is an FT-107M. Any recommendations or suggestions would be great. There is a ham tech at the local CB store here near me in Fontana, CA. However, he has not returned my call.

Thanks,
Chris Maness KQ6UP

44877. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 18:00:08 UTC
From: William Houghton
Topic: 44872 Message: 44877

Can I inquire as to the nature of the technical issue?

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 8:34 AM
Subject: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

I am looking for a technician in my area that can fix a radio, and resolve an Ebay dispute. The radio is an FT-107M. Any recommendations or suggestions would be great. There is a ham tech at the local CB store here near me in Fontana, CA. However, he has not returned my call.

Thanks,
Chris Maness KQ6UP

44878. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 18:46:49 UTC
From: Chris Maness
Topic: 44872 Message: 44878

Yes, the radio was dropped during shipping. The back heatsink was bent and cracked. When I went to tune my G5RV, the finals went dark after about three seconds of key down (output power dropped to near zero). I have never popped finals in any rig in 26 years of ham radio.

The seller blamed me for popping the finals and even went as far as to suggest that I dropped the radio. However, UPS has a record of dropping the radio, and they are cutting him a check for $100. Now he finally believes that I didn't drop the radio.

So there remains a question in my mind. Why is this thing popping finals so easily since this radio does not have a reputation for it? Is the protect circuitry working? Did something get damaged when it was dropped? I can do the work myself, but it would be nice to have a professional technician take a look at the radio as a third party.

I am trying to join the FT-107M group, but it has been several days and I have not heard anything. Buying this radio was the original reason I pulled the TS-520S into service because I wanted to sell it, and I forgot what was wrong with the 520sugar. I have too many radios now :D However, I fell in love with the TS-520S receiver, and I will probably end up selling my FT-101E in its place when all the dust settles.

Thanks es 73,

Chris KQ6UP
On Sep 24, 2013 11:00 AM, "William Houghton" <rdrbill@...> wrote:

>
>
> Can I inquire as to the nature of the technical issue?
>
> ------------------------------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, September 24, 2013 8:34 AM
> *Subject:* [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?
>
>
> I am looking for a technician in my area that can fix a radio, and resolve
> an Ebay dispute. The radio is an FT-107M. Any recommendations or
> suggestions would be great. There is a ham tech at the local CB store here
> near me in Fontana, CA. However, he has not returned my call.
>
> Thanks,
> Chris Maness KQ6UP

>
>
>
>
>
>

44879. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 20:04:39 UTC
From: William Houghton
Topic: 44872 Message: 44879

My guess is that enough force that would bend and crack the heat sink could very well have ripped off the mounting studs of one or more of the PA transistors or cracked the ceramic material of the transistor body. If either one of those happens it doesn't surprise me that the transistors went poof very quickly. It might also have torn some of the flat leads off of the PA transistors as well. I would also be very suspicious that there might be other internal damage to the radio as well.

Why is UPS only paying him $100? Sounds like he did not insure it for the full sales price.

You'd have a better case if the finals had gone dead while transmitting into a dummy load, though.

The manual does say that the finals are protected against high SWR by shutting down the drive. I assume that you are using a tuner with the G5RV and you start with a low level of output power, adjust the tuner, and then increase your drive level, correct?

73,

Bill

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 11:46 AM
Subject: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yes, the radio was dropped during shipping. The back heatsink was bent and cracked. When I went to tune my G5RV, the finals went dark after about three seconds of key down (output power dropped to near zero). I have never popped finals in any rig in 26 years of ham radio.
The seller blamed me for popping the finals and even went as far as to suggest that I dropped the radio. However, UPS has a record of dropping the radio, and they are cutting him a check for $100. Now he finally believes that I didn't drop the radio.
So there remains a question in my mind. Why is this thing popping finals so easily since this radio does not have a reputation for it? Is the protect circuitry working? Did something get damaged when it was dropped? I can do the work myself, but it would be nice to have a professional technician take a look at the radio as a third party.
I am trying to join the FT-107M group, but it has been several days and I have not heard anything. Buying this radio was the original reason I pulled the TS-520S into service because I wanted to sell it, and I forgot what was wrong with the 520sugar. I have too many radios now :D However, I fell in love with the TS-520S receiver, and I will probably end up selling my FT-101E in its place when all the dust settles.
Thanks es 73,
Chris KQ6UP
On Sep 24, 2013 11:00 AM, "William Houghton" <rdrbill@...> wrote:

>
>
>Can I inquire as to the nature of the technical issue?
>
>
>
>_____
> From: Chris Maness <chris@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Tuesday, September 24, 2013 8:34 AM
>Subject: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?
>
>
>
>
>I am looking for a technician in my area that can fix a radio, and resolve an Ebay dispute. The radio is an FT-107M. Any recommendations or suggestions would be great. There is a ham tech at the local CB store here near me in Fontana, CA. However, he has not returned my call.
>
>
>Thanks,
>Chris Maness KQ6UP
>
>
>
>

44880. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 20:34:09 UTC
From: Chris Maness
Topic: 44872 Message: 44880

On Tue, Sep 24, 2013 at 1:04 PM, William Houghton <rdrbill@...>wrote:

>
>
> My guess is that enough force that would bend and crack the heat sink
> could very well have ripped off the mounting studs of one or more of the PA
> transistors or cracked the ceramic material of the transistor body. If
> either one of those happens it doesn't surprise me that the transistors
> went poof very quickly. It might also have torn some of the flat leads off
> of the PA transistors as well. I would also be very suspicious that there
> might be other internal damage to the radio as well.
>
> Why is UPS only paying him $100? Sounds like he did not insure it for the
> full sales price.
>
>
Correct. He did not. He also did a terrible job of packing the item. The
box was not much bigger than the radio. He claimed it was "double boxed",
but there was no more than an inch of packing peanuts between the first and
second box. Not my idea of a double boxed package. However, this point is
now moot since UPS is claiming responsibility for the damage.

> You'd have a better case if the finals had gone dead while transmitting
> into a dummy load, though.
>

Yes, you are correct. I was hesitant to divulge this at first, but I had
to show my cards at some point.

>
> The manual does say that the finals are protected against high SWR by
> shutting down the drive. I assume that you are using a tuner with the G5RV
> and you start with a low level of output power, adjust the tuner, and then
> increase your drive level, correct?
>

Yes, this is the best way to handle this, but considering there is a
protection circuit and the radio is not known for being a final popper.
The radio repairman Charles Turner agrees the finals should have not been
popped in three seconds even into a shorted or open load. The protect
circuitry should have done its job.

A Versa Tuner II was inline. In hindsight it would have been better to
test a damaged rig into a dummy load -- however this rig is intended to be
a field day rig, and better it pop sooner while not be babied than blowing
several months later at field day at the hands of a nOOb.

>
> 73,
>
> Bill
>
>
Thanks for the feedback, Bill.
Chris KQ6UP

44881. Series Resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 21:20:17 UTC
From: Mike
Topic: 44881 Message: 44881

Good afternoon,

For those who are interested I uploaded a new video covering series resistors. The link to the video is:

http://www.n6wk.com/w5rkl/Basic%20Ohms%20Law/Series%20Resistors.wmv

73
Mike W5RKL

44882. RE: "Angel hair" for rewinding L41....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 21:42:31 UTC
From: <jimlamanteer@...>
Topic: 41921 Message: 44882

HI BART WOULD U LIKE TO SELL ME SOME OF THAT ANGEL HAIR WIRE?? PLEASE LET ME KNOW THANKS JIMMY.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Well,

My #42 came in...good thing it is a 1600ft spool...LOL (smallest I could find).

If you need some, let me know.

Boy oh boy...it is "Angel hair" and with my fat fingers.....:)

On the serious side, what if the windings overlap or cross, does it make a difference?

73
Bart

44883. RE: RE: "Angel hair" for rewinding L41....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 22:12:37 UTC
From: <wagstw46@...>
Topic: 41921 Message: 44883

Hi Jimmy:

Apparently you have lost an L41. How did that happen?

I recently posted all the L41 winding data over on QRZ under the Boatanchor technical forum helping a fellow over there who lost one.

Need a steady hand and magnifier head set. You may have to wind 3 to get 1 good one!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

HI BART WOULD U LIKE TO SELL ME SOME OF THAT ANGEL HAIR WIRE?? PLEASE LET ME KNOW THANKS JIMMY.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Well,

My #42 came in...good thing it is a 1600ft spool...LOL (smallest I could find).

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On the serious side, what if the windings overlap or cross, does it make a difference?

73
Bart

44884. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 22:40:57 UTC
From: Don Allen
Topic: 44872 Message: 44884

In the factory-shipped configuration for a new TS-520S, there was absolutely no space between the inside skin of the outer shipping box and the outside skin of the inner box (the box with the string ties on top). The inner box containing the TS-520S simply slipped into the ever-so-slightly-larger outer box. Thus, the shipper of your TS-520S actually packed it better than the factory- assuming - and this is a big if... he used the correct inner box with the front and rear Styrofoam protective end caps. If he did use the correct inner box with the Kenwood factory-supplied end caps, then the problem is due to poor UPS Ground handling, which unfortunately is a relatively common occurrence.

Best of luck.

73
Don W9CW

On 9/24/2013 3:34 PM, Chris Maness wrote:
> Correct. He did not. He also did a terrible job of packing the item.
> The box was not much bigger than the radio. He claimed it was
> "double boxed", but there was no more than an inch of packing peanuts
> between the first and second box. Not my idea of a double boxed
> package. However, this point is now moot since UPS is claiming
> responsibility for the damage.

44885. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 22:51:11 UTC
From: Chris Maness
Topic: 44872 Message: 44885

Yes, I would not ship UPS as I have seen the damage they cause. The radio that was damaged was an FT-107M. The TS-520S was brought out to test before selling, and I decided to keep it. That is what led me to start posting on this group again after a 4 year hiatus. Just looking forward to this nightmare with this idiotic seller to end. Now he is saying he shouldn't have to pay for it's repair. He is saying UPS should repair it, but he did not insure it -- so I think he is out of luck. He is getting $100 from them that's it. He is still responsible ultimately to make it right.

Chris

On Tue, Sep 24, 2013 at 3:40 PM, Don Allen <w9cw@...> wrote:

> In the factory-shipped configuration for a new TS-520S, there was
> absolutely no space between the inside skin of the outer shipping box
> and the outside skin of the inner box (the box with the string ties on
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> Yahoo! Groups Links
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44886. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 22:57:32 UTC
From: Don Allen
Topic: 44872 Message: 44886

Chris,

As you probably know, UPS Ground automatically insures all shipments for $100 at no extra cost to the shipper. The shipper was certainly derelict in this situation for not insuring it for the full selling price, not only for your protection, but his as well. This is extremely irresponsible on his part, and really a no-brainer. If you paid for the FT-107M via PayPal, I would think you could submit a complaint.

BTW... I've got a great story on the FT-107M. E-mail me off list and I will elaborate!

73
Don W9CW

On 9/24/2013 5:51 PM, Chris Maness wrote:
> Yes, I would not ship UPS as I have seen the damage they cause. The
> radio that was damaged was an FT-107M. The TS-520S was brought out to
> test before selling, and I decided to keep it. That is what led me to
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> <mailto:w9cw@...>> wrote:
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> Yahoo! Groups Links
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> TS-520_820_530_830-fullfeatured@yahoogroups.com
> <mailto:TS-520_820_530_830-fullfeatured@yahoogroups.com>
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44887. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 23:19:18 UTC
From: Chris Maness
Topic: 44872 Message: 44887

Well all is moot now. After fighting me for nearly a week he has offered to send me a full refund. However that will leave me high and dry for the price of the return shipping. I hate paying for other people's idiocy. Boo!

Thanks for the help on this off topic thread.

73 de KQ6UP
Chris
On Sep 24, 2013 3:57 PM, "Don Allen" <w9cw@...> wrote:

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> PayPal, I would think you could submit a complaint.
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>> Yahoo! Groups Links
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44888. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 23:24:49 UTC
From: William Houghton
Topic: 44872 Message: 44888

You might check the ebay buyer protection plan. It might cover the return shipping costs, too.

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 4:19 PM
Subject: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Well all is moot now. After fighting me for nearly a week he has offered to send me a full refund. However that will leave me high and dry for the price of the return shipping. I hate paying for other people's idiocy. Boo!
Thanks for the help on this off topic thread.
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>>>Yahoo! Groups Links
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44889. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 23:32:34 UTC
From: Chris Maness
Topic: 44872 Message: 44889

It probably would have, but the system is forcing me to settle by sending
him the radio for a full refund. I had escalated this to a claim, but it
is automatically resolved by shipping it to him. At this point I just want
this nightmare to be over. I will never by a radio again on ebay without
stipulating six inches of packing material and full insurance. No friggen
UPS either. This guy has been such a cheap jerk from the get go. Just
thinking of what to add to my negative review. I am probably going to just
put "Glad this nightmare is over." There is not much he can say to that.
Ugh!

Thanks guys!
Chris KQ6UP

On Tue, Sep 24, 2013 at 4:24 PM, William Houghton <rdrbill@...>wrote:

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>
> ------------------------------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, September 24, 2013 4:19 PM
>
> *Subject:* Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?
>
>
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> Yahoo! Groups Links
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44890. RE: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 23:41:54 UTC
From: <wagstw46@...>
Topic: 44872 Message: 44890

I wrote ebay and told them the rating on the sellers shipping fee is worthless to me. I have never been really gouged on shipping cost oher than Ebay taking a piece of the action. I have however had many items damaged in shipment and if not damaged the carton smashed in or torn open. It is almost a crap shoot anymore if the item will survive the journey.

I told Ebay I would like to see a far better category and that would be how well did the seller pack the item or make it an additional rating category. It is amazing how poorly most items are packed by the seller. Either too dumb or too cheap or combo of both.

Today whether it is Post Office, UPS or Fed Ex I always double box with a 2 to 3 inch crush zone on all 6 sides with the item heavy bubble wrapped in the inner box. In the crush zone I use high density foam or peanuts (no wadded up newspaper). I also try to use heavier weight cardboard boxes. All of this cost more but I would prefer to pay extra for a professional packing job than have the rig damaged. I have had people willing to split the cost of packing correctly.

You cannot ship a hybrid circuit board in a padded shipping envelope or a flat rate box with a little wadded up newspaper. I have more than one broken or severely bowed board from this penny pincher method.

A guy shipped me a Variac in a flat rate box with newspaper around it. Needless to say it didnt make it. Also got a soaking wet and deteriorated box with a Heath Cantenna set inside a bed of wadded up newspaper. Of course when box took a blow the side of the paint can was severely dented and the lid popped off and the oil spilled out! What an idiot. He agreed to give me half my money back after much argument.

Could go on but you get the idea. Oh by the way no response from Ebay.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Well all is moot now. After fighting me for nearly a week he has offered to send me a full refund. However that will leave me high and dry for the price of the return shipping. I hate paying for other people's idiocy. Boo!

Thanks for the help on this off topic thread.

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BTW... I've got a great story on the FT-107M. E-mail me off list and I will elaborate!

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Yahoo! Groups Links

<*> To visit your group on the web, go to:
http://groups.yahoo.com/group/TS-520_820_530_830/

<*> Your email settings:
Individual Email | Traditional

<*> To change settings online go to:
http://groups.yahoo.com/group/TS-520_820_530_830/join
(Yahoo! ID required)

<*> To change settings via email:
TS-520_820_530_830-digest@yahoogroups.com
TS-520_820_530_830-fullfeatured@yahoogroups.com

<*> To unsubscribe from this group, send an email to:
TS-520_820_530_830-unsubscribe@yahoogroups.com

<*> Your use of Yahoo! Groups is subject to:
http://info.yahoo.com/legal/us/yahoo/utos/terms/

44891. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 23:48:00 UTC
From: William Houghton
Topic: 44872 Message: 44891

Cases like this are very unfortunate. Its part of what gives buying and selling on ebay a bad reputation. There are still honest, decent sellers out there. I have to admit that I have bought some stuff on ebay that was so poorly packed I was surprised they arrived undamaged. I suspect that most of the sellers on ebay do not know how to properly pack items. The carriers are not kidding when they specify 3 to 4 inches of packing material on all sides.

I'd hold off on the negative feedback until after I receive my refund, though :)

One lesson here is that if the rig arrives with obvious damage, don't even plug it in. You can't tell what type of internal damage might have occurred. Just get your refund.

Glad you will be getting your refund.

73,

Bill

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 4:32 PM
Subject: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

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Ugh!

Thanks guys!

Chris KQ6UP

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> From: Chris Maness <chris@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Tuesday, September 24, 2013 4:19 PM
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>>>>Kenwood factory-supplied end caps, then the problem is
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>>>>Ground handling, which unfortunately is a relatively
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>>>>Best of luck.
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>>>>73
>>>>Don W9CW
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>>>>Yahoo! Groups Links
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44892. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-24 23:51:58 UTC
From: n6wk@...
Topic: 44872 Message: 44892

UPS usually will pick up the tab to ship it back since it was damaged by
them.
Doesn't hurt to call them and ask. They have done it for me.

73,
Gordon

On 9/24/2013 4:19 PM, Chris Maness wrote:
>
> Well all is moot now. After fighting me for nearly a week he has
> offered to send me a full refund. However that will leave me high and
> dry for the price of the return shipping. I hate paying for other
> people's idiocy. Boo!
>
> Thanks for the help on this off topic thread.
>
> 73 de KQ6UP
> Chris
>
> On Sep 24, 2013 3:57 PM, "Don Allen" <w9cw@...
> <mailto:w9cw@...>> wrote:
>
>
>
>
> Chris,
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> As you probably know, UPS Ground automatically insures all
> shipments for $100 at no extra cost to the shipper. The shipper
> was certainly derelict in this situation for not insuring it for
> the full selling price, not only for your protection, but his as
> well. This is extremely irresponsible on his part, and really a
> no-brainer. If you paid for the FT-107M via PayPal, I would
> think you could submit a complaint.
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> BTW... I've got a great story on the FT-107M. E-mail me off list
> and I will elaborate!
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>> The radio that was damaged was an FT-107M. The TS-520S was
>> brought out to test before selling, and I decided to keep it.

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>> 4 year hiatus. Just looking forward to this nightmare with this
>> idiotic seller to end. Now he is saying he shouldn't have to pay
>> for it's repair. He is saying UPS should repair it, but he did
>> not insure it -- so I think he is out of luck. He is getting
>> $100 from them that's it. He is still responsible ultimately to
>> make it right.
>>
>> Chris
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>> On Tue, Sep 24, 2013 at 3:40 PM, Don Allen <w9cw@...
>> <mailto:w9cw@...>> wrote:
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>> > responsibility for the damage.
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>> Yahoo! Groups Links
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>> TS-520_820_530_830-fullfeatured@yahoogroups.com
>> <mailto:TS-520_820_530_830-fullfeatured@yahoogroups.com>
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44893. RE: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 00:00:13 UTC
From: Chris Maness
Topic: 44872 Message: 44893

That dude owed you a full refund. I would have opened a claim on that
one. He could have taken it up with the carrier.

Chris KQ6UP
On Sep 24, 2013 4:42 PM, <wagstw46@...> wrote:

>
>
> I wrote ebay and told them the rating on the sellers shipping fee is
> worthless to me. I have never been really gouged on shipping cost oher than
> Ebay taking a piece of the action. I have however had many items damaged
> in shipment and if not damaged the carton smashed in or torn open. It is
> almost a crap shoot anymore if the item will survive the journey.
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> I told Ebay I would like to see a far better category and that would be
> how well did the seller pack the item or make it an additional rating
> category. It is amazing how poorly most items are packed by the seller.
> Either too dumb or too cheap or combo of both.
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> Today whether it is Post Office, UPS or Fed Ex I always double box with a
> 2 to 3 inch crush zone on all 6 sides with the item heavy bubble wrapped in
> the inner box. In the crush zone I use high density foam or peanuts (no
> wadded up newspaper). I also try to use heavier weight cardboard boxes. All
> of this cost more but I would prefer to pay extra for a professional
> packing job than have the rig damaged. I have had people willing to split
> the cost of packing correctly.
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>
> You cannot ship a hybrid ci! rcuit board in a padded shipping envelope or
> a flat rate box with a little wadded up newspaper. I have more than one
> broken or severely bowed board from this penny pincher method.
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> A guy shipped me a Variac in a flat rate box with newspaper around it.
> Needless to say it didnt make it. Also got a soaking wet and deteriorated
> box with a Heath Cantenna set inside a bed of wadded up newspaper. Of
> course when box took a blow the side of the paint can was severely dented
> and the lid popped off and the oil spilled out! What an idiot. He agreed to
> give me half my money back after much argument.
>
>
> Could go on but you get the idea. Oh by the way no response from Ebay.
>

>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <
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>
> Well all is moot now. After fighting me for nearly a week he has offered
> to send me a full refund.&! nbsp; However that will leave me high and dry
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> idiocy. Boo!
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> his part, and really a no-brainer. If you paid for the FT-107M via
> PayPal, I would think you could submit a complaint.
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> Yahoo! Groups Links
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44894. Re: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 00:06:46 UTC
From: William Houghton
Topic: 44872 Message: 44894

Terry,

The guy who shipped the Variac in the flat rate box might have been me. Did the flange break off? That was back when I was a lot less experienced in shipping stuff.

From: "wagstw46@yahoo.com" <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 4:41 PM
Subject: RE: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

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You cannot ship a hybrid circuit board in a padded shipping envelope or a flat r! ate box with a little wadded up newspaper. I have more than one broken or severely bowed board from this penny pincher method.

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Could go on but you get the idea. Oh by the way no response from Ebay.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Well all is moot now. After fighting me for nearly a week he has offered to send me a full refund. However that will leave me high and dry for the price of the ret! urn shipping. I hate paying for other people's idiocy. Boo!
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>>>>Yahoo! Groups Links
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44895. RE: Re: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 00:16:08 UTC
From: <wagstw46@...>
Topic: 44872 Message: 44895

No it was not you Bill. I dont know about lack of experience relative to packing items for shipment. I dont know of any training program for it.

I do know it is going hundreds if not thousands of miles and will be thrown, dropped, items stacked on top of it by people and machines who are mindlessly handling millions of packages with no thought to what is inside.

I had a UPS truck loader tell me once that he and the other high school drop outs that are loading trucks at 0300 in the morning and see a carton with "fragile and this side up" ;labels all over it gets the "treatment". You can use your imagination what that means.

I do know a little about common sense. What I know about that is that there is no such thing......only common practice!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

The guy who shipped the Variac in the flat rate box might have been me. Did the flange break off? That was back when I was a lot less experienced in shipping stuff.

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 4:41 PM
Subject: RE: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

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Could go on but you get the idea. Oh by the way no response from Ebay.

Terry K9TW

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Thanks for the help on this off topic thread.

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Chris

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Don W9CW

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Chris

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Best of luck.

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Don W9CW

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> responsibility for the damage.

Yahoo! Groups Links

<*> To visit your group on the web, go to:
http://groups.yahoo.com/group/TS-520_820_530_830/

<*> Your email settings:
Individual Email | Traditional

<*> To change settings online go to:
http://groups.yahoo.com/group/TS-520_820_530_830/join
(Yahoo! ID required)

<*> To change settings via email:
TS-520_820_530_830-digest@yahoogroups.com
TS-520_820_530_830-fullfeatured@yahoogroups.com

<*> To unsubscribe from this group, send an email to:
TS-520_820_530_830-unsubscribe@yahoogroups.com

<*> Your use of Yahoo! Groups is subject to:
http://info.yahoo.com/legal/us/yahoo/utos/terms/

44896. RE: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 00:19:09 UTC
From: fpath fpath
Topic: 44872 Message: 44896

Here in VK, most of the couriers will not insure, I just received a Tl922 cost me $300+ for freight, the seller double boxed, 100mm peanuts and even placed 6mm masonite around the enire unit, only to have the courier break 2 feet. Had I known this I would have done the 32 hour return trip to pick it up. A lot of the couriers are gorrilas and dont know how to lift or use proper lifting equipment

73s

Dave

VK5PDL

Cases like this are very unfortunate. Its part of what gives buying and selling on ebay a bad reputation. There are still honest, decent sellers out there. I have to admit that I have bought some stuff on ebay that was so poorly packed I was surprised they arrived undamaged. I suspect that most of the sellers on ebay do not know how to properly pack items. The carriers are not kidding when they specify 3 to 4 inches of packing material on all sides.

I'd hold off on the negative feedback until after I receive my refund, though :)

One lesson here is that if the rig arrives with obvious damage, don't even plug it in. You can't tell what type of internal damage might have occurred. Just get your refund.

Glad you will be getting your refund.

73,

Bill

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 4:32 PM
Subject: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

It probably would have, but the system is forcing me to settle by sending him the radio for a full refund. I had escalated this to a claim, but it is automatically resolved by shipping it to him. At this point I just want this nightmare to be over. I will never by a radio again on ebay without stipulating six inches of packing material and full insurance. No friggen UPS either. This guy has been such a cheap jerk from the get go. Just thinking of what to add to my negative review. I am probably going to just put "Glad this nightmare is over." There is not much he can say to that.
Ugh!

Thanks guys!

Chris KQ6UP

On Tue, Sep 24, 2013 at 4:24 PM, William Houghton <rdrbill@...> wrote:

You might check the ebay buyer protection plan. It might cover the return shipping costs, too.

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, September 24, 2013 4:19 PM

Subject: Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

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> Correct. He did not. He also did a terrible job of packing the item.
> The box was not much bigger than the radio. He claimed it was
> "double boxed", but there was no more than an inch of packing peanuts
> between the first and second box. Not my idea of a double boxed
> package. However, this point is now moot since UPS is claiming
> responsibility for the damage.

Yahoo! Groups Links

44897. Re: New Co-Owner decided

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 00:43:05 UTC
From: M. J. Synowiec
Topic: 44862 Message: 44897

Hello Gordon,

I hope this finds you well & your health problems are in abeyance. Thank you for your many years of service and the maintenance of your web-site as well. You are as much a resource as the group and web-site are. Thanks as well for taking the time and effort to find the right fit for the new co-owner. Joe, good luck and best wishes for long service in your new endeavor. I will keep you both in my prayers. The Great Master will keep us all in fine fettle. It is nice to know that you will stay on as moderator. This is, and has been, one of the best groups I've seen and been a part of. I didn't realize how good 'til I joined some others... sheesh! Keep fit and take best care of one of our "resources"... you.

May God bless and keep you,

mjsyn(mike)
K8SYN

44898. Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 02:30:55 UTC
From: Chris Maness
Topic: 44872 Message: 44898

That was going to be my field day rig. However, now that I am feeling all Kenwoody -- would a TS-130S be a good FD rig? I need a radio with a very strong front end because we are often running CW/SSB at the same time on the same band. Rugged too for the n00b to abuse.

Regards,
Chris KQ6UP

On Tue, Sep 24, 2013 at 5:19 PM, fpath fpath <fpath@...> wrote:

>
>
> Here in VK, most of the couriers will not insure, I just received a Tl922
> cost me $300+ for freight, the seller double boxed, 100mm peanuts and even
> placed 6mm masonite around the enire unit, only to have the courier break 2
> feet. Had I known this I would have done the 32 hour return trip to pick it
> up. A lot of the couriers are gorrilas and dont know how to lift or use
> proper lifting equipment
>
> 73s
> Dave
> VK5PDL
>
>
> Cases like this are very unfortunate. Its part of what gives buying and
> selling on ebay a bad reputation. There are still honest, decent sellers
> out there. I have to admit that I have bought some stuff on ebay that was
> so poorly packed I was surprised they arrived undamaged. I suspect that
> most of the sellers on ebay do not know how to properly pack items. The
> carriers are not kidding when they specify 3 to 4 inches of packing
> material on all sides.
>
> I'd hold off on the negative feedback until after I receive my refund,
> though :)
>
> One lesson here is that if the rig arrives with obvious damage, don't even
> plug it in. You can't tell what type of internal damage might have
> occurred. Just get your refund.
>
> Glad you will be getting your refund.
>
> 73,
>
> Bill
>
>

> ------------------------------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, September 24, 2013 4:32 PM
> *Subject:* Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?
>
>
> It probably would have, but the system is forcing me to settle by
> sending him the radio for a full refund. I had escalated this to a claim,
> but it is automatically resolved by shipping it to him. At this point I
> just want this nightmare to be over. I will never by a radio again on ebay
> without stipulating six inches of packing material and full insurance. No
> friggen UPS either. This guy has been such a cheap jerk from the get go.
> Just thinking of what to add to my negative review. I am probably going to
> just put "Glad this nightmare is over." There is not much he can say to
> that.
> Ugh!
>
>
>
> Thanks guys!
> Chris KQ6UP
>
>
> On Tue, Sep 24, 2013 at 4:24 PM, William Houghton <rdrbill@...>wrote:
>
>
>
> You might check the ebay buyer protection plan. It might cover the
> return shipping costs, too.
>
>
> ------------------------------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, September 24, 2013 4:19 PM
>
> *Subject:* Re: [TS-520_820_530_830] OT: Vintage Radio Tech in SoCal?
>
>
> Well all is moot now. After fighting me for nearly a week he has
> offered to send me a full refund. However that will leave me high and dry
> for the price of the return shipping. I hate paying for other people's
> idiocy. Boo!
> Thanks for the help on this off topic thread.
> 73 de KQ6UP
> Chris
> On Sep 24, 2013 3:57 PM, "Don Allen" <w9cw@...> wrote:
>
>
>

>
> Chris,
>
> As you probably know, UPS Ground automatically insures all shipments for
> $100 at no extra cost to the shipper. The shipper was certainly derelict
> in this situation for not insuring it for the full selling price, not only
> for your protection, but his as well. This is extremely irresponsible on
> his part, and really a no-brainer. If you paid for the FT-107M via
> PayPal, I would think you could submit a complaint.
>
> BTW... I've got a great story on the FT-107M. E-mail me off list and I
> will elaborate!
>
> 73
> Don W9CW
>
>
> On 9/24/2013 5:51 PM, Chris Maness wrote:
>
>
> Yes, I would not ship UPS as I have seen the damage they cause. The radio
> that was damaged was an FT-107M. The TS-520S was brought out to test
> before selling, and I decided to keep it. That is what led me to start
> posting on this group again after a 4 year hiatus. Just looking forward to
> this nightmare with this idiotic seller to end. Now he is saying he
> shouldn't have to pay for it's repair. He is saying UPS should repair it,
> but he did not insure it -- so I think he is out of luck. He is getting
> $100 from them that's it. He is still responsible ultimately to make it
> right.
>
> Chris
>
>
> On Tue, Sep 24, 2013 at 3:40 PM, Don Allen <w9cw@...> wrote:
>
> In the factory-shipped configuration for a new TS-520S, there was
> absolutely no space between the inside skin of the outer shipping box
> and the outside skin of the inner box (the box with the string ties on
> top). The inner box containing the TS-520S simply slipped into the
> ever-so-slightly-larger outer box. Thus, the shipper of your TS-520S
> actually packed it better than the factory- assuming - and this is a big
> if... he used the correct inner box with the front and rear Styrofoam
> protective end caps. If he did use the correct inner box with the
> Kenwood factory-supplied end caps, then the problem is due to poor UPS
> Ground handling, which unfortunately is a relatively common occurrence.
>
> Best of luck.
>
> 73
> Don W9CW

>
>
>
> On 9/24/2013 3:34 PM, Chris Maness wrote:
> > Correct. He did not. He also did a terrible job of packing the item.
> > The box was not much bigger than the radio. He claimed it was
> > "double boxed", but there was no more than an inch of packing peanuts
> > between the first and second box. Not my idea of a double boxed
> > package. However, this point is now moot since UPS is claiming
> > responsibility for the damage.
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
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> (Yahoo! ID required)
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>

44899. RE: transceive cable for kenwood twins

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 03:05:12 UTC
From: <famtech@...>
Topic: 24774 Message: 44899

Well gang, I got tired of waiting around for a "Twins" cable to show-up so I modified the sets using the 1800 series connectors from HRD. Digikey has them but maybe a back-order. Here are the Digikey part numbers listed below. You will need order two of each line item. You will not have to change any of the metalwork on your radios to install the new style connectors. No new holes to drill, etc. Except for the connectors themselves, the sets will remain stock.The new connectors are held in the chassis using the hardware supplied with them and two metal strips cut and drilled from stainless steel stock from Ace Hardware. Easy to mount and you can revert back the the old connector if the real cable shows up later. Send me a message for some pictures since this forum doesn't allow picture attachments which is kind of dumb with what we do to these Hybrid rigs.

P-1616A-ST(51)-ND PLUG
P-1616A-C(50)-ND CASE
S-1616A(09)-ND SOCKET
P-1616BA(09)-ND SOCKET RETAINER

What I really need now is a real and detailed diagram of the original Kenwood Twins transceive cable and NOT what's depicted in the manuals which is pretty lacky. If a straight-through cable is made and deployed, the relay inside the receiver won't do anything when the transmitter is keyed.

Regards,

Jim L.

---In ts-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:

The R-599/T-599 interconnection cable used the Hirose 1300 series type of connectors (round pins). These were discontinued many years ago. Your best bet is to use the current Hirose 1600 series of connectors (flat pins). However, you would also have to change out the connector on the R-599 and T-599 to match the cable connectors. Doable stuff, but not trivial.

Pete, wa2cwa

On Mon, 27 May 2013 19:57:42 -0700 JIM LATENDORF <famtech.kebr@...> writes:

That's great !! But, don't keep us in suspense. What's the part number and is it available through Mouser or Digi-Key directly ??

Just trying to save a few steps.

Jim L.

On 05/27/2013 06:01 PM, pmarkavage@... wrote:

Seems we go through this exercise periodically.
Hirose Connectors:
http://www.hirose-connectors.com/
Digi-Key and Mouser are two major distributors.

Pete, wa2cwa

On Mon, 27 May 2013 20:02:05 -0400 Jan Servaites <jservaites@...>
writes:
> If there's a vendor that sells the connectors, we can make up our own
>
> cables.
> I'll look around again to find a vendor.
> Jan N8CBX
>
> famtechjl wrote:
>
> >
> >
> > I too have the Twins set and am also missing the darn cable. Must
> be
> > chronic with the T-599/R-599. I would be interested in throwing
> into a
> > batch buy of these cables in order to get one. That's if we can
> find a
> > point person to start it all up.
> >
> > Regards,
> >
> > Jim L.
> > WB6KVD
> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Osamu Hazawa"
> > <pomerol@...> wrote:
> > >
> > > Hello All,
> > >
> > > I know there are needs and considerable frustration for missing
> cables.
> > > But I'm reluctant to start a new project because:
> > >
> > > - There were some people who ordered the cables but eventually
> > > dissapeared and did not pay for the shipping cost.
> > >
> > > - TMT guy who is in charge of item description (Web, auction)
> > refused to
> > > correct
> > > misleading description (He uses "escutcheon" for the knob
> inlays).
> > >
> > > Osamu

> > >
> > > ----- Original Message -----
> > > From: Bob
> > > To: TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > Sent: Thursday, February 04, 2010 1:55 AM
> > > Subject: [TS-520_820_530_830] Re: transceive cable for kenwood
> twins
> > > >
> > > >
> > > >
> > > Osamu
> > > Thank You for the link. I did bring the site up in English using
> the
> > > Google tool. Once I figured out how to use it again. There was a
> >
> > contact
> > > page for ordering items. I put in my E-mail address and asked if
> >
> > they could
> > > get me the part number for the Cable ends only, and if they
> would
> > sell the
> > > ends only to the cables. Now I don't know if it will work at all
> >
> > because
> > > once I sent the request the link dropped. So I did it again using
> >
> > the same
> > > page on the original site in Japanese. Osamu I am guessing you
> know
> > how to
> > > navigate the site with out guessing where you are. I can not
> read or
> > write
> > > in Japanese. If you could request the information and find out
> the
> > costs of
> > > the connectors and the possibility of them selling them with out
> the
> > cable
> > > it would be a great help.
> > > Thank You
> > > Bob Musser
> > > KB6KPK
> > > bmusser4@...
> > > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, n6wk@ wrote:
> > > > >

> > > > Osamu,
> > > > Any chance you could find out if just the Connectors are
> available?
> > > > If they are, I would be willing to send you the $$ to buy a
> few and of
> > > > course pay for any expenses to get them to me.
> > > > Please let me know. n6wk@
> > > >
> > > > thank you,
> > > > Gordon
> > > > N6WK
> > > >
> > > > Osamu Hazawa wrote:
> > > > >
> > > > >
> > > > > Dave et al,
> > > > >
> > > > > >There was a thread on this list a few years ago about this
> company
> > > and a
> > > > > >Japanese ham who was trying to get an order together for
> cables.
> > > > >
> > > > > I' m the person! B-)
> > > > >
> > > > > Osamu
> > > > >
> > > > > ----- Original Message -----
> > > > > From: Dave
> > > > > To: TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > Sent: Wednesday, February 03, 2010 4:10 PM
> > > > > Subject: Re: [TS-520_820_530_830] Re: transceive cable for
> kenwood
> > > twins
> > > > >
> > > > > I believe the cables are still available in Japan at TMT,
> but my
> > > reading
> > > > > ability is really rusty:
> > > > >
> > > > > http://www.toyama-smenet.or.jp/~tmt/page1c.htm
(http://www.toyama-smenet.or.jp/%7Etmt/page1c.htm)
> > <http://www.toyama-smenet.or.jp/%7Etmt/page1c.htm>
> > > > > <http://www.toyama-smenet.or.jp/%7Etmt/page1c.htm>
> > > > >
> > > > > This page has a bunch of stuff made of unobtainium :) Search
> for
> > > > > '599'. The price is about US$85. They seem to be located in

> Toyama,
> > > > > based on their telephone number and email address.
> > > > >
> > > > > There was a thread on this list a few years ago about this
> > company and
> > > a
> > > > > Japanese ham who was trying to get an order together for
> cables.
> > > > > Unfortunately they only want to deal with domestic orders,
> so I
> > think
> > > it
> > > > > really requires someone in Japan to make it happen.
> > > > >
> > > > > My missing treasure is a TV-502 cable.
> > > > >
> > > > > 73,
> > > > > - Dave W6OT
> > > > >
> > > > > Chuck Goelz wrote:
> > > > > >
> > > > > >
> > > > > > Bob,
> > > > > >
> > > > > > Apparently you are finding out just how scarce these are!
> As
> > far as
> > > I
> > > > > > know, there aren't any. But, you probably CAN buy the
> whole cable,
> > > > > > provided that you are very patient and willing to pay the
> "fair
> > > market
> > > > > > price". I see the cables go up for sale on eBay
> periodically, as
> > > there
> > > > > > are sellers that recognize the value of splitting up the
> > Twins... It
> > > > > > kind of hurts to see that this is profitable, but that's
> what the
> > > > > > market has done. Anyhow, I posted a couple of months ago
> that yet
> > > > > > another cable was available on eBay (I had no connection
> with the
> > > > > > sale!), just to let people like you know that it was
> > available. They
> > > > > > tend to show up 2 or 3 time as year, so don't expect to be
>
> > able to
> > > > buy

> > > > > > one tomorrow... And when they do show up, they usually
> sell
> > for $90
> > > to
> > > > > > $120. Really.
> > > > > >
> > > > > > For now, I'm keeping my cable. But I keep thinking that I
>
> > might want
> > > > > > to sell my Twins (almost perfect T-599D with original
> S2001A
> > finals,
> > > > > > R-599D w/ both 6m and 2m convertors, S-599, and THE cable)
> to
> > buy a
> > > > > > new house or airplane or something... ;-) But my dilemma
> is that I
> > > > > > can't imagine breaking up such a beautiful set of Kenwood
>
> > Twins just
> > > > > > to satisfy the existing market that is driven by the "I
> absolutely
> > > > > > NEED this piece at any ridiculous price to complete my
> station"
> > > > > > mentality. So I guess I'll just keep 'em... For now.
> > (Wondering what
> > > > > > kind of responses I'll get from this one...)
> > > > > > >
> > > > > > Anyhow, I hope someone else in the group has a better
> answer for
> > > you.
> > > > > > If you want the functionality that the cable provides,
> and
> > > originality
> > > > > > is not an issue, you could replace the connectors with
> something
> > > that
> > > > > > you CAN get mates for... And save the old connectors in
> case
> > you get
> > > > > > lucky some day...
> > > > > > >
> > > > > > Sincerely, good luck! And if you are not sure how to find
> the
> > cable
> > > on
> > > > > > eBay, drop me an email...
> > > > > > >
> > > > > > Cheers & 73,
> > > > > > Chuck WA3CEJ

> > > > > >
> > > > > > ----- Original Message -----
> > > > > > From: Bob
> > > > > > To: TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > Sent: Tuesday, February 02, 2010 9:24 PM
> > > > > > Subject: [TS-520_820_530_830] Re: transceive cable for
> kenwood
> > twins
> > > > > > >
> > > > > > I have been looking for the ends to the connector cables
> the last
> > > > > > couple of months. I have hit every local shop here in
> Orange
> > County
> > > > > > California and the surplus places etc. they have checked
> with
> > there
> > > > > > suppliers and so on. The end of this process is that no
> one has
> > > found
> > > > > > the ends to the cable. IF someone has a connection and
> knows
> > where
> > > the
> > > > > > ends of the cable for the 599 twins can be purchased let
> me know.
> > > > > > Thank You
> > > > > > KB6KPK
> > > > > > Bob Musser
> > > > > > Orange, CA.
> > > > > > >
> > > > > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>, pmarkavage
> > > > > > <pmarkavage@> wrote:
> > > > > > >
> > > > > > Wiring diagram for the cable/connectors can be pulled
> from the
> > > > > > receiver/transmitter schematics. If you don't use a
> transceiver
> > > cable,
> > > > > > the receiver has a jumper plug in the remote socket (so
> you
> > > already
> > > > > > have
> > > > > > one plug) but the jumpers would have to be removed if

> you
> > use it
> > > as
> > > > > one
> > > > > > > cable end.
> > > > > > > >
> > > > > > > > Pete, wa2cwa
> > > > > > > >
> > > > > > > > On Sun, 31 Jan 2010 22:54:14 -0500 yash@ writes:
> > > > > > > > >
> > > > > > > > Looking at a set of 599D kenwood twins,seller does not
>
> > have the
> > > 16
> > > > > > > > pin cable that goes between the receiver and
> transmitter.
> > needed
> > > for
> > > > > > > > transceive operation. Dose anyone have a cable,or the
> 16 pin
> > > > > > > > connectors and or a wiring diagram for the cable?
> > > > > > > > any info on the cable assembly or a wiring diagram to
>
> > build one,
> > > > > > > > would really be greatful.
> > > > > > > > thanks
> > > > > > > > dale wt4t
> > > > > > > >
> > > > > > >
> > > > > >
> > > > > [
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> > >
> > >
> > > [Non-text portions of this message have been removed]
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> ------------------------------------
>
> Yahoo! Groups Links
>

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>
>

[Non-text portions of this message have been removed]

44900. Re: [TS-520_820_530_830] RE: transceive cable for kenwood twins

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 03:35:31 UTC
From: n6wk@...
Topic: 24774 Message: 44900

http://www.n6wk.com/kenwood/Kenwood%20Twins%20Interconnect%20Cable%20pinout.txt

73,
Gordon

On 9/24/2013 8:05 PM, famtech@... wrote:
>
> Well gang, I got tired of waiting around for a "Twins" cable to
> show-up so I modified the sets using the 1800 series connectors from
> HRD. Digikey has them but maybe a back-order. Here are the Digikey
> part numbers listed below. You will need order two of each line item.
> You will not have to change any of the metalwork on your radios to
> install the new style connectors. No new holes to drill, etc. Except
> for the connectors themselves, the sets will remain stock.The new
> connectors are held in the chassis using the hardware supplied with
> them and two metal strips cut and drilled from stainless steel stock
> from Ace Hardware. Easy to mount and you can revert back the the old
> connector if the real cable shows up later. Send me a message for some
> pictures since this forum doesn't allow picture attachments which is
> kind of dumb with what we do to these Hybrid rigs.
>
> P-1616A-ST(51)-ND PLUG
> P-1616A-C(50)-ND CASE
> S-1616A(09)-ND SOCKET
> P-1616BA(09)-ND SOCKET RETAINER
>
> What I really need now is a real and detailed diagram of the original
> Kenwood Twins transceive cable and NOT what's depicted in the manuals
> which is pretty lacky. If a straight-through cable is made and
> deployed, the relay inside the receiver won't do anything when the
> transmitter is keyed.
>
> Regards,
>
> Jim L.
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> The R-599/T-599 interconnection cable used the Hirose 1300 series type of
> connectors (round pins). These were discontinued many years ago. Your
> best bet is to use the current Hirose 1600 series of connectors (flat
> pins). However, you would also have to change out the connector on the
> R-599 and T-599 to match the cable connectors. Doable stuff, but not

> trivial.
>
> Pete, wa2cwa
>
> On Mon, 27 May 2013 19:57:42 -0700 JIM LATENDORF <famtech.kebr@...
> <mailto:famtech.kebr@...>>
> writes:
>
> That's great !! But, don't keep us in suspense. What's the part number
> and is it available through Mouser or Digi-Key directly ??
>
> Just trying to save a few steps.
>
> Jim L.
>
> On 05/27/2013 06:01 PM, pmarkavage@... <mailto:pmarkavage@...> wrote:
>
> Seems we go through this exercise periodically.
> Hirose Connectors:
> http://www.hirose-connectors.com/
> Digi-Key and Mouser are two major distributors.
>
> Pete, wa2cwa
>
> On Mon, 27 May 2013 20:02:05 -0400 Jan Servaites <jservaites@...
> <mailto:jservaites@...>>
> writes:
> > If there's a vendor that sells the connectors, we can make up
> our own
> >
> > cables.
> > I'll look around again to find a vendor.
> > Jan N8CBX
> >
> > famtechjl wrote:
> >
> > >
> > >
> > > I too have the Twins set and am also missing the darn cable. Must
> > be
> > > chronic with the T-599/R-599. I would be interested in throwing
> > into a
> > > batch buy of these cables in order to get one. That's if we can
> > find a
> > > point person to start it all up.
> > >
> > > Regards,
> > >
> > > Jim L.
> > > WB6KVD

> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Osamu Hazawa"
> > > <pomerol@...> wrote:
> > > >
> > > > Hello All,
> > > >
> > > > I know there are needs and considerable frustration for missing
> > cables.
> > > > But I'm reluctant to start a new project because:
> > > >
> > > > - There were some people who ordered the cables but eventually
> > > > dissapeared and did not pay for the shipping cost.
> > > >
> > > > - TMT guy who is in charge of item description (Web, auction)
> > > refused to
> > > > correct
> > > > misleading description (He uses "escutcheon" for the knob
> > inlays).
> > > >
> > > > Osamu
> > > >
> > > > ----- Original Message -----
> > > > From: Bob
> > > > To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > Sent: Thursday, February 04, 2010 1:55 AM
> > > > Subject: [TS-520_820_530_830] Re: transceive cable for kenwood
> > twins
> > > >
> > > >
> > > >
> > > > Osamu
> > > > Thank You for the link. I did bring the site up in English
> using
> > the
> > > > Google tool. Once I figured out how to use it again. There
> was a
> >
> > > contact
> > > > page for ordering items. I put in my E-mail address and
> asked if
> >
> > > they could
> > > > get me the part number for the Cable ends only, and if they
> > would
> > > sell the
> > > > ends only to the cables. Now I don't know if it will work at

> all
> >
> > > because
> > > > once I sent the request the link dropped. So I did it again
> using
> >
> > > the same
> > > > page on the original site in Japanese. Osamu I am guessing you
> > know
> > > how to
> > > > navigate the site with out guessing where you are. I can not
> > read or
> > > write
> > > > in Japanese. If you could request the information and find out
> > the
> > > costs of
> > > > the connectors and the possibility of them selling them with
> out
> > the
> > > cable
> > > > it would be a great help.
> > > > Thank You
> > > > Bob Musser
> > > > KB6KPK
> > > > bmusser4@...
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>, n6wk@ wrote:
> > > > >
> > > > > Osamu,
> > > > > Any chance you could find out if just the Connectors are
> > available?
> > > > > If they are, I would be willing to send you the $$ to buy a
> > few and of
> > > > > course pay for any expenses to get them to me.
> > > > > Please let me know. n6wk@
> > > > >
> > > > > thank you,
> > > > > Gordon
> > > > > N6WK
> > > > >
> > > > > Osamu Hazawa wrote:
> > > > > >
> > > > > >
> > > > > > Dave et al,
> > > > > >
> > > > > > >There was a thread on this list a few years ago about this
> > company
> > > > and a

> > > > > > >Japanese ham who was trying to get an order together for
> > cables.
> > > > > > >
> > > > > > > I' m the person! B-)
> > > > > > >
> > > > > > > Osamu
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> > > > > > > ----- Original Message -----
> > > > > > > From: Dave
> > > > > > > To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > Sent: Wednesday, February 03, 2010 4:10 PM
> > > > > > > Subject: Re: [TS-520_820_530_830] Re: transceive cable for
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> > > > twins
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> > > > > > > I believe the cables are still available in Japan at TMT,
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> > > > > > > http://www.toyama-smenet.or.jp/~tmt/page1c.htm
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> > > > > > >
> > > > > > > This page has a bunch of stuff made of unobtainium :)
> Search
> > for
> > > > > > > '599'. The price is about US$85. They seem to be located in
> > Toyama,
> > > > > > > based on their telephone number and email address.
> > > > > > >
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> > > > > > > Japanese ham who was trying to get an order together for
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> > > > > > > My missing treasure is a TV-502 cable.
> > > > > > >
> > > > > > > 73,
> > > > > > > - Dave W6OT

> > > > > >
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> > > > > > >
> > > > > > >
> > > > > > > Bob,
> > > > > > >
> > > > > > > Apparently you are finding out just how scarce these are!
> > As
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> > > > > > know, there aren't any. But, you probably CAN buy the
> > whole cable,
> > > > > > provided that you are very patient and willing to pay the
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> > > > > > another cable was available on eBay (I had no connection
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> > > > > > sale!), just to let people like you know that it was
> > > available. They
> > > > > > tend to show up 2 or 3 time as year, so don't expect
> to be
> >
> > > able to
> > > > buy
> > > > > > one tomorrow... And when they do show up, they usually
> > sell
> > > for $90
> > > > to
> > > > > > $120. Really.
> > > > > > >
> > > > > > For now, I'm keeping my cable. But I keep thinking that I
> >
> > > might want
> > > > > > to sell my Twins (almost perfect T-599D with original
> > S2001A
> > > finals,
> > > > > > R-599D w/ both 6m and 2m convertors, S-599, and THE
> cable)
> > to
> > > > buy a
> > > > > > new house or airplane or something... ;-) But my dilemma

> > is that I
> > > > > > > can't imagine breaking up such a beautiful set of Kenwood
> >
> > > Twins just
> > > > > > > to satisfy the existing market that is driven by the "I
> > absolutely
> > > > > > > NEED this piece at any ridiculous price to complete my
> > station"
> > > > > > > mentality. So I guess I'll just keep 'em... For now.
> > > (Wondering what
> > > > > > > kind of responses I'll get from this one...)
> > > > > > >
> > > > > > > Anyhow, I hope someone else in the group has a better
> > answer for
> > > > > you.
> > > > > > > If you want the functionality that the cable provides,
> > and
> > > > > originality
> > > > > > > is not an issue, you could replace the connectors with
> > something
> > > > that
> > > > > > > you CAN get mates for... And save the old connectors in
> > case
> > > > you get
> > > > > > > lucky some day...
> > > > > > >
> > > > > > > Sincerely, good luck! And if you are not sure how to find
> > the
> > > cable
> > > > > on
> > > > > > > eBay, drop me an email...
> > > > > > >
> > > > > > > Cheers & 73,
> > > > > > > Chuck WA3CEJ
> > > > > > >
> > > > > > > ----- Original Message -----
> > > > > > > From: Bob
> > > > > > > To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > Sent: Tuesday, February 02, 2010 9:24 PM
> > > > > > > Subject: [TS-520_820_530_830] Re: transceive cable for
> > kenwood
> > > twins
> > > > > > >
> > > > > > > I have been looking for the ends to the connector cables
> > the last
> > > > > > > couple of months. I have hit every local shop here in

> > Orange
> > > County
> > > > > > > California and the surplus places etc. they have checked
> > with
> > > there
> > > > > > > suppliers and so on. The end of this process is that no
> > one has
> > > > found
> > > > > > > the ends to the cable. IF someone has a connection and
> > knows
> > > > where
> > > > > the
> > > > > > > ends of the cable for the 599 twins can be purchased let
> > me know.
> > > > > > > Thank You
> > > > > > > KB6KPK
> > > > > > > Bob Musser
> > > > > > > Orange, CA.
> > > > > > >
> > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>, pmarkavage
> > > > > > > <pmarkavage@> wrote:
> > > > > > > >
> > > > > > > > Wiring diagram for the cable/connectors can be pulled
> > from the
> > > > > > > receiver/transmitter schematics. If you don't use a
> > transceiver
> > > > > cable,
> > > > > > > > the receiver has a jumper plug in the remote socket (so
> > you
> > > > > already
> > > > > > > have
> > > > > > > > one plug) but the jumpers would have to be removed if
> > you
> > > > use it
> > > > > as
> > > > > > > one
> > > > > > > > cable end.
> > > > > > > >
> > > > > > > > Pete, wa2cwa
> > > > > > > >
> > > > > > > > On Sun, 31 Jan 2010 22:54:14 -0500 yash@ writes:
> > > > > > > >
> > > > > > > > Looking at a set of 599D kenwood twins,seller does
> not
> > >
> > > have the

> > > > 16
> > > > > > > > > > pin cable that goes between the receiver and
> > transmitter.
> > > needed
> > > > for
> > > > > > > > > > transceive operation. Dose anyone have a cable,or the
> > 16 pin
> > > > > > > > > > connectors and or a wiring diagram for the cable?
> > > > > > > > > > any info on the cable assembly or a wiring diagram to
> >
> > > build one,
> > > > > > > > > > would really be greatful.
> > > > > > > > > > thanks
> > > > > > > > > > dale wt4t
> > > > > > > > >
> > > > > > > >
> > > > > > >
> > > > > > [
> > > > > >
> > > > > >
> > > > >
> > > > >
> > > > >
> > > > >
> > > > >
> > > > >
> > > > > [Non-text portions of this message have been removed]
> > > > >
> > > >
> > > >
> > >
> > >
> > >
> > > ------------------------------------
> > >
> > > Yahoo! Groups Links
> > >
> > >
> > >
> > >
> >
> >
> >
> > [Non-text portions of this message have been removed]
> >
> >

--

44901. Re: [TS-520_820_530_830] RE: transceive cable for kenwood twins

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 03:38:56 UTC
From: n6wk@...
Topic: 24774 Message: 44901

As far as uploading Pictures.. take that up with Yahoo.
They are the ones preventing it!

73,
Gordon
N6WK

On 9/24/2013 8:05 PM, famtech@... wrote:
>
> Well gang, I got tired of waiting around for a "Twins" cable to
> show-up so I modified the sets using the 1800 series connectors from
> HRD. Digikey has them but maybe a back-order. Here are the Digikey
> part numbers listed below. You will need order two of each line item.
> You will not have to change any of the metalwork on your radios to
> install the new style connectors. No new holes to drill, etc. Except
> for the connectors themselves, the sets will remain stock.The new
> connectors are held in the chassis using the hardware supplied with
> them and two metal strips cut and drilled from stainless steel stock
> from Ace Hardware. Easy to mount and you can revert back the the old
> connector if the real cable shows up later. Send me a message for some
> pictures since this forum doesn't allow picture attachments which is
> kind of dumb with what we do to these Hybrid rigs.
>
> P-1616A-ST(51)-ND PLUG
> P-1616A-C(50)-ND CASE
> S-1616A(09)-ND SOCKET
> P-1616BA(09)-ND SOCKET RETAINER
>
> What I really need now is a real and detailed diagram of the original
> Kenwood Twins transceive cable and NOT what's depicted in the manuals
> which is pretty lacky. If a straight-through cable is made and
> deployed, the relay inside the receiver won't do anything when the
> transmitter is keyed.
>
> Regards,
>
> Jim L.
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:
>
> The R-599/T-599 interconnection cable used the Hirose 1300 series type of
> connectors (round pins). These were discontinued many years ago. Your
> best bet is to use the current Hirose 1600 series of connectors (flat

> pins). However, you would also have to change out the connector on the
> R-599 and T-599 to match the cable connectors. Doable stuff, but not
> trivial.
>
> Pete, wa2cwa
>
> On Mon, 27 May 2013 19:57:42 -0700 JIM LATENDORF <famtech.kebr@...
> <mailto:famtech.kebr@...>>
> writes:
>
> That's great !! But, don't keep us in suspense. What's the part number
> and is it available through Mouser or Digi-Key directly ??
>
> Just trying to save a few steps.
>
> Jim L.
>
> On 05/27/2013 06:01 PM, pmarkavage@... <mailto:pmarkavage@...> wrote:
>
> Seems we go through this exercise periodically.
> Hirose Connectors:
> http://www.hirose-connectors.com/
> Digi-Key and Mouser are two major distributors.
>
> Pete, wa2cwa
>
> On Mon, 27 May 2013 20:02:05 -0400 Jan Servaites <jservaites@...
> <mailto:jservaites@...>>
> writes:
> > If there's a vendor that sells the connectors, we can make up
> our own
> >
> > cables.
> > I'll look around again to find a vendor.
> > Jan N8CBX
> >
> > famtechjl wrote:
> >
> > >
> > >
> > > I too have the Twins set and am also missing the darn cable. Must
> > be
> > > chronic with the T-599/R-599. I would be interested in throwing
> > into a
> > > batch buy of these cables in order to get one. That's if we can
> > find a
> > > point person to start it all up.
> > >
> > > Regards,
> > >

> > > Jim L.
> > > WB6KVD
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> <mailto:TS-520_820_530_830@yahoogroups.com>
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> > > > > > > > If you want the functionality that the cable provides,
> > and
> > > > > originality
> > > > > > > > is not an issue, you could replace the connectors with
> > something
> > > > that
> > > > > > > > you CAN get mates for... And save the old connectors in
> > case
> > > > you get
> > > > > > > > lucky some day...
> > > > > > > >
> > > > > > > > Sincerely, good luck! And if you are not sure how to find
> > the
> > > > cable
> > > > on
> > > > > > > > eBay, drop me an email...
> > > > > > > >
> > > > > > > > Cheers & 73,
> > > > > > > > Chuck WA3CEJ
> > > > > > > >
> > > > > > > > ----- Original Message -----
> > > > > > > > From: Bob
> > > > > > > > To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > > Sent: Tuesday, February 02, 2010 9:24 PM
> > > > > > > > Subject: [TS-520_820_530_830] Re: transceive cable for
> > kenwood
> > > twins
> > > > > > > >
> > > > > > > > I have been looking for the ends to the connector cables

> > the last
> > > > > > > couple of months. I have hit every local shop here in
> > Orange
> > > County
> > > > > > > California and the surplus places etc. they have checked
> > with
> > > there
> > > > > > > suppliers and so on. The end of this process is that no
> > one has
> > > > found
> > > > > > > the ends to the cable. IF someone has a connection and
> > knows
> > > where
> > > > the
> > > > > > > ends of the cable for the 599 twins can be purchased let
> > me know.
> > > > > > > Thank You
> > > > > > > KB6KPK
> > > > > > > Bob Musser
> > > > > > > Orange, CA.
> > > > > > >
> > > > > > > --- In TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>, pmarkavage
> > > > > > > <pmarkavage@> wrote:
> > > > > > > >
> > > > > > > > Wiring diagram for the cable/connectors can be pulled
> > from the
> > > > > > > > receiver/transmitter schematics. If you don't use a
> > transceiver
> > > > > cable,
> > > > > > > > the receiver has a jumper plug in the remote socket (so
> > you
> > > > > already
> > > > > > > > have
> > > > > > > > one plug) but the jumpers would have to be removed if
> > you
> > > > use it
> > > > > as
> > > > > > > > one
> > > > > > > > cable end.
> > > > > > > >
> > > > > > > > Pete, wa2cwa
> > > > > > > >
> > > > > > > > On Sun, 31 Jan 2010 22:54:14 -0500 yash@ writes:
> > > > > > > >
> > > > > > > > Looking at a set of 599D kenwood twins,seller does
> not

> >
> > > have the
> > > > 16
> > > > > > > > > > pin cable that goes between the receiver and
> > transmitter.
> > > needed
> > > > for
> > > > > > > > > > transceive operation. Dose anyone have a cable,or the
> > 16 pin
> > > > > > > > > connectors and or a wiring diagram for the cable?
> > > > > > > > > any info on the cable assembly or a wiring diagram to
> >
> > > build one,
> > > > > > > > > would really be greatful.
> > > > > > > > > thanks
> > > > > > > > > dale wt4t
> > > > > > > >
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> > > [Non-text portions of this message have been removed]
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> > ------------------------------------
> >
> > Yahoo! Groups Links
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>
> [Non-text portions of this message have been removed]
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>

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44902. Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 04:47:43 UTC
From: Chris Maness
Topic: 44803 Message: 44902

Ok anyone with a CW narrow filter in their TS-520 get this much wide band white noise on a quiet band or dummy load?

Video: http://youtu.be/Fv1RLn_Ws_I

Thanks,
Chris KQ6UP

On Sun, Sep 22, 2013 at 7:41 PM, <wagstw46@...> wrote:

>
>
> Been a very long time since I have thought or read about Thermal or Shot
> noise. I think some guy Kelvin is involved too!
>
>
> Maybe a You tube video for the other TS520S owners with CW filters
> installed would help?
>
>
> Terry
>
> K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com, &l!
> t;ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>
> On Sun, Sep 22, 2013 at 2:50 PM, <wagstw46@...> wrote:
>
>
>
> Some people call broad band noise as "hash" noise. I am not really sure
> what hash noise is or if I ever heard it. I suppose it would blanket the
> spectrum?
>
>
> If it is an external RFI source might look at computer and peripherals
> especially if any of them have a switcher supply in them.
>
>
> Definitely internal source because the noise is independent of
> antenna/dummy load configurations.

>
> Maybe generated by one of the new CFl lamps if you are using them.
>
> See above.
>
>
> When you remove antenna or put rig on dummy load does the S-meter drop to
> zero and if you run RF to max and turn of the AF gain do you hear a nice
> smooth hiss? That would be normal noise produced internally by the
> receiver.
>
> Yes, this is the hiss I am referring to. However, it is a bit more than I
> am used to on a typical radio even for its vintage. It is MUCH broader
> than the CW filter. There are two layers of this white noise (this is not
> the HF background noise on the band). The louder one is effected by the RF
> Gain/AGC and the audio gain. There is a much fainter one that seems to be
> due to the audio stage by itself. It is still present even if the RF GAIN
> is set to minimum (AGC Voltage Max). That tells me its origin is after the
> CW filter, but before the audio filter. If this is normal, I am not going
> to worry about it. However, reiterating -- it is much louder than many
> other radios I have used. However, when the wide filter is in line, it
> blends in with the HF background noise to the point I have not noticed it
> before. It is entirely possible that this is normal for the design. It
> just seems like the g! reatest noise would be generated at the stage of
> greatest gain. I would imagine this would be before that CW filter, and
> therefore the Nyquest/Shot noise would be shaped by the filter also. Just
> my book thoughts and observations speaking -- not from experience.
>
> The shape of the noise frequency response in relationship to the HF
> background noise makes it REALLY stand out on the high bands. An external
> audio band pass filter would cure this if I found it too annoying, but if
> there is something wrong inside I would like to fix it.
>
> Tnx es
> 73 de KQ6UP
>
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> In SSB and CW for the lower bands the background HF noise covers over a
> background white noise on my radio. However, on the higher bands where the
> band is quieter,! I here white noise that is much broader than the 500Hz CW
> filter skirt. It is not from the AF stage because it decreases with the AF
> volume. Is this normal for this radio? Can anyone else verify this with a
> CW filter in the high bands?
>

> There is a mod bulletin/article floating around the net that suggests a
> hash noise may be due to a bad transistor. However, if everyone else hears
> the same noise, I am not going to worry about it. Moreover if there is a
> mod for this problem, I would definitely be interested in the details. The
> noise is tolerable, but I would much prefer it be lower.
>
> Here is the article in question:
>
> http://www.radiomods.co.nz/kenwood/kenwoodts520.html
>
> Thanks for the help guys. From this group I have received enough help to
> resurrect a nearly basket case TS-520S. I had fixed other problems back in
> 2009. Now I have a nearly perfectly working radio.
>
> Thanks,
> Chris Maness KQ6UP
>
>
>
>
>
>
>

44903. Re: [TS-520_820_530_830] RE: transceive cable for kenwood twins

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 08:39:28 UTC
From: Guy Morgan
Topic: 24774 Message: 44903

First of all, thanks to Gordon for his work as owner of this excellent resource. WRT pictures etc., there is a files section where such things can be put and then referenced from the list. Most if not all lists I subscribe to block pictures or any other attachments from being sent direct to the list as attachments are a fertile source of “nasties” which none of us want to receive!

73

Guy – G3POM

From: n6wk@...
Sent: Wednesday, September 25, 2013 4:38 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: transceive cable for kenwood twins

As far as uploading Pictures.. take that up with Yahoo.
They are the ones preventing it!

73,
Gordon
N6WK

On 9/24/2013 8:05 PM, famtech@... wrote:

Well gang, I got tired of waiting around for a "Twins" cable to show-up so I modified the sets using the 1800 series connectors from HRD. Digikey has them but maybe a back-order. Here are the Digikey part numbers listed below. You will need order two of each line item. You will not have to change any of the metalwork on your radios to install the new style connectors. No new holes to drill, etc. Except for the connectors themselves, the sets will remain stock.The new connectors are held in the chassis using the hardware supplied with them and two metal strips cut and drilled from stainless steel stock from Ace Hardware. Easy to mount and you can revert back the the old connector if the real cable shows up later. Send me a message for some pictures since this forum doesn't allow picture attachments which is kind of dumb with what we do to these Hybrid rigs.

P-1616A-ST(51)-ND PLUG
P-1616A-C(50)-ND CASE
S-1616A(09)-ND SOCKET
P-1616BA(09)-ND SOCKET RETAINER

What I really need now is a real and detailed diagram of the original Kenwood Twins transceive cable and NOT what's depicted in the manuals which is pretty lacky. If a straight-through cable is made and deployed, the relay inside the receiver won't do anything when the transmitter is keyed.

Regards,

Jim L.

---In ts-520_820_530_830@yahoogroups.com, mailto:pmarkavage@... wrote:

The R-599/T-599 interconnection cable used the Hirose 1300 series type of connectors (round pins). These were discontinued many years ago. Your best bet is to use the current Hirose 1600 series of connectors (flat pins). However, you would also have to change out the connector on the R-599 and T-599 to match the cable connectors. Doable stuff, but not trivial.

Pete, wa2cwa

On Mon, 27 May 2013 19:57:42 -0700 JIM LATENDORF <famtech.kebr@...> writes:

That's great !! But, don't keep us in suspense. What's the part number and is it available through Mouser or Digi-Key directly ??

Just trying to save a few steps.

Jim L.

On 05/27/2013 06:01 PM, pmarkavage@... wrote:

Seems we go through this exercise periodically.
Hirose Connectors:
http://www.hirose-connectors.com/
Digi-Key and Mouser are two major distributors.

Pete, wa2cwa

On Mon, 27 May 2013 20:02:05 -0400 Jan Servaites <jservaites@...> writes:
> If there's a vendor that sells the connectors, we can make up our own
>
> cables.
> I'll look around again to find a vendor.
> Jan N8CBX
>
> famtechjl wrote:
>
> >
> >
> > I too have the Twins set and am also missing the darn cable. Must
> be
> > chronic with the T-599/R-599. I would be interested in throwing
> into a
> > batch buy of these cables in order to get one. That's if we can
> find a
> > point person to start it all up.
> >
> > Regards,
> >
> > Jim L.
> > WB6KVD

> >
> > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, "Osamu Hazawa"
> > mailto:pomerol@... wrote:
> > >
> > > Hello All,
> > >
> > > I know there are needs and considerable frustration for missing
> cables.
> > > But I'm reluctant to start a new project because:
> > >
> > > - There were some people who ordered the cables but eventually
> > > dissapeared and did not pay for the shipping cost.
> > >
> > > - TMT guy who is in charge of item description (Web, auction)
> > refused to
> > > correct
> > > misleading description (He uses "escutcheon" for the knob
> inlays).
> > >
> > > Osamu
> > >
> > > ----- Original Message -----
> > > From: Bob
> > > To: TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > Sent: Thursday, February 04, 2010 1:55 AM
> > > Subject: [TS-520_820_530_830] Re: transceive cable for kenwood
> twins
> > >
> > >
> > >
> > > Osamu
> > > Thank You for the link. I did bring the site up in English using
> the
> > > Google tool. Once I figured out how to use it again. There was a
> >
> > contact
> > > page for ordering items. I put in my E-mail address and asked if
> >
> > they could
> > > get me the part number for the Cable ends only, and if they
> would
> > sell the
> > > ends only to the cables. Now I don't know if it will work at all
> >
> > because
> > > once I sent the request the link dropped. So I did it again using
> >
> > the same

> > > page on the original site in Japanese. Osamu I am guessing you
> know
> > how to
> > > navigate the site with out guessing where you are. I can not
> read or
> > write
> > > in Japanese. If you could request the information and find out
> the
> > costs of
> > > the connectors and the possibility of them selling them with out
> the
> > cable
> > > it would be a great help.
> > > Thank You
> > > Bob Musser
> > > KB6KPK
> > > bmusser4@...
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>, n6wk@ wrote:
> > > >
> > > > Osamu,
> > > > Any chance you could find out if just the Connectors are
> available?
> > > > If they are, I would be willing to send you the $$ to buy a
> few and of
> > > > course pay for any expenses to get them to me.
> > > > Please let me know. n6wk@
> > > >
> > > > thank you,
> > > > Gordon
> > > > N6WK
> > > >
> > > > Osamu Hazawa wrote:
> > > > >
> > > > >
> > > > > Dave et al,
> > > > >
> > > > > >There was a thread on this list a few years ago about this
> company
> > > and a
> > > > > >Japanese ham who was trying to get an order together for
> cables.
> > > > >
> > > > > I' m the person! B-)
> > > > >
> > > > > Osamu
> > > > >
> > > > > ----- Original Message -----
> > > > > From: Dave

> > > > > To: TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > Sent: Wednesday, February 03, 2010 4:10 PM
> > > > > Subject: Re: [TS-520_820_530_830] Re: transceive cable for
> kenwood
> > > twins
> > > > >
> > > > > I believe the cables are still available in Japan at TMT,
> but my
> > > reading
> > > > > ability is really rusty:
> > > > >
> > > > > http://www.toyama-smenet.or.jp/~tmt/page1c.htm
> > <http://www.toyama-smenet.or.jp/%7Etmt/page1c.htm>
> > > > > <http://www.toyama-smenet.or.jp/%7Etmt/page1c.htm>
> > > > >
> > > > > This page has a bunch of stuff made of unobtainium :) Search
> for
> > > > > '599'. The price is about US$85. They seem to be located in
> Toyama,
> > > > > based on their telephone number and email address.
> > > > >
> > > > > There was a thread on this list a few years ago about this
> > company and
> > > > a
> > > > > Japanese ham who was trying to get an order together for
> cables.
> > > > > Unfortunately they only want to deal with domestic orders,
> so I
> > think
> > > it
> > > > > really requires someone in Japan to make it happen.
> > > > >
> > > > > My missing treasure is a TV-502 cable.
> > > > >
> > > > > 73,
> > > > > - Dave W6OT
> > > > >
> > > > > Chuck Goelz wrote:
> > > > > >
> > > > > >
> > > > > > Bob,
> > > > > >
> > > > > > Apparently you are finding out just how scarce these are!
> As
> > far as
> > > I
> > > > > > know, there aren't any. But, you probably CAN buy the
> whole cable,

> > > > > > provided that you are very patient and willing to pay the
> "fair
> > > market
> > > > > > price". I see the cables go up for sale on eBay
> periodically, as
> > > there
> > > > > > are sellers that recognize the value of splitting up the
> > Twins... It
> > > > > > kind of hurts to see that this is profitable, but that's
> what the
> > > > > > market has done. Anyhow, I posted a couple of months ago
> that yet
> > > > > > another cable was available on eBay (I had no connection
> with the
> > > > > > sale!), just to let people like you know that it was
> > available. They
> > > > > > tend to show up 2 or 3 time as year, so don't expect to be
>
> > able to
> > > buy
> > > > > > one tomorrow... And when they do show up, they usually
> sell
> > for $90
> > > to
> > > > > > $120. Really.
> > > > > >
> > > > > > For now, I'm keeping my cable. But I keep thinking that I
>
> > might want
> > > > > > to sell my Twins (almost perfect T-599D with original
> S2001A
> > finals,
> > > > > > R-599D w/ both 6m and 2m convertors, S-599, and THE cable)
> to
> > buy a
> > > > > > new house or airplane or something... ;-) But my dilemma
> is that I
> > > > > > can't imagine breaking up such a beautiful set of Kenwood
>
> > Twins just
> > > > > > to satisfy the existing market that is driven by the "I
> absolutely
> > > > > > NEED this piece at any ridiculous price to complete my
> station"
> > > > > > mentality. So I guess I'll just keep 'em... For now.
> > (Wondering what
> > > > > > kind of responses I'll get from this one...)
> > > > > >
> > > > > > Anyhow, I hope someone else in the group has a better
> answer for

> > > you.
> > > > > > If you want the functionality that the cable provides,
> and
> > > originality
> > > > > > is not an issue, you could replace the connectors with
> something
> > > that
> > > > > > you CAN get mates for... And save the old connectors in
> case
> > you get
> > > > > > lucky some day...
> > > > > >
> > > > > > Sincerely, good luck! And if you are not sure how to find
> the
> > cable
> > > on
> > > > > > eBay, drop me an email...
> > > > > >
> > > > > > Cheers & 73,
> > > > > > Chuck WA3CEJ
> > > > > >
> > > > > > ----- Original Message -----
> > > > > > From: Bob
> > > > > > To: TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > Sent: Tuesday, February 02, 2010 9:24 PM
> > > > > > Subject: [TS-520_820_530_830] Re: transceive cable for
> kenwood
> > twins
> > > > > >
> > > > > > I have been looking for the ends to the connector cables
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> > > > > > couple of months. I have hit every local shop here in
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> knows
> > where
> > > the
> > > > > > ends of the cable for the 599 twins can be purchased let
> me know.
> > > > > > Thank You

> > > > > > KB6KPK
> > > > > > Bob Musser
> > > > > > Orange, CA.
> > > > > >
> > > > > > --- In TS-520_820_530_830@yahoogroups.com
> > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>
> > > > > > <mailto:TS-520_820_530_830%40yahoogroups.com>, pmarkavage
> > > > > > <pmarkavage@> wrote:
> > > > > > >
> > > > > > > Wiring diagram for the cable/connectors can be pulled
> from the
> > > > > > > receiver/transmitter schematics. If you don't use a
> transceiver
> > > cable,
> > > > > > > the receiver has a jumper plug in the remote socket (so
> you
> > > already
> > > > > > have
> > > > > > > one plug) but the jumpers would have to be removed if
> you
> > use it
> > > as
> > > > > > one
> > > > > > > cable end.
> > > > > > >
> > > > > > > Pete, wa2cwa
> > > > > > >
> > > > > > > On Sun, 31 Jan 2010 22:54:14 -0500 yash@ writes:
> > > > > > >
> > > > > > > Looking at a set of 599D kenwood twins,seller does not
> >
> > have the
> > > > > 16
> > > > > > > pin cable that goes between the receiver and
> transmitter.
> > needed
> > > > for
> > > > > > > transceive operation. Dose anyone have a cable,or the
> 16 pin
> > > > > > > connectors and or a wiring diagram for the cable?
> > > > > > > any info on the cable assembly or a wiring diagram to
> >
> > build one,
> > > > > > > would really be greatful.
> > > > > > > thanks
> > > > > > > dale wt4t
> > > > > > >
> > > > > > >
> > > > > >

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>
> Yahoo! Groups Links
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[Non-text portions of this message have been removed]

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44904. Re: [TS-520_820_530_830] greetings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 11:49:41 UTC
From: Mike
Topic: 44875 Message: 44904

Congratulations Joe on your appointment as a new group co-owner. I'm sure you will do great. Thank you for your kind words.

A Coast Guard Radioman? I was a Navy Radioman for 22 years, retired as an RMC(SW) in Dec 1988.

73
Mike W5RKL

On 9/24/2013 12:09 PM, Joseph Stiles wrote:
> Greeting Group!
>
> Well, as you figured...I'm one of the new co-owners. I've got some
> big shoes to fill. I will endeavor
> to do my best. This is a great group! Let's PLEASE keep it that way. I
> will thank Gordon-n6wk,
> Mike-w5rkl, and Terry-k9tw for their knowledge and expertise, they
> were, and still are, a big help
> to me and, many others..TNX!
>
> My background: EX Radioman USCG, first ticket 1977 and still wb7uqu.
> Most of my adult life was spent as a professional
> firefighter, firefighter/paramedic and later Fire Lieutenant with the
> City of Tacoma WA Fire Dept. I retired after 33 years of service
> I still am on a rather steeplearning curve as far as in depth
> diagnostics and radio theory...but getting better. That's all for now.
>
> QRU?
> 73 Joe
> WB7UQU
>

44905. TS 511S PS 511S and HP23A

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 14:35:54 UTC
From: kshitij mathur
Topic: 44905 Message: 44905

Dear Gurus !!

I have a TS 511S and a HP23A (Heath Power supply)- has anybody ever tried to use HP23A to fire TS511S since most of the voltages are meeting the requirements of TS 511S.

I would appreciate any help whatsoever in this direction as I am about to use HP23A to fire TS511S.

Seeking help, please note- it is impossible to find a matching PS 511S in India and to get it from US or Japan- is out of budget option

73

Kshitij
VU2CDW

44906. RE: TS 511S PS 511S and HP23A

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 15:24:48 UTC
From: <dlbowders@...>
Topic: 44905 Message: 44906

Kshitij,
Hello. I have been looking for a PS for you but have not been able to find one. I do not know about the HP23A. I do not know enough about my own 511S to be of any help. Have been saving it for this winter as a project. I have a few unfinished projects to complete and did not want to start another until my bench is cleared. Perhaps someone here has more experience with the 511S and can help you.

73, Don K5HFG

---In ts-520_820_530_830@yahoogroups.com, <telestar1960@...> wrote:

Dear Gurus !!

I have a TS 511S and a HP23A (Heath Power supply)- has anybody ever tried to use HP23A to fire TS511S since most of the voltages are meeting the requirements of TS 511S.

I would appreciate any help whatsoever in this direction as I am about to use HP23A to fire TS511S.

Seeking help, please note- it is impossible to find a matching PS 511S in India and to get it from US or Japan- is out of budget option

73

Kshitij
VU2CDW

44907. Re: [TS-520_820_530_830] RE: TS 511S PS 511S and HP23A

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 15:44:13 UTC
From: kshitij mathur
Topic: 44905 Message: 44907

Thanks a ton !!! I am still hopeful- but this attempt is just to start using TS511S- otherwise it will be a unit with all dry capacitors and out of tolerance resistors.

Warm Regards and in our language- 73

Kshitij
VU2CDW

From: "dlbowders@..." <dlbowders@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, 25 September 2013 8:54 PM
Subject: [TS-520_820_530_830] RE: TS 511S PS 511S and HP23A

Kshitij,
Hello. I have been looking for a PS for you but have not been able to find one. I do not know about the HP23A. I do not know enough about my own 511S to be of any help. Have been saving it for this winter as a project. I have a few unfinished projects to complete and did not want to start another until my bench is cleared. Perhaps someone here has more experience with the 511S and can help you.

73, Don K5HFG

---In ts-520_820_530_830@yahoogroups.com, <telestar1960@...> wrote:

Dear Gurus !!

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I would appreciate any help whatsoever in this direction as I am about to use HP23A to fire TS511S.

Seeking help, please note- it is impossible to find a matching PS 511S in India and to get it from US or Japan- is out of budget option

73

Kshitij
VU2CDW

44908. Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 16:21:48 UTC
From: <n6wk@...>
Topic: 44908 Message: 44908

am trying to order a crystal from International Crystal. They need to know the Load capacitance. How do I determine that? here is a picture of the circuit.
http://www.n6wk.com/CE-100V/Crystal.jpg

Thanks,
Gordon

44909. Re: [TS-520_820_530_830] Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 16:36:25 UTC
From: Mike
Topic: 44908 Message: 44909

Hi Gordon,

Have you tried sending them the schematic via email? I've done that in the past with Sarah Gore, International Crystals, and they were able to determine the value they needed to make the crystals.

73
Mike W5RKL

On 9/25/2013 11:21 AM, n6wk@... wrote:
>
> am trying to order a crystal from International Crystal. They need to
> know the Load capacitance. How do I determine that? here is a picture
> of the circuit.
> http://www.n6wk.com/CE-100V/Crystal.jpg
>
> Thanks,
> Gordon
>
>

44910. RE: Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 16:56:08 UTC
From: <wagstw46@...>
Topic: 44908 Message: 44910

Gordon;

Looking at the schematic it looks like parallel resonance to me based on the components it the feedback loop. So they will want to know the load capacitance that the circuit places across the crytal.

You can try using your digital LCR bridge and measure the capacitance across the crystal in the circuit.

If they cannot tell by looking at the circuit I would buy one designed for about 30pf load. Then if too high can pad it down.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

am trying to order a crystal from International Crystal. They need to know the Load capacitance. How do I determine that? here is a picture of the circuit.
http://www.n6wk.com/CE-100V/Crystal.jpg

Thanks,
Gordon

44911. RE: RE: Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 17:25:51 UTC
From: <wagstw46@...>
Topic: 44908 Message: 44911

Typo ---Gordon I meant 20pf and not 30pf.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Gordon;

Looking at the schematic it looks like parallel resonance to me based on the components it the feedback loop. So they will want to know the load capacitance that the circuit places across the crytal.

You can try using your digital LCR bridge and measure the capacitance across the crystal in the circuit.

If they cannot tell by looking at the circuit I would buy one designed for about 30pf load. Then if too high can pad it down.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

am trying to order a crystal from International Crystal. They need to know the Load capacitance. How do I determine that? here is a picture of the circuit.
http://www.n6wk.com/CE-100V/Crystal.jpg

Thanks,
Gordon

44912. Re: [TS-520_820_530_830] RE: RE: Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 17:44:24 UTC
From: n6wk@...
Topic: 44908 Message: 44912

Terry,
upon checking just now, My Transmitter is an early version and has a
different circuit.

Here is my circuit. Hard to read, but best I have for now.
http://www.n6wk.com/CE-100V/ce-100v-crystal.gif
I just sent a copy of this to International Crystal as well

73,
Gordon

On 9/25/2013 10:25 AM, wagstw46@... wrote:
>
> Typo ---Gordon I meant 20pf and not 30pf.
>
>
> Terry
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Gordon;
>
>
> Looking at the schematic it looks like parallel resonance to me based
> on the components it the feedback loop. So they will want to know the
> load capacitance that the circuit places across the crytal.
>
>
> You can try using your digital LCR bridge and measure the capacitance
> across the crystal in the circuit.
>
>
> If they cannot tell by looking at the circuit I would buy one designed
> for about 30pf load. Then if too high can pad it down.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>

> am trying to order a crystal from International Crystal. They need to
> know the Load capacitance. How do I determine that? here is a picture
> of the circuit.
> http://www.n6wk.com/CE-100V/Crystal.jpg
>
> Thanks,
> Gordon
>

--

44913. Re: [TS-520_820_530_830] TS 511S PS 511S and HP23A

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 18:06:34 UTC
From: Wes Will
Topic: 44905 Message: 44913

On 09/25/2013 09:35 AM, kshitij mathur wrote:
> Dear Gurus !!

Guru I ain't, but I can read a schematic.

> I have a TS 511S and a HP23A (Heath Power supply)- has anybody ever
> tried to use HP23A to fire TS511S since most of the voltages are meeting
> the requirements of TS 511S.
>
> I would appreciate any help whatsoever in this direction as I am about
> to use HP23A to fire TS511S.

BTW, you -do- have the schematic and operating manual for this, yes?
I've got a low-res one, got it off the internet somewhere if you don't.
DON'T have the PS-511 schematic, but the plug wiring diagram for the
xcvr in the operating manual has enough information to get going on.

You will need a 2-wire cable for the fan connection. It's just AC mains
voltage, 117VAC or whatever passes for that amount of voltage in your
area. 110, 115, 117, 120, somewhere around that. Need that or you'll
cook your finals and all the parts near them.

For the rest, you need several voltages. 12.6V AC for the filaments
first off, pins 5 and 8 on the power connector. The power switch is on
pins 2 and 3. The PS-511 power switch connects through the power cable
to those two pins, and when you apply power to the power supply, the
TS-511 power gets switched on as well through that connection.

Pins 12 and ground (looks like you can use either of pins 6 or 9 for
it), are for the external speaker connection.

Like all the other TS-5XX series radios, the rest is pretty much
straight-forward.

You require an earth ground of course, and a chassis ground to tie the
two boxes together at the cabinet for a signal ground. (And also to
keep from shocking the snot out of yourself.)

Final grid bias, -C, is -90VDC and is on pin 1 of the connector. To be
dead-certain you got that, from pin one to the chassis ground you
should have NEGATIVE NINETY VOLTS DC.

The B+ voltages are next. There is +150VDC on pin 4, +210VDC on pin 7,
+300VDC at pin 10, and +800VDC on pin 11. (All are measured with
respect to chassis ground, of course.)

It appears that the power cable for the TS-510 / PS-510 pair would also
work for your TS-511, at least get you a starting point to work from.

(Comparing the schematics makes me 99% certain of it, but if there is something I missed, please to correct it.)

That ought to get you started. I highly recommend that you shield the power connector cable between your power supply and the TS-511, and make sure both chassis are grounded to the same potential and to earth ground. The voltages and currents in here can kill you quicker than quick if you get caught in a ground loop. You can use the shield braid from the power supply cable to tie the chassis both together at the wing-nut ground lug.

Do be cautious about potentials on the cases if your power supply is the 3-prong sort and is tied to the outlet ground. If your rig has an independent ground (a ground rod outside the window just for the shack for instance) and the house mains ground is NOT bonded together with it with a low-resistance strap between them, then there might (probably will) be potential between the shack independent ground and the outlet mains ground. A potentially deadly ground. (Pun of course intended.)

This is a concern that transcends what kind of radios you have. Grounding is an art and a science all of its own. You should look into making certain there are no stray voltages waiting to take you out of the picture first time you flip the switch, or touch the chassis while it is plugged into the mains.

If anyone sees any flaw in that, please point it out. Infallible I ain't and never claimed to be. I would rather not hear about someone headed for the Ghats prematurely, or even just in need of a keg of Ganges water.

If you have that schematic, you've got almost all you need. If not, I found it at

http://www.wb4hfn.com/KENWOOD/Manuals/TS-511S%20Operations%20Manual.pdf

and you can get it there (in case you don't have it, though I suspect you do). (If someone has a better one, please upload it to the group file site, just for completeness' sake? AND the PS-511 as well, if you have it?

We have the model 510 stuff in there, and several others, and it's not as if we're out of room in the group allotment, either. If space does ever get low, well, that could be the first to go to get room for something better.

Until then, I don't see any reason why not to archive it. If there are good and sufficient reasons not to keep these files, as determined by the group admin folks, then that's good enough for me, no arguments here.

But the availability of these documents is VERY low, even in poor quality, and I think clean copies here would result in more good copies elsewhere , before it is over.

(The Kenwood site doesn't list it in their downloads, by the way, either of the 511 items.)

--
Wes Will
N9KDY

44914. RE: Re: [TS-520_820_530_830] RE: RE: Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 18:19:08 UTC
From: <wagstw46@...>
Topic: 44908 Message: 44914

OK now I dont see feed back loop from plate of osc tube with any reactive components so it may be a series resonant xtal? If so, then no need to specify CL. Maybe there is enough shown here for International to tell?

On reflection my suggestion to measure capacitance with your LCR isnt good.

What you really need is a VNA or Impedance Analyzer so you can measure the X at crystal frequency. Then very easy to calculate the CL. X= .159/CL x F. Measure F with counter and measure X with VNA and solve for CL.

The new Aim VNA2180 is just the ticket for measuring crystal parameters. Goes for around $1500. Of course you could go to Ebay and shop for a HP4294. I think there may be one or two for around $30,000.00! An HP8753 VNA can be had for less than $10,000.00! If I find out you have either on your bench I will be mad!

I would love to have the VNA2180. It is a 2 port VNA. I think Phil Salas AD5X just reviewed it for QST.

If International cant help you then you have justification for adding nice piece of test gear to your bench. Might want to email AIM and see if the single port 4170 (around $500) can measure crystal parameters.

Then I would know where I could borrow one! I have had VNA on Xmas list for couple of years, but so far Santa has not been able to spell VNA!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,
upon checking just now, My Transmitter is an early version and has a different circuit.

Here is my circuit. Hard to read, but best I have for now.
http://www.n6wk.com/CE-100V/ce-100v-crystal.gif
I just sent a copy of this to International Crystal as well

73,
Gordon

On 9/25/2013 10:25 AM, wagstw46@... wrote:

Typo ---Gordon I meant 20pf and not 30pf.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Gordon;

Looking at the schematic it looks like parallel resonance to me based on the components it the feedback loop. So they will want to know the load capacitance that the circuit places across the crytal.

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If they cannot tell by looking at the circuit I would buy one designed for about 30pf load. Then if too high can pad it down.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

am trying to order a crystal from International Crystal. They need to know the Load capacitance. How do I determine that? here is a picture of the circuit.
http://www.n6wk.com/CE-100V/Crystal.jpg

Thanks,
Gordon

--

44915. yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-25 23:15:48 UTC
From: Joseph Stiles
Topic: 44915 Message: 44915

Greetings group,

  I know that there has been some "unhappiness" about the "NEW YAHOO LOOK." There is a guy, John-kd5inm, who is a member of the "Amateur Repairs" yahoo group. He has started a new yahoo group and,
is generating an on-line petition to see if he/we/you can force "yahoo" go go back to the "old" style.

 If interested, I will post the groups name etc. here.

73 Joe
WB7UQU

44916. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 00:13:06 UTC
From: Mark Gilger
Topic: 44915 Message: 44916

The new format SUCKs. to be mild mannered about
it. If we can get it changed back, that would be great.....

Mark

At 07:15 PM 9/25/2013, Joseph Stiles wrote:
>
>
>
> Greetings group,
>
> I know that there has been some "unhappiness"
> about the "NEW YAHOO LOOK." There is a guy,
>John-kd5inm, who is a member of the "Amateur
>Repairs" yahoo group. He has started a new yahoo group and,
>is generating an on-line petition to see if
>he/we/you can force "yahoo" go go back to the "old" style.
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> If interested, I will post the groups name etc. here.
>
>
>73 Joe
>WB7UQU
>

44917. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:00:25 UTC
From: John Davidson
Topic: 44915 Message: 44917

I get ad banners that pop up right over my e-mail text that I am trying to read now.

From: Mark Gilger <mgilger@brightdsl.net>
To: TS-520_820_530_830@yahoogroups.com; "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Wednesday, September 25, 2013 8:13 PM
Subject: Re: [TS-520_820_530_830] yahoo unhappiness

The new format SUCKs. to be mild mannered about it. If we can get it changed back, that would be great.....

Mark

At 07:15 PM 9/25/2013, Joseph Stiles wrote:

>
>
> Greetings group,
>
> I know that there has been some "unhappiness" about the "NEW YAHOO LOOK." There is a guy,
>John-kd5inm, who is a member of the "Amateur Repairs" yahoo group. He has started a new yahoo group and,
>is generating an on-line petition to see if he/we/you can force "yahoo" go go back to the "old" style.
>
> If interested, I will post the groups name etc. here.
>
>
>73 Joe
>WB7UQU
>

44918. RE: Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:02:27 UTC
From: <wagstw46@...>
Topic: 44915 Message: 44918

Mark:

You think it SUCKS. What about us poor guys who are still trying to figure out how to use an abacus and tin cans and waxed string?

I hate it when a company forgets that the users (they use to call them customers) always define quality.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The new format SUCKs. to be mild mannered about it. If we can get it changed back, that would be great.....

Mark

At 07:15 PM 9/25/2013, Joseph Stiles wrote:

Greetings group,

I know that there has been some "unhappiness" about the "NEW YAHOO LOOK." There is a guy, John-kd5inm, who is a member of the "Amateur Repairs" yahoo group. He has started a new yahoo group and,
is generating an on-line petition to see if he/we/you can force "yahoo" go go back to the "old" style.

If interested, I will post the groups name etc. here.

73 Joe
WB7UQU

44919. Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:11:49 UTC
From: John Davidson
Topic: 44915 Message: 44919

I have a TS520 that I used nearly every day for nearly 40 years, I repaired a few little failures in the past by replacing componants like transistors diodes and capacitors.
NOW I had a flashover around the screen pin on one 6146 socket that destroyed a few resistors and a choke in the 210 V line. The material around the pin is burned , charred badly, and I don't turst it any more. I triedf scraping away at it with an Exacto knife but am sure it will be trouble in the future.
I have decided to keep it on and use it as a receiver only. My plan is to remove the three tubes, and disconnect the HV output connections at the rectifier board and secure each of the wire ends with an insulating sleeve. Anyone see a problem with that arrangement?
73, K8JD

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.

44920. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:21:55 UTC
From: Don Allen
Topic: 44915 Message: 44920

I use Mozilla Thunderbird e-mail client for reading the individual e-mail posts in the Yahoo Groups I subscribe to. Since I don't access the posts through a browser, no problem with any pop up ads here - in terms of the individual posts.

Nevertheless, what we're experiencing, especially regarding the ads, is the impact of the relatively-new CEO Marissa Mayer. Remember, she was a long-time executive at Google, and her job is to increase Yahoo's ad revenue which was seriously in the tank prior to her arrival. She's bound to ruffle feathers across the board, as what I've heard about her management style is: "take no prisoners."

There's absolutely zero chance of Yahoo killing Neo in favor of the Classic format. I suppose we could use the mailman.qth.net list server, but then we'd just have a mail reflector, and we'd lose all of the great features and storage capability of Yahoo groups.

73
Don W9CW

On 9/25/2013 8:00 PM, John Davidson wrote:
> I get ad banners that pop up right over my e-mail text that I am
> trying to read now.
>
> ---
> *From:* Mark Gilger <mgilger@...>
> *To:* TS-520_820_530_830@yahoogroups.com;
> "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Wednesday, September 25, 2013 8:13 PM
> *Subject:* Re: [TS-520_820_530_830] yahoo unhappiness
>
> The new format SUCKs. to be mild mannered about it. If we can get it
> changed back, that would be great.....
>
> Mark

44921. RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:32:57 UTC
From: <glene77is@...>
Topic: 44915 Message: 44921

John, K8JD,

Count your blessings, then count your equipment.

I use my TS-830S as a "Second" Receiver only. Bad Driver Tube.
I use my 1977 Heath HW-8 100% of the time,
on 20M and 40M QRP/CW only.

Having a "Second" receiver has advantages.
1) I can check the other band for lower noise or higher activity,
without retuning my "First" transceiver.
2) I can check the "First" tranceiver's signal quality.
3) Sometimes, when the HW-8 just can not pull-in a signal ,
I switch in the Kenwood and listen on the better "Second" Receiver.
4) The "Second" receiver can have different Antenna, and hear something that the "Main" does not. I use a pair of Long-Wires, so I can do this. Once I have the call sign right, I look up the Callers Bio on QRZ, and from there I can fill-in the blanks during a QSO with QSB, QRN, QRM.

Eventully, I will replace the Kenwood Driver and put it on the air.
But the Kenwood does make a Quiet, Great "Cadillac" of a "Second" Receiver.

Glen, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a TS520 that I used nearly every day for nearly 40 years, I repaired a few little failures in the past by replacing componants like transistors diodes and capacitors.
NOW I had a flashover around the screen pin on one 6146 socket that destroyed a few resistors and a choke in the 210 V line. The material around the pin is burned , charred badly, and I don't turst it any more. I triedf scraping away at it with an Exacto knife but am sure it will be trouble in the future.
I have decided to keep it on and use it as a receiver only. My plan is to remove the three tubes, and disconnect the HV output connections at the rectifier board and secure each of the wire ends with an insulating sleeve. Anyone see a problem with that arrangement?
73, K8JD

Reply via web post (http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJxcTFvdGh1BF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0OTE1BHNlYwNmdHIEc2xrA3JwbHkEc3RpbWUDMTM4MDE1MDk1MA--?act=reply&messageNum=44915)

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Visit Your Group (http://groups.yahoo.com/group/TS-520_820_530_830;_ylc=X3oDMTJlNm9kbXRrBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3ZnaHAEc3RpbWUDMTM4MDE1MDk1MA--)

(http://groups.yahoo.com/;_ylc=X3oDMTJkaDNhbzhqBF9TAzk3NDc2NTkwBGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA2dmcARzdGltZQMxMzgwMTUwOTUw)
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.

44922. RE: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:35:02 UTC
From: <glene77is@...>
Topic: 44915 Message: 44922

Joe
WB7UQU

Waiting for you to "POST" the info.

Glen, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Greetings group,

I know that there has been some "unhappiness" about the "NEW YAHOO LOOK." There is a guy, John-kd5inm, who is a member of the "Amateur Repairs" yahoo group. He has started a new yahoo group and,
is generating an on-line petition to see if he/we/you can force "yahoo" go go back to the "old" style.

If interested, I will post the groups name etc. here.

73 Joe
WB7UQU

44923. yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 01:44:41 UTC
From: Joseph Stiles
Topic: 44915 Message: 44923

Greetings Group,

  For those interested: changeya_hooback2old-subscribe@yahoogroups.com

   group started by John-kd5inm   Good Luck

73 Joe
WB7UQU
Group Co-owner

44924. Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 02:32:52 UTC
From: Lou Blasco
Topic: 44915 Message: 44924

That will work but why not replace the socket & repair the radio?

Lou
VK3ALB

At 11:11 26/09/2013, you wrote:
>
>
>
>I have a TS520 that I used nearly every day for nearly 40 years, I
>repaired a few little failures in the past by replacing componants
>like transistors diodes and capacitors.
>NOW I had a flashover around the screen pin on one 6146 socket that
>destroyed a few resistors and a choke in the 210 V line. The
>material around the pin is burned , charred badly, and I don't turst
>it any more. I triedf scraping away at it with an Exacto knife but
>am sure it will be trouble in the future.
>I have decided to keep it on and use it as a receiver only. My plan
>is to remove the three tubes, and disconnect the HV output
>connections at the rectifier board and secure each of the wire ends
>with an insulating sleeve. Anyone see a problem with that arrangement?
>73, K8JD

44925. RE: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 02:59:17 UTC
From: <hawley.mark@...>
Topic: 44915 Message: 44925

John Davidson, what browser are you using? I exclusively use Google Chrome (on Windows 7 today) and the ad banners are in the upper right corner of the window and don't overlap anything.

Mark
KJ4NXX

44926. Re: Crystal Load capacitance

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 03:10:11 UTC
From: bmusser4
Topic: 44908 Message: 44926

Gordon my experiance on the crystals is that they are 20pf. Not 30

Bob
KB6KPK

Sent from Samsung tablet

44927. Re: [TS-520_820_530_830] RE: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 03:18:11 UTC
From: John Davidson
Topic: 44915 Message: 44927

Hi Mark, I also use Google Chrome, loaded it last year, after my Internet Explorer went bad. I use Windows XP Pro.
When I scroll down an e-mail page, sometimes the stuff pops up and covers over the text, Yes there are ads on the right margin also. They stay in place.
73...JD

From: "hawley.mark@..." <hawley.mark@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 10:59 PM
Subject: [TS-520_820_530_830] RE: yahoo unhappiness

John Davidson, what browser are you using? I exclusively use Google Chrome (on Windows 7 today) and the ad banners are in the upper right corner of the window and don't overlap anything.

Mark
KJ4NXX

44928. Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 03:25:02 UTC
From: John Davidson
Topic: 44915 Message: 44928

It is more charcoal on the board the final tube sockets are mounted on than the socket's themselves..

rom: Lou Blasco <radio@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 10:32 PM
Subject: Re: [TS-520_820_530_830] salvaging a TS520

That will work but why not replace the socket & repair the radio?

Lou
VK3ALB

At 11:11 26/09/2013, you wrote:
>eceiver only. My plan
>is to remove the three tubes, and disconnect the HV output
>connections at the rectifier board and secure each of the wire ends
>with an insulating sleeve. Anyone see a problem with that arrangement?
>73, K8JD

44929. Re: [TS-520_820_530_830] RE: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 03:55:17 UTC
From: John
Topic: 44915 Message: 44929

On Thu, 26 Sep 2013 15:18:11 +1200, John Davidson <k8jd@...> wrote:
Hi John,
sounds like you have some "MALWARE" in your system.
John
ZL1DT

> Hi Mark, I also use Google Chrome, loaded it last year, after my
> Internet Explorer went bad. I use Windows XP Pro.
> When I scroll down an e-mail page, sometimes the stuff pops up and
> covers over the text, Yes there are ads on the right margin also. >They
> stay in place.
> 73...JD
>
> From: "hawley.mark@..." <hawley.mark@...>
> To: TS-520_820_530_830@yahoogroups.comSent: Wednesday, September 25,
> 2013 10:59 PM
> Subject: [TS-520_820_530_830] RE: yahoo unhappiness
>
> John Davidson, what browser are you using? I exclusively use Google
> Chrome (on Windows 7 today) and the ad banners are in the upper right
> >corner of the window and don't overlap anything.
>
> Mark
> KJ4NXX
>
>
>

--
Using Opera's mail client: http://www.opera.com/mail/

44930. Re: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 04:11:38 UTC
From: John Davidson
Topic: 44915 Message: 44930

Hi Glen, swapping a tube is a lot simpler problem than repairing or replacing a HV flashed, burnt to charcoal final amp board !
I thought long and hard about trying to complete this repair. I already spent a few hours tracing thru the schematic and following wiring bundles through the rig to isolate the problem.
It would be nice to have a quality ham band receiver even though it has no WARC bands or 160M, FOR FREE, since my newer TS440 has been doing most of the work in the shack for the last 10 years anyway. The 520 was usually connected to my 80M dipole and I monitored the SKCC freq on that band for activity while I hopped bands with my TS440s.
73...JD

From: "glene77is@..." <glene77is@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 9:32 PM
Subject: RE: Re: [TS-520_820_530_830] salvaging a TS520

John, K8JD,

Count your blessings, then count your equipment.

I use my TS-830S as a "Second" Receiver only.   Bad Driver Tube.
I use my 1977 Heath HW-8 100% of the time,
on 20M and 40M   QRP/CW only.

Eventully, I will replace the Kenwood Driver and put it on the air.
But the Kenwood does make a Quiet, Great "Cadillac" of a "Second" Receiver.

Glen, KK4LPG

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44931. Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 03:56:31 UTC
From: clifford wright
Topic: 44915 Message: 44931

It may take a bit of filing (or a screw up type hole cutter) But personally I would replace the Octal sockets with Ceramic types. I do this as a matter of course in all the high powered tube audio gear I repair as they are VERY prone to flash over. probably because the 6L6 and 6V6 had the anode on pin3!!!
As an example a P/P KT88 amp I repaired a couple of years ago had a peak voltage of well
over 1,000 volts between pins 3 and 2!!
I can safely say that I have NEVER had any problems with Ceramic bases.
Makes you very grateful that top cap anodes are standard for TX tubes though!
ZL1BDA

44932. Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 04:13:58 UTC
From: L L bahr
Topic: 44915 Message: 44932

If it were me, I sure would get a replacement board and get the radio fully operational again.

Lee, w0vt

----- Original Message -----

Hi Glen, swapping a tube is a lot simpler problem than repairing or replacing a HV flashed, burnt to charcoal final amp board !

I thought long and hard about trying to complete this repair. I already spent a few hours tracing thru the schematic and following wiring bundles through the rig to isolate the problem.
It would be nice to have a quality ham band receiver even though it has no WARC bands or 160M, FOR FREE, since my newer TS440 has been doing most of the work in the shack for the last 10 years anyway. The 520 was usually connected to my 80M dipole and I monitored the SKCC freq on that band for activity while I hopped bands with my TS440s.
73...JD

From: "glene77is@...m" <glene77is@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 9:32 PM
Subject: RE: Re: [TS-520_820_530_830] salvaging a TS520

John, K8JD,

Count your blessings, then count your equipment.

I use my TS-830S as a " Second " Receiver only.   Bad Driver Tube.
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on 20M and 40M   QRP/CW only.

Eventully, I will replace the Kenwood Driver and put it on the air.
But the Kenwood does make a   Quiet, Great "Cadillac" of a " Second " Receiver.

Glen, KK4LPG

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44933. RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 10:45:29 UTC
From: <wagstw46@...>
Topic: 44915 Message: 44933

If Mr. Davidson has a final board as opposed to octal sockets and point to point wiring as the early TS520s had he can have a lot of damage to repair. Not very likely he had a failure between tube socket pins on the final board.

Sounds to me like he had a 6146 arc over. Normally when this occurs 900vdc is applied to the suppressor grids and the cathode resistors are the only components that get damaged.

However, if the arc over occurs between anode and control grid then he has a serious problem. 900vdc has been applied to the FG (final grid) line which provides the operating bias and control bias to the finals.

Now you have very heavy current flowing thru L3 choke and back to the RF board to the ALC amp transistor, to the bias pot, thru divider resistors and finally back to the -C supply on the HV rectifier board. A torturous path that does not like to see 900vdc and very high current. Most if not all these components in the path will be destroyed.

It is also possible that this 900vdc may have been applied to the ALC bus thru the ALC transistor collector path and if that occurred then the TIF amp on the IF board is gone as well.

In short this is a very damaging event and very hard to find everything that has been hurt.

I have repaired several of these failures including on the TS830 and it is not fun. Burned boards, burned molex connectors, blown choke and resistors, ALC transistor blown off the board, bias pot burned open, TIF amp mosfets blown etc.

Look at the mods for a TS530 and you will see a recommendation to install a MOV on the FG line. People had the mistaken belief that the FG line was getting hit by lightning and so the proposed fix was to install a MOV. It wasnt lightning it was Final tube arc over.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

If it were me, I sure would get a replacement board and get the radio fully operational again.

Lee, w0vt

Hi Glen, swapping a tube is a lot simpler problem than repairing or replacing a HV flashed, burnt to charcoal final amp board !

I thought long and hard about trying to complete this repair. I already spent a few hours tracing thru the schematic and following wiring bundles through the rig to isolate the problem.

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last 10 years anyway. The 520 was usually connected to my 80M dipole and I monitored the SKCC freq on that band for activity while I hopped bands with my TS440s.

73...JD

From: "glene77is@..." <glene77is@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 9:32 PM
Subject: RE: Re: [TS-520_820_530_830] salvaging a TS520

John, K8JD,

Count your blessings, then count your equipment.

I use my TS-830S as a "Second" Receiver only. Bad Driver Tube.

I use my 1977 Heath HW-8 100% of the time,

on 20M and 40M QRP/CW only.

Eventully, I will replace the Kenwood Driver and put it on the air.

But the Kenwood does make a Quiet, Great "Cadillac" of a "Second" Receiver.

Glen, KK4LPG

Reply via web post (http://groups.yahoo.com/group/TS-520_820_530_830/post;_ylc=X3oDMTJxcTFvdGh1BF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0OTE1BHNlYwNmdHIEc2xrA3JwbHkEc3RpbWUDMTM4MDE1MDk1MA--?act=reply&messageNum=44915)

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Reply to group

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Messages in this topic (http://groups.yahoo.com/group/TS-520_820_530_830/message/44915;_ylc=X3oDMTM2NGFxYjFlBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BG1zZ0lkAzQ0OTE1BHNlYwNmdHIEc2xrA3Z0cGMEc3RpbWUDMTM4MDE1MDk1MAR0cGNJZAM0NDkxNQ--) (1)

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(http://groups.yahoo.com/;_ylc=X3oDMTJkaDNhbzhqBF9TAzk3NDc2NTkwBGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA2dmcARzdGltZQMxMzgwMTUwOTUw)
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.

44934. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 11:53:33 UTC
From: Mike
Topic: 44915 Message: 44934

Take a few moments and read the "FEEDBACK" section of Yahoo Groups and you will find that many Yahoo Group members, not just from this group, are complaining to Yahoo about this mess:

http://yahoo.uservoice.com/forums/209451

I've already voiced my displeasure through their FEEDBACK section.I honestly do not know what Yahoo was thinking when they did this! It's obvious to me they didn't think of the members first.

73
Mike W5RKL

On 9/25/2013 8:44 PM, Joseph Stiles wrote:
> Greetings Group,
>
> For those interested: changeya_hooback2old-subscribe@yahoogroups.com
>
> group started by John-kd5inm Good Luck
> 73 Joe
> WB7UQU
> Group Co-owner
>

44935. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 11:57:28 UTC
From: Dave & Loraine
Topic: 44915 Message: 44935

Hi Joe,
Isn't this a 'free' service from Yahoo?
(Using Outlook Express with received emails in plain text, I get no ads.)
73 Dave f4eyk

44936. RE: Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 12:14:32 UTC
From: <wagstw46@...>
Topic: 44915 Message: 44936

There is no "service" that is free. Every service has a cost. It may not be in terms of currency.

I dont have to pay for satellite TV or cable TV I can choose to view "free" off air TV, but it comes with a price to me.

I know if I dont like the "service" I am free to use another.

I wonder if everyone exercised that right what Yahoo would do? I bet they might care if no one was watching the advertising.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Joe,

Isn't this a 'free' service from Yahoo?

(Using Outlook Express with received emails in plain text, I get no ads.)

73 Dave f4eyk

44937. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 12:18:22 UTC
From: Bob Lazarow
Topic: 44915 Message: 44937

FYI: Same here using Thunderbird..no ads or problems noted in
messages.out of sequence messages were seen. however

Bob WA2JAJ

On 9/26/2013 7:57 AM, Dave & Loraine wrote:
>
> Hi Joe,
> Isn't this a 'free' service from Yahoo?
> (Using Outlook Express with received emails in plain text, I get no ads.)
> 73 Dave f4eyk
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2014.0.4117 / Virus Database: 3604/1 - Release Date: 09/04/13
> Internal Virus Database is out of date.
>

44938. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 15:07:17 UTC
From: Jim S
Topic: 44915 Message: 44938

Terry, you are doing pretty good, if you can send E-Mail and be a member of a group by using an abacus and tin cans and waxed string? BTW, have you contacted the soup company, yet ?

Jim AG3Y

On 9/25/2013 9:02 PM, wagstw46@... wrote:
>
> Mark:
>
>
> You think it SUCKS. What about us poor guys who are still trying to
> figure out how to use an abacus and tin cans and waxed string?
>
>
> I hate it when a company forgets that the users (they use to call
> them customers) always define quality.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> The new format SUCKs. to be mild mannered about it. If we can get it
> changed back, that would be great.....
>
> Mark
>
> At 07:15 PM 9/25/2013, Joseph Stiles wrote:
>
>>
>>
>>
>> Greetings group,
>>
>> I know that there has been some "unhappiness" about the "NEW
>> YAHOO LOOK." There is a guy,
>> John-kd5inm, who is a member of the "Amateur Repairs" yahoo
>> group. He has started a new yahoo group and,
>> is generating an on-line petition to see if he/we/you can force
>> "yahoo" go go back to the "old" style.
>>

>> If interested, I will post the groups name etc. here.
>>
>>
>> 73 Joe
>> WB7UQU
>
>
>

44939. RE: Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 15:28:21 UTC
From: M. J. Synowiec
Topic: 44915 Message: 44939

Hi Terry and all,

An Abacus, tin cans & string? Sounds like the makings of a good-old-fashioned Jethro Bodine engineered RUR type robot. Be careful though, because according to everything I've read they always get high-falutin' ideas & turn evil; sort of like the current spate of business management types. You don't think maybe... nah couldn't be... still?

happy days to all,
mjsyn
K8SYN

44940. Re: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 15:40:35 UTC
From: John Holden
Topic: 44915 Message: 44940

As of this morning..."only" 144 PAGES of complaints about NEO. Still feel that is an abbreviation for "Not Exactly Operational".

Not that Yahell gives a flip about the users any longer, but I stand with those who are NOT happy.

John/N7IQV

(now..back to Kenwood Talk..which is already in progress.....)

44941. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 15:42:01 UTC
From: W5RKL
Topic: 44915 Message: 44941

Also, look for knots along the length of the string, someone may be "eves dropping" on your conversations, the ole "Man in the Middle" problem!!!

73
Mike W5RKL

On 9/26/2013 10:28 AM, M. J. Synowiec wrote:
> Hi Terry and all,
>
> An Abacus, tin cans & string? Sounds like the makings of a
> good-old-fashioned Jethro Bodine engineered RUR type robot. Be
> careful though, because according to everything I've read they always
> get high-falutin' ideas & turn evil; sort of like the current spate of
> business management types. You don't think maybe... nah couldn't
> be... still?
>
> happy days to all,
> mjsyn
> K8SYN
>
>

44942. Re: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 19:27:50 UTC
From: Billy Bob
Topic: 44915 Message: 44942

Nothing in this world is FREE.
You will pay for it one way or another.
Bill WD8OSJ

44943. Fw: [Amateur-repairs] change yahoo back, sign the petition

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-26 19:39:09 UTC
From: Joseph Stiles
Topic: 44943 Message: 44943

Greetings Group,

  Some members have stated that the "link" I posted yesterday did not work...or got some other kind of error because I guess
that "links" get underlined...thus blocking/hiding the "underscore" between the "ya" and "hoo."

   regarding my posting of "yahoo unhappiness."

  Below, is the original msg

73 Joe
WB7UQU
Group Co-owner

----- Forwarded Message -----
From: "kd5inm@..." <kd5inm@...>
To: Amateur-repairs@yahoogroups.com
Sent: Wednesday, September 25, 2013 11:46 AM
Subject: [Amateur-repairs] change yahoo back, sign the petition

http://www.change.org/petitions/yahoo-groups-i-want-the-old-yahoo-groups-back?share_id=buBZXMOplr&utm_campaign=signature_receipt&utm_medium=email&utm_source=share_petition

Join my yahoo group to Change yahoo back
changeya_hooback2old-subscribe@yahoogroups.com

John kd5inm

44944. V06B diodes - finally heard from the vendor.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 00:08:00 UTC
From: Wes Will
Topic: 44755 Message: 44944

Order has been placed. Fifty diodes, quite possibly all he had.

I have requests from

Mac Haszard 10
"Ron" 10
Joseph Stiles 24

And I want four of them, which leaves two to send to Terry W.

The cost including postage and the fees for currency conversion came to ?7.50 which at the rate I got was US $12.33.

!2.33 / 50 is close enough to a quarter apiece as to make it silly to do the math. That's $2.50 each and an SASE for Mac and Ron, and Joe owes me the SASE and $6.

I will send Terry's to him as soon as I get him to give me an address, or he sends me an SASE.

The email address I use for paypal stuff is the same addressee part as I use here, wwill but at a different domain, clearwave dot com (to hopefully at least make the Yahoo Spam-spiders at least work for getting the information).

My mailing address is the station location one (small town in Illinois, zip code 62966, for verification that you have the right address) on the FCC license site. I suspect everyone knows how to look that up using my call sign.

I should have the diodes in roughly a week, he will be dropping them into the Royal Post in about twelve hours at a guess, allowing for the time difference.

Send the envelopes whenever you like,

BUT WAIT UNTIL YOU GET THE DIODES IN-HAND

before dropping any spare change in the pot.

--
Wes Will
N9KDY
"It must be done. And must be SEEN to be done."

44945. RE: Fw: [Amateur-repairs] change yahoo back, sign the petition

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 15:03:39 UTC
From: <ckepus@...>
Topic: 44943 Message: 44945

Thanks for posting the link and for your initiative in starting the petition.

My signature has been recorded.

With all the complaints I've seen on the six Yahoo groups I monitor, it seems like there should be a lot more than 360 signatures. Hopefully those who haven't taken the few seconds to add their signature will take advantage of your link and add to the total.

73,
Chris
W7JPG

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Greetings Group,

Some members have stated that the "link" I posted yesterday did not work...or got some other kind of error because I guess
that "links" get underlined...thus blocking/hiding the "underscore" between the "ya" and "hoo."

regarding my posting of "yahoo unhappiness."

Below, is the original msg

73 Joe
WB7UQU
Group Co-owner

----- Forwarded Message -----
From: "kd5inm@..." <kd5inm@...>
To: Amateur-repairs@yahoogroups.com
Sent: Wednesday, September 25, 2013 11:46 AM
Subject: [Amateur-repairs] change yahoo back, sign the petition

http://www.change.org/petitions/yahoo-groups-i-want-the-old-yahoo-groups-back?share_id=buBZXMOplr&utm_campaign=signature_receipt&utm_medium=email&utm_source=share_petition

Join my yahoo group to Change yahoo back
changeya_hooback2old-subscribe@yahoogroups.com

John kd5inm

44946. Re: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 16:28:11 UTC
From: Billy Bob
Topic: 44915 Message: 44946

Maybe find an old triangle and hang it on the back porch so Mom can call us to supper.

Have a great day,
Bill WD8OSJ

44947. Re: [TS-520_820_530_830] yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 16:44:32 UTC
From: richard radke
Topic: 44915 Message: 44947

What am I missing? Running Firefox w/ Ad Block, haven't seen an ad in years

Rick
W9WS

On Sep 27, 2013, at 11:28 AM, Billy Bob <paw_paw44036@yahoo.com> wrote:

>
> Maybe find an old triangle and hang it on the back porch so Mom can call us to supper.
>
> Have a great day,
> Bill WD8OSJ
>
>

44948. Re: [TS-520_820_530_830] Re: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 17:16:07 UTC
From: Mike
Topic: 44915 Message: 44948

Okay everyone I think this Yahoo Unhappiness thread has gone on long enough. Lets get back to the Kenwood hybrids.

73
Mike W5RKL
Group Moderator

On 9/27/2013 11:28 AM, Billy Bob wrote:
> Maybe find an old triangle and hang it on the back porch so Mom can
> call us to supper.
> Have a great day,
> Bill WD8OSJ
>

44949. Re: [TS-520_820_530_830] Re: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 16:25:12 UTC
From: Adrian Ellison
Topic: 44915 Message: 44949

Hear Hear, you included

On Friday 27 September 2013 12:16:07 you wrote:

Okay everyone I think this Yahoo Unhappiness thread has
gone on long enough. Lets get back to the Kenwood
hybrids.

44950. Re: [TS-520_820_530_830] What does Voltage Drop mean video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 17:29:02 UTC
From: Mac Haszard
Topic: 44738 Message: 44950

Mike,

Please post the complete URL to these videos; I've looked all over for them but so far, No Joy.

Many thanks,

73,

Mac K6OVI

From: Mike <w5rkl@...>
To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Thursday, September 19, 2013 11:01 PM
Subject: [TS-520_820_530_830] What does Voltage Drop mean video

I uploaded a video in the Ohms Law test folder explaining, with explanation, what the term Voltage Drop means. This is another term that you should know what it means so you will understand what is being said when the term is used.

73
Mike W5RKL

44951. Re: [TS-520_820_530_830] What does Voltage Drop mean video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 17:39:51 UTC
From: Mike
Topic: 44738 Message: 44951

Hi Mac,

The link to the folders is:

www.n6wk.com/w5rkl/

73
Mike W5RKL

On 9/27/2013 12:29 PM, Mac Haszard wrote:
> Mike,
>
> Please post the complete URL to these videos; I've looked all over for
> them but so far, No Joy.
>
> Many thanks,
>
> 73,
>
> Mac K6OVI
>
> ---
> *From:* Mike <w5rkl@...>
> *To:* Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Thursday, September 19, 2013 11:01 PM
> *Subject:* [TS-520_820_530_830] What does Voltage Drop mean video
>
> I uploaded a video in the Ohms Law test folder explaining, with
> explanation, what the term Voltage Drop means. This is another term
> that you should know what it means so you will understand what is
> being said when the term is used.
>
> 73
> Mike W5RKL
>
>
>
>

44952. Re: [TS-520_820_530_830] What does Voltage Drop mean video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 17:52:36 UTC
From: Mac Haszard
Topic: 44738 Message: 44952

Many thanks - I wasn't even close. I was searching in the Yahoo Kenwood group folders..

73,

Mac K6OVI

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 27, 2013 1:39 PM
Subject: Re: [TS-520_820_530_830] What does Voltage Drop mean video

Hi Mac,

The link to the folders is:

www.n6wk.com/w5rkl/

73
Mike W5RKL

On 9/27/2013 12:29 PM, Mac Haszard wrote:

>Mike,
>
>
>Please post the complete URL to these videos; I've looked all over for them but so far, No Joy.
>
>
>Many thanks,
>
>
>73,
>
>
>Mac K6OVI
>
>
>
>---
> From: Mike <w5rkl@yahoo.com>
>To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
>Sent: Thursday, September 19, 2013 11:01 PM
>Subject: [TS-520_820_530_830] What does Voltage Drop mean video
>
>

>
>
>I uploaded a video in the Ohms Law test folder explaining, with explanation, what the term Voltage Drop means. This is another term that you should know what it means so you will understand what is being said when the term is used.
>
>73
>Mike W5RKL
>
>
>
>

44953. Re: [TS-520_820_530_830] What does Voltage Drop mean video

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 18:34:48 UTC
From: W5RKL
Topic: 44738 Message: 44953

You're welcome Mac.

73
Mike W5RKL

On 9/27/2013 12:52 PM, Mac Haszard wrote:
> Many thanks - I wasn't even close. I was searching in the Yahoo
> Kenwood group folders..
>
> 73,
>
> Mac K6OVI
>
> ---
> *From:* Mike <w5rkl@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, September 27, 2013 1:39 PM
> *Subject:* Re: [TS-520_820_530_830] What does Voltage Drop mean video
>
> Hi Mac,
>
> The link to the folders is:
>
> www.n6wk.com/w5rkl/ <http://www.n6wk.com/w5rkl/>
>
> 73
> Mike W5RKL
>
> On 9/27/2013 12:29 PM, Mac Haszard wrote:
>> Mike,
>>
>> Please post the complete URL to these videos; I've looked all over
>> for them but so far, No Joy.
>>
>> Many thanks,
>>
>> 73,
>>
>> Mac K6OVI
>>
>> ---
>> *From:* Mike <w5rkl@...> <mailto:w5rkl@...>
>> *To:* Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Thursday, September 19, 2013 11:01 PM

>> *Subject:* [TS-520_820_530_830] What does Voltage Drop mean video
>>
>> I uploaded a video in the Ohms Law test folder explaining, with
>> explanation, what the term Voltage Drop means. This is another term
>> that you should know what it means so you will understand what is
>> being said when the term is used.
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>
>
>
>

44954. Bird question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 23:04:51 UTC
From: Lou Blasco
Topic: 44738 Message: 44954

Hi All,

Not a Hybrid question but I figure plenty of you would have bird meters on your bench.

I have in my collection a 75-250H element that looks genuine and from what I could see it has never been opened (until I looked at it). Under the label written with a Sharpie is "250H - 0.74". Using this element in a 43 gives me full scale 100W rather than 250W. I'm surprised to find a genuine element marked 250 that only reads 100. Has anyone seen anything like this before?

Lou
VK3ALB

44955. Re: [TS-520_820_530_830] Re: yahoo unhappiness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 23:14:11 UTC
From: Joseph Stiles
Topic: 44915 Message: 44955

Greeting Group,

  Thanks Mike-w5rkl....I agree...let's continue on with the intended function of this board.

  Please feel free to air your "unhappiness" in the designated "unhappiness" group.

73 Joe
WB7UQU
Group Co-owner

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 27, 2013 10:16 AM
Subject: Re: [TS-520_820_530_830] Re: yahoo unhappiness

Okay everyone I think this Yahoo Unhappiness thread has gone on long enough. Lets get back to the Kenwood hybrids.

73
Mike W5RKL
Group Moderator

On 9/27/2013 11:28 AM, Billy Bob wrote:

>Maybe find an old triangle and hang it on the back porch so Mom can call us to supper.
>
>Have a great day,
>Bill WD8OSJ

44956. Re: [TS-520_820_530_830] Bird question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-27 23:41:40 UTC
From: William Houghton
Topic: 44738 Message: 44956

I wonder if that is because the 75-xxx elements are for the 4307 and are designed for 75 ohm lines.

From: Lou Blasco <radio@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, September 27, 2013 4:04 PM
Subject: [TS-520_820_530_830] Bird question

Hi All,

Not a Hybrid question but I figure plenty of you would have bird meters on your bench.

I have in my collection a 75-250H element that looks genuine and from what I could see it has never been opened (until I looked at it). Under the label written with a Sharpie is "250H - 0.74". Using this element in a 43 gives me full scale 100W rather than 250W. I'm surprised to find a genuine element marked 250 that only reads 100. Has anyone seen anything like this before?

Lou
VK3ALB

44957. Re: [TS-520_820_530_830] Bird question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-28 00:01:13 UTC
From: Lou Blasco
Topic: 44738 Message: 44957

Hi William,

I thought of that but I couldn't find anything in my Bird catalog
regarding 75 ohm meters or elements. However after your post I
managed to find the manual for the 4307 and right there in the
specifications it lists the 75-250H slug. Problem solved!

Thanks for your help

Lou
VK3ALB

At 09:41 28/09/2013, you wrote:
>
>
>I wonder if that is because the 75-xxx elements are for the 4307 and
>are designed for 75 ohm lines.
>
>
>From: Lou Blasco <radio@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Friday, September 27, 2013 4:04 PM
>Subject: [TS-520_820_530_830] Bird question
>
>
>Hi All,
>
>Not a Hybrid question but I figure plenty of you would have bird
>meters on your bench.
>
>I have in my collection a 75-250H element that looks genuine and from
>what I could see it has never been opened (until I looked at it).
>Under the label written with a Sharpie is "250H - 0.74". Using this
>element in a 43 gives me full scale 100W rather than 250W. I'm
>surprised to find a genuine element marked 250 that only reads 100.
>Has anyone seen anything like this before?
>
>Lou
>VK3ALB

44958. RE: Bird question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-28 01:16:06 UTC
From: <wagstw46@...>
Topic: 44738 Message: 44958

Lou:

You might try contacting Bird at Ohio facility at 866-695-4569 or go to their website and type question into their on-line ASK BIRD - FAQ forum.

They use to repair or replace any element for $50, but it has been several years since I dealt with them.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi All,

Not a Hybrid question but I figure plenty of you would have bird meters on your bench.

I have in my collection a 75-250H element that looks genuine and from what I could see it has never been opened (until I looked at it). Under the label written with a Sharpie is "250H - 0.74". Using this element in a 43 gives me full scale 100W rather than 250W. I'm surprised to find a genuine element marked 250 that only reads 100. Has anyone seen anything like this before?

Lou
VK3ALB

44959. Re: [TS-520_820_530_830] RE: Bird question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-28 01:21:29 UTC
From: Ken Winterling
Topic: 44738 Message: 44959

Lou,

A Bird 75-250H element is 75 ohms and intended to be used in a 75 ohm watt meter such as the Bird 4307. It looks just like the familiar 50 ohm meter.

The impedance mismatch between the 75-250H slug and your 50 ohm Bird is the likely cause of your inaccurate reading.

Ken
WA2LBI

On Fri, Sep 27, 2013 at 9:16 PM, <wagstw46@...> wrote:

> **
>
>
> Lou:
>
>
> You might try contacting Bird at Ohio facility at 866-695-4569 or go to
> their website and type question into their on-line ASK BIRD - FAQ forum.
>
>
> They use to repair or replace any element for $50, but it has been several
> years since I dealt with them.
>
>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> Hi All,
>
> Not a Hybrid question but I figure plenty of you would have bird
> meters on your bench.
>
> I have in my collection a 75-250H element that looks genuine and from
> what I could see it has never been opened (until I looked at it).
> Under the label written with a Sharpie is "250H - 0.74". Using this
> element in a 43 gives me full scale 100W rather than 250W. I'm
> surprised to find a genuine element marked 250 that only reads 100.
> Has anyone seen anything like this before?
>
> Lou

> VK3ALB
>
>
>

44960. Service Tech in Canada?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-28 13:25:25 UTC
From: VE3OP
Topic: 44960 Message: 44960

I searched through the threads but could not find any info on this.
Are there any recommended Service Techs in Canada?

I want to get a few vintage Kenwood transceivers, including my TS-820S, overhauled.

Thanks.

Craig, VE3OP
ve3op@...

44961. Re: [TS-520_820_530_830] Service Tech in Canada?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-28 16:48:46 UTC
From: Mark Gilger
Topic: 44960 Message: 44961

Craig,
You might want to get on the net this afternoon
and put a question asking that. I keep a list on
my web site, but I don't show anyone up your direction.

Here is the list that I have.
http://wb4hfn.com/KENWOOD/Articles/Kenwood_Hybrid_Repair.pdf

Regards,
Mark

At 09:25 AM 9/28/2013, you wrote:
>
>
>I searched through the threads but could not find any info on this.
>Are there any recommended Service Techs in Canada?
>
>I want to get a few vintage Kenwood
>transceivers, including my TS-820S, overhauled.
>
>Thanks.
>
>Craig, VE3OP
>ve3op@...
>
>

44962. Fwd: Fix for Yahoo Groups

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 10:49:47 UTC
From: KB1TCD
Topic: 44962 Message: 44962

Maybe this can help our group.

73 de Jose KB1TCD

-------- Original Message --------
Subject: Fix for Yahoo Groups
Date: Sat, 28 Sep 2013 12:48:23 -0400
From: Steve <shansen@...>
To: Jose <kb1tcd@...>, Chuck Fleming <flemingchuck10@...>,
Norman Smith <ny1b@...>, Mike <mikec@...>, Michael
Courtenay <michael04864@...>, Tom Ames <spider.dillon@...>,
Steve Masone <stevem@...>, Deb <debra425@...>, Jim
<jpblier@...>, John <porter.j.s@...>, "Dana D. Dyer"
<dana@...>, Jess Bowers <alpacas@...>, Larry Trullinger
<LarryTkc@...>

If you use Yahoo Groups and hate the new crappy/bloated format, there is
a fix if you use Firefox.

With Firefox open, go to http://ehibbert.org.uk/extension/install.html
and click on the link to install. Firefox will give a few security
warnings and then close and reopen.

Jeff, WA4ZKO (who happens to be an IT professional) gave me the link and
is familiar with the author. It's safe and it works.

Some more info at http://wiki.modplugin.org/Main_Page

Steve

44963. Re: [TS-520_820_530_830] Fwd: Fix for Yahoo Groups

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 11:16:20 UTC
From: Lou Blasco
Topic: 44962 Message: 44963

It might help to explain what this actually
fixes. The group looks no different to me.

At 20:49 29/09/2013, you wrote:
>
>
>Maybe this can help our group.
>
>73 de Jose KB1TCD
>
>
>
>-------- Original Message --------
>Subject: Fix for Yahoo Groups
>Date: Sat, 28 Sep 2013 12:48:23 -0400
>From: Steve <mailto:shansen@...><shansen@...>
>To: Jose
><mailto:kb1tcd@...><kb1tcd@...>,
>Chuck Fleming
><mailto:flemingchuck10@...><flemingchuck10@...>,
>Norman Smith
><mailto:ny1b@toast.net><ny1b@...>, Mike
><mailto:mikec@...><mikec@fairpoint.net>,
>Michael Courtenay
><mailto:michael04864@...><michael04864@gmail.com>,
>Tom Ames
><mailto:spider.dillon@...><spider.dillon@gmail.com>,
>Steve Masone
><mailto:stevem@...><stevem@...>,
>Deb
><mailto:debra425@...><debra425@...>,
>Jim
><mailto:jpblier@...><jpblier@...>,
>John
><mailto:porter.j.s@...g><porter.j.s@...>,
>"Dana D. Dyer"
><mailto:dana@...><dana@dyer.com>, Jess
>Bowers
><mailto:alpacas@...><alpacas@...>,
>Larry Trullinger <mailto:LarryTkc@...><LarryTkc@...>
>
>
>If you use Yahoo Groups and hate the new
>crappy/bloated format, there is a fix if you use Firefox.
>

>With Firefox open, go to
><http://ehibbert.org.uk/extension/install.html>http://ehibbert.org.uk/extension/install.h
tml
>and click on the link to install. Firefox will
>give a few security warnings and then close and reopen.
>
>Jeff, WA4ZKO (who happens to be an IT
>professional) gave me the link and is familiar
>with the author. It's safe and it works.
>
>Some more info at
><http://wiki.modplugin.org/Main_Page>http://wiki.modplugin.org/Main_Page
>
>Steve
>
>
>

44964. RE: Service Tech in Canada?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 15:15:18 UTC
From: <hardedge@...>
Topic: 44960 Message: 44964

Have you tried contacting Kenwood Canada?
http://www.kenwood.ca/Support/Where_to_Buy/

-O'B,
ex-KA2MKI

---In ts-520_820_530_830@yahoogroups.com, <cddgeneral@...> wrote:

I searched through the threads but could not find any info on this.
Are there any recommended Service Techs in Canada?

I want to get a few vintage Kenwood transceivers, including my TS-820S, overhauled.

Thanks.

Craig, VE3OP
ve3op@...

44965. RE: Service Tech in Canada?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 17:31:55 UTC
From: <ve2ud@...>
Topic: 44960 Message: 44965

http://ve3pvs.ca/contact_us.html

---In ts-520_820_530_830@yahoogroups.com, <hardedge@...> wrote:

Have you tried contacting Kenwood Canada?
http://www.kenwood.ca/Support/Where_to_Buy/

-O'B,
ex-KA2MKI

---In ts-520_820_530_830@yahoogroups.com, <cddgeneral@...> wrote:

I searched through the threads but could not find any info on this.
Are there any recommended Service Techs in Canada?

I want to get a few vintage Kenwood transceivers, including my TS-820S, overhauled.

Thanks.

Craig, VE3OP
ve3op@...

44966. Re: [TS-520_820_530_830] RE: salvaged TS520.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 17:54:48 UTC
From: John Davidson
Topic: 44960 Message: 44966

I finally got back to my old TS520 that had the HV flashover. Removed the 210V wires from XFMR to the rectifier board and pulled the tubes and now have a good, working receiver on the desk.
73...JD.

Switch to: Text-Only, Daily Digest • Unsubscribe • Terms of Use • Send us Feedback
.

44967. Kenwood Net Update (Sept 29, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 18:44:20 UTC
From: Mark Gilger
Topic: 44967 Message: 44967

The Saturday□s net on 40 meter had 21 stations
checking in under Excellent band
conditions. There were 6 new check-ins, WA4RVD,
KC2MKI, K4GEW, VE2UD, N3FZP, and W8RMV. Out of those, there was:

```
2 running TS-520(x)
1 running TS-530(x)
4 running TS-820(x)
6 running TS-830S
0 running TS-900

I was running my TS-940. The rest were running
non hybrids of one model or another.
```

The Sunday□s 20 meter net had 13 stations
checking in under poor band conditions. Out of those, there was:

```
3 running TS-520(x)
0 running TS-530(x)
3 running TS-820(x)
2 running TS-830S

I was running my TS-940. Seems everyone today was
running a solid state radio of one type or another.
```

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

```
If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.
```

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

44968. RE: Re: Re: [TS-520_820_530_830] 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 22:32:23 UTC
From: <yioutta_99@...>
Topic: 44822 Message: 44968

thats probably what fixed it. LOL.
Then I went to watch TV. Good show on Niagra falls was on, then all the water came through the screen.

I picked up a cheap 530 today. and I am hunting info on it now it has some problems..
the cheap part.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Glad that it "fixed itself." Just remember that usually when an "intermittent" problem starts...at the most
inopportune time...it will become "chronic."

Did you by chance give it an "eye poke" or a "head bonk?" sointenly....nyuk...nyuk

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 8:31 PM
Subject: RE: Re: [TS-520_820_530_830] 520s send/rec switch not working

Thanks Joe..and the rest of the thread.

Tonight the switched worked. overtime and on 80 meters as well as 20 meters. Either I have an intermindant or perhaps i didnt give the heater enough time to warm up. But now that its working, its hard to trouble shoot. If i have to go in for another reason, I'll check the relay and get it cleaned up..or replaced. The good news is I went and got some more canned air for the occasion and it was on sale for 10 bucks for 3 cans. so now i am well stocked.

Thanks everybody.

steve

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I would suspect RL-2 first, it's under the metal shield by the final amp board. UNPLUG RIG!, let it sit, then check
to see if there's anymore high voltage lurking around. Remove shield...remove relay (it pulls out), you will need a fine
screwdriver or similar tool to remove the plastic cover from the relay. Use some card stock wetted with contact cleaner
and clean all the contacts...some canned air comes in handy here. Re-install relay and

check for operation.
There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
may have gotten some corrosion on them from no use, but worked correctly on 20 meters. Clean all the bandswitch wafer
contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be fine now

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay? .....Possibly the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

44969. TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 22:38:31 UTC
From: Chris Maness
Topic: 44969 Message: 44969

Enjoying the heck out of my new to me TS-520. Just curious -- how do I know if I am getting enough air flow across my 6146s? I just found six new final tubes at an antique store for $20, but I just want to make my finals last as long as possible since this is a commodity item. Feels like the fan case itself is the warmest part. Any of you guys have an IR thermometer that can measure it? I am running the RTTY contest this afternoon, and that sure does a good job of warming the radio with its 100% duty cycle.

Thanks es 73 de KQ6UP
Chris

44970. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 23:00:15 UTC
From: W5RKL
Topic: 44969 Message: 44970

I hope you are not running the 520 at full power on RTTY, not a good thing.

Make sure the fan blades and shroud are clean of dust. Dust can collect rather quickly on the fan blades which causes air flow to be reduced.

Unplug the 520, wait for the HV capacitors to discharge (about 1 minute or is good), remove the top and bottom covers, remove the cover over the final amplifier, and use compressed air and/or canned air to remove dust collection in the final amplifier.

You can have plenty of air flowing in the final enclose but if the tubes have a coating of dust/dirt then the heat will not radiate from the tube's glass envelope. Clean the final amplifier including the tubes, fan blades, and shroud to ensure maximum air flow. Also, do not stack gear along the sides, along the rear, and on top of the 520. This is a common mistake done by many inexperienced hams. Stacking equipment along the sides, rear, and top of the 520 restricts if not blocks the air flow. While stacking your gear together may "Look good", it's can significantly reduce air flow through the gear.

73
Mike W5RKL

On 9/29/2013 5:38 PM, Chris Maness wrote:
> Enjoying the heck out of my new to me TS-520. Just curious -- how do
> I know if I am getting enough air flow across my 6146s? I just found
> six new final tubes at an antique store for $20, but I just want to
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> RTTY contest this afternoon, and that sure does a good job of warming
> the radio with its 100% duty cycle.
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> Thanks es 73 de KQ6UP
> Chris
>

44971. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 23:25:01 UTC
From: Chris Maness
Topic: 44969 Message: 44971

I was running it at 100W for short exchanges. I can imagine a long winded QSO would melt the radio down. What power is recommended for RTTY on the TS-520S? I have the radio clear of stuff, it is about 5" from the wall. I hope that is not an issue. The cage is really clean as I don't think this radio was used very much at all before it died, and/or the original owner went SK. The radio had a clipped lead that fell across the circuit traces; that ruined the balanced modulator. After putting new diodes in her, she is running like a champ. So the radio probably just set for years. It looked brand new when I bought it.

However, I will make it at bi-annual chore to clean it out. It wasn't too hot. I measured 114degF after a couple of minutes to cool down.

73 de KQ6UP
Chris

On Sun, Sep 29, 2013 at 4:00 PM, W5RKL <w5rkl@...> wrote:

>
>
> I hope you are not running the 520 at full power on RTTY, not a good thing.
>
> Make sure the fan blades and shroud are clean of dust. Dust can collect
> rather quickly on the fan blades which causes air flow to be reduced.
>
> Unplug the 520, wait for the HV capacitors to discharge (about 1 minute or
> is good), remove the top and bottom covers, remove the cover over the final
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> 73
> Mike W5RKL
>
>
> On 9/29/2013 5:38 PM, Chris Maness wrote:
>

>
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44972. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 23:50:52 UTC
From: Don Cunningham
Topic: 44969 Message: 44972

Chris,

I have run a LOT of RTTY in my day, mostly rag chewing, but never would run a tube rig over 50% while running it. That would probably mean 50W or less on the TS-520S. If you need more power to "do the deed", you need an amp of some sort. I don't even run "more modern" solid state rigs at 100% as you WILL lose finals that way. Same rule, more power needed, get an amp. The Kenwood 870S is likely an exception to that rule and seemed to tolerate 100%, but I didn't do it. I hope one of the experts will chime, but that's been my rules since the day of the teletype machine in 1972, HI.
73,
Don, WB5HAK
On 9/29/2013 6:25 PM, Chris Maness wrote:
> I was running it at 100W for short exchanges. I can imagine a long
> winded QSO would melt the radio down. What power is recommended for
> RTTY on the TS-520S? I have the radio clear of stuff, it is about 5"
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> 73 de KQ6UP
> Chris
>
>
> On Sun, Sep 29, 2013 at 4:00 PM, W5RKL <w5rkl@...
> <mailto:w5rkl@...>> wrote:
>
>
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> Make sure the fan blades and shroud are clean of dust. Dust can
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>
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>

44973. RE: 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-30 03:08:36 UTC
From: <yioutta_99@...>
Topic: 44822 Message: 44973

I hate to add to my last topic with a different topic. But I am having problems finding the post button. Is it me or is this new format a problem for everybody.

I just came into a 530s. there is a 28MHZ mod that i would like to rid myself of. looks obvious on the surface. a 2 position switch and 4 wires making and breaking some wires going to the VFO board. Anybody know if there are more mods to be on the look out for, maybe some that are not as obvious as a switch and bell wire being strung here and there. The digital display will also blank out from time to time, either when band switching or just tuning across the dial on some bands.

I am looking for info on the 530s including how to do an alignment, etc..the basic stuff. but like I said before I am having problems navigating this forum now.
So far it seems to tune up on 20m but not so much on 40m. made some contacts, VFO seems to be on target, audio is good. Anything to look for that 530s are known for? My Other rig is the 520s

again thanks for the input guys

steve

---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:

thats probably what fixed it. LOL.
Then I went to watch TV. Good show on Niagra falls was on, then all the water came through the screen.

I picked up a cheap 530 today. and I am hunting info on it now it has some problems..
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Did you by chance give it an "eye poke" or a "head bonk?" sointenly....nyuk...nyuk

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 8:31 PM
Subject: RE: Re: [TS-520_820_530_830] 520s send/rec switch not working

Thanks Joe..and the rest of the thread.

Tonight the switched worked. overtime and on 80 meters as well as 20 meters. Either I have an intermindant or perhaps i didnt give the heater enough time to warm up. But now that its working, its hard to trouble shoot. If i have to go in for another reason, I'll check the relay and get it cleaned up..or replaced. The good news is I went and got some more canned air for the occasion and it was on sale for 10 bucks for 3 cans. so now i am well stocked.

Thanks everybody.

steve

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I would suspect RL-2 first, it's under the metal shield by the final amp board. UNPLUG RIG!, let it sit, then check
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and clean all the contacts...some canned air comes in handy here. Re-install relay and check for operation.
There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
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contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be fine now

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay? .....Possibly the band switch??

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Thanks

Steve

44974. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-30 04:47:55 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44974

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each

band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to

the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44975. RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-30 16:57:57 UTC
From: <kc4flt@...>
Topic: 44915 Message: 44975

http://www.ebay.com/itm/KENWOOD-TS-520S-FINAL-UNIT-BOARD-FOR-TUBESPARTS-/321218501506?pt=US_Ham_Radio_Transceivers&hash=item4aca1d5b82

Maybe this would be a way to go???

73 OM
Carl
KC4FLT

---In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

It is more charcoal on the board the final tube sockets are mounted on than the socket's themselves..

rom: Lou Blasco <radio@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 10:32 PM
Subject: Re: [TS-520_820_530_830] salvaging a TS520

That will work but why not replace the socket & repair the radio?

Lou
VK3ALB

At 11:11 26/09/2013, you wrote:

>eceiver only. My plan
>is to remove the three tubes, and disconnect the HV output
>connections at the rectifier board and secure each of the wire ends
>with an insulating sleeve. Anyone see a problem with that arrangement?
>73, K8JD

44976. Re: TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-29 23:03:47 UTC
From: clifford wright
Topic: 44969 Message: 44976

Haven't done anything with the TS-520, but my Ts-820 suffered from too much heat in the finals. I replaced the rather tinny Kenwood fan with a medium size 12 volt computer fan.
It gives 3x the airflow and runs of the Kenwood internal supply rail.
Fits on the back of the rig and only sticks out about 25mm.
PS. I also drilled quite a few more ventilation holes and modified the case to allow more airflow above the output tubes. That also helped.
ZL1BDA

44977. RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-30 18:34:32 UTC
From: Chris Maness
Topic: 44915 Message: 44977

Is there anything that can be done as a preventive measure to avoid having this happen to a working radio? I am loving my TS-520 Sugar, and would be really bummed out if this happened to my radio.

73 de KQ6UP
Chris
On Sep 30, 2013 10:40 AM, <kc4flt@...> wrote:

>
>
>
> http://www.ebay.com/itm/KENWOOD-TS-520S-FINAL-UNIT-BOARD-FOR-TUBESPARTS-/321218501506?pt=US_Ham_Radio_Transceivers&hash=item4aca1d5b82
>
>
> Maybe this would be a way to go???
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>
> 73 OM
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> Carl
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> KC4FLT
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> *Subject:* Re: [TS-520_820_530_830] salvaging a TS520
>
>
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>
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44978. Who.....?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-30 18:49:51 UTC
From: Joe - W7RKN
Topic: 44978 Message: 44978

.....works on TS-520(S) radios on the West Coast? Website??

Thanks!

Joe - W7RKN

44979. Re: [TS-520_820_530_830] Who.....?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-09-30 19:17:16 UTC
From: Mark Gilger
Topic: 44978 Message: 44979

You will find a couple here:

http://wb4hfn.com/KENWOOD/Articles/Kenwood_Hybrid_Repair.pdf

Regards,
Mark, WB0IQK

At 02:49 PM 9/30/2013, Joe - W7RKN wrote:
>
>
>.......works on TS-520(S) radios on the West Coast? Website??
>
>Thanks!
>
>Joe - W7RKN
>

44980. RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 01:09:55 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44980

First of all you should not be loading to 240 ma to 250 ma Ip on a TS-520. Check your manual and you will see 200ma is max plate current for 160 watts dc input power.

If resting plate current is changing on you after you have set it several things come to mind:(should be able to set it one time and not worry about it for many hours of operation)

1. Dirty bias voltage adjust pot
2. Screen grid voltage is varying under key down
3. Final tube emission is falling off
4. Anode voltage is falling off

I would place voltmeter on 6146 control grids Pin 5 and watch the dc operating bias voltage under key down. It should be approx -55vdc and stable. If it is drifting shut rig down and unplug it and Deoxit the bias voltage adjust pot and run it thru its range several times and blow out with canned air. Then reset 60ma resting plate current and monitor voltage to see if it is holding at -55vdc. Not often that the -C supply itself has a problem.

If this does not fix problem than would monitor Screen Grid voltage on Pin 3 to make sure it is not varying under key down.

Your output power levels are not too bad. I would do a good coil pack alignment before doing anything else. You can just try peaking the 20 meter Drive and Mixer coils, but is better to do all in the proper sequence.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
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I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other

day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

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OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

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I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

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Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

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Terry K9TW

44981. Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 01:41:07 UTC
From: John Davidson
Topic: 44440 Message: 44981

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

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>When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.
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>>>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>>>Sent: Saturday, September 14, 2013 6:07 PM
>>>>>>Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues
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 My bad. For me the long procedure from the manual works fine since I always have the key
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>>>>>>>Sent: Saturday, September 14, 2013 1:18 PM
>>>>>>>Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues
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have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!
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>>>>>>>It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).
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>>>>>>>With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.
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>>>>>>>Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.
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>>>>>>>Terry K9TW
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44982. RE: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 02:46:41 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 44982

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because

of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position

Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

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Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

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Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

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To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

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If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

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Thanks,
Brian (and Jason)

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At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap

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When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.

Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.

Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.

Terry K9TW

44983. RE: RE: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 10:28:23 UTC
From: <wagstw46@...>
Topic: 44440 Message: 44983

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington

couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!

It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).

With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dc ?Oz?□? □??fy

44984. RE: RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 11:01:54 UTC
From: <wagstw46@...>
Topic: 44915 Message: 44984

There is nothing you can do to prevent a carbon track from forming on your final PC board other than visual inspection. I have never seen a carbon track develop in normal operation.

With the TS520 with phenolic octal sockets, terminal strips, and point to point wiring it would be rare for a track to develop across the phenolic socket material. There would be three possible paths. From SG pin to chassis ground, to cathode pin, and to heater pin. Two sources of voltage. Normal approx 250vdc SG supply and 900vdc with tube arc over.

With a TS-520S you have a final PC board which replaced the older style point to point wiring. The pc board has the octal sockets soldered to the board. Very unlikely for carbon track to develop between the solder pads of the tube pins. You can perform visual and make sure no residual flux and no tracking is occurring.

What I have seen on more than one occasion is the PC board area directly under the 100 ohm Grid Stopper resistors and the 470ua chokes deeply burned black. The PC traces are typically lifted or gone as well. This occurs when there is a hard fault that occurs and heavy current flows thru the choke coil and the resistors back to the SG supply on the HV rectifier board. Usually when this occur R6 470 ohm resistor is also burned and the board under it may be blackened and charred and/or the PC foils lifted or gone. The half wave diode may be gone as well.

What would cause this is a tube arc over and not likely a fault from SG element in the tube contacting another element in the tube. You have two sources of voltage to produce heavy current in the SG feed. Normal 250vdc supply and 900vdc in event of arc over.

Ask yourself what would limit the current if either source was pushing that current.

R6 470 ohm resistor on the HV rectifier board is the highest resistance. 250/470 = .5 amps and 900/470 = 2 amps. Either current would would hurt 470ua choke, grid stopper resistors, and R6 470 ohm resistor. The heat produced over time is what chars the board under these components and ultimately lifts the foil traces. It is not an instant failure. It takes time to develop and propagate until failure occurs. Carbon resistors can take a lot of overcurrent for a long time, but horizontally oriented they can "cook" the board in close proximity below them.

I am pretty sure I provided you with protection mod for your finals. It included MOVs at the SG of the final tubes to clamp the voltage to no more than approx 300vdc. The MOV is for 900vdc anode arc over protection and will not protect against fault current from the normal SG supply somehow going to ground inside the tube or at the tube socket pins on the PC board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Is there anything that can be done as a preventive measure to avoid having this happen to a working radio? I am loving my TS-520 Sugar, and would be really bummed out if this happened

to my radio.

73 de KQ6UP
Chris

On Sep 30, 2013 10:40 AM, <kc4flt@...> wrote:

http://www.ebay.com/itm/KENWOOD-TS-520S-FINAL-UNIT-BOARD-FOR-TUBESPARTS-/321218501506?pt=US_Ham_Radio_Transceivers&hash=item4aca1d5b82

Maybe this would be a way to go???

73 OM
Carl
KC4FLT

---In ts-520_8! 20_530_830@yahoogroups.com, <k8jd@...> wrote:

It is more charcoal on the board the final tube sockets are mounted on than the socket's themselves..

rom: Lou Blasco <radio@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 10:32 PM
Subject: Re: [TS-520_820_530_830] salvaging a TS520

That will work but why not replace the socket & repair the radio?

Lou
VK3ALB

At 11:11 26/09/2013, you wrote:

>eceiver only. My plan
>is to remove the three tubes, and disconnect the HV output
>connections at the rectifier board and secure each of the wire ends
>with an insulating sleeve. Anyone see a problem with that arrangement?
>73, K8JD

44985. RE: RE: RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 11:35:44 UTC
From: <wagstw46@...>
Topic: 44915 Message: 44985

I forgot to mention. We are all working with 35 to 40 year old radios. The boards in these rigs are not the nice glass boards with heavy plating that we have today. These are old style phenolic boards. Very easy to lift a trace/pad and many have had repeated un-soder and re-solder evolutions on them.

I have a couple of complete sets of spare boards for my TS830s and partial sets for my TS820 and TS520.

I recommend you consider this and/or buying a tech special or parts rig. Tech specials are not cheap on Ebay. There is a limited supply of these rigs so may want to consider spending the money. Today almost impossible to find a RF board under $100. .

I agree not practical to use an Xacto knife or Dremel tool to attempt to remove carbon tracks on boards. When these deep tracks occur the board is pretty much junk.

I dont know why Mr. Davidson opted not to repair his radio. When you have this kind of failure relatively easy to contact Bob Mansker and buy a replacement final board and HV rect board. This forum is here to help with these kinds of repairs. We all have different decision making processes and chose how we spend our disposable income.

I have tried to position myself to keep my treasures on the air for a long time, but kind of like a old car can come a point where no longer willing to put anymore money in it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Terry K9TW

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Maybe this would be a way to go???

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44986. Re: RE: RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 13:16:31 UTC
From: Chris Maness
Topic: 44915 Message: 44986

Yes, Terry I am hoping to keep her on the air as long as possible. I just scored (6) 6146B and (2) 12BY7A NOS tubes for $20 in antique store. That helps :D

Chris

On Tue, Oct 1, 2013 at 4:35 AM, <wagstw46@...> wrote:

>
>
> I forgot to mention. We are all working with 35 to 40 year old radios. The
> boards in these rigs are not the nice glass boards with heavy plating that
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> Terry K9TW
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>
>
> What I have seen on mo! re than one occasion is the PC board area directly
> under the 100 ohm Grid Stopper resistors and the 470ua chokes deeply burned
> black. The PC traces are typically lifted or gone as well. This occurs when
> there is a hard fault that occurs and heavy current flows thru the choke
> coil and the resistors back to the SG supply on the HV rectifier board.
> Usually when this occur R6 470 ohm resistor is also burned and the board
> under it may be blackened and charred and/or the PC foils lifted or gone.
> The half wave diode may be gone as well.
>
>
> What would cause this is a tube arc over and not likely a fault from SG
> element in the tube contacting another element in! the tube. You have two
> sources of voltage to produce heavy current in the SG feed. Normal 250vdc
> supply and 900vdc in event of arc over.
>
>
> Ask yourself what would limit the current if either source was pushing
> that current.
>
>
> R6 470 ohm resistor on the HV rectifier board is the highest resistance.
> 250/470 = .5 amps and 900/470 = 2 amps. Either current would would hurt
> 470ua choke, grid stopp! er resistors, and R6 470 ohm resistor. The heat
> produced over time is what chars the board under these components and
> ultimately lifts the foil traces. It is not an instant failure. It takes
> time to develop and propagate until failure occurs. Carbon resistors can
> take a lot of overcurrent for a long time, but horizontally oriented they

> can "cook" the board in close proximity below them.
>
>
> I am pretty sure I provided you with protection mod for your finals. It
> included MOVs at the SG of the final tubes to clamp the voltage to no more
> than approx 300vdc. The MOV is for 900vdc anode arc over protection and
> will not protect against f! ault current from the normal SG supply somehow
> going to ground inside the tube or at the tube socket pins on the PC board.
>
>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> Is there anything that can be done as a preventive measure to avoid having
> this happen to a working radio? I am loving my TS-520 Sugar, and would be
> really bummed out if this happened to my radio.
>
> 73 de KQ6UP
> Chris
>
> On Sep 30, 2013 10:40 AM, <kc4flt@...> wrote:
>
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>
>
>
> http://www.ebay.com/itm/KENWOOD-TS-520S-FINAL-UNIT-BOARD-FOR-TUBESPARTS-/321218501506?pt
=US_Ham_Radio_Transceivers&hash=item4aca1d5b82
>
>
> Maybe this would be a way to go???
>
>
> 73 OM
>
> Carl
>
> KC4FLT
>
>
> ---In ts-520_8! 20_530_830@yahoogroups.com, <k8jd@...> wrote:
>
> *It is more charcoal on the board the final tube sockets are mounted on
> than the socket's themselves..*
> *
> *
> *rom:* Lou Blasco <radio@...>
> *To:* TS-520_820_530_830@yahoogroups.com

> *Sent:* Wednesday, September 25, 2013 10:32 PM
> *Subject:* Re: [TS-520_820_530_830] salvaging a TS520
>
>
> That will work but why not replace the socket & repair the radio?
>
> Lou
> VK3ALB
>
> At 11:11 26/09/2013, you wrote:
>
> >eceiver only. My plan
> >is to remove the three tubes, and disconnect the HV output
> >connections at the rectifier board and secure each of the wire ends
> >with an insulating sleeve. Anyone see a problem with that arrangement?
> >73, K8JD
>
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44987. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 14:17:22 UTC
From: Mike
Topic: 44969 Message: 44987

The fan in any of the KW hybrids is not designed to provide a high volume of air into the final amplifier. The fan is designed to move air. Final amplifier heat radiates into the surrounding area in the final cage and the fan simply pulls air into the final enclosure and push heated air out of the vents. There is no added benefit by replacing the factory KW hybrid fan with a fan that produces a higher volume of air flow. The important thing is to keep the air flow moving, the fan blades, and fan shroud clean of dust. In addition, keep the final tube's clean of dust collection. Dust collected on the final tubes acts as a "blanket", trapping heated air against the final tubes. Dust collection on the fan blades and fan shroud reduces the effectiveness of the fan.

Keep the vents on the side and top of the KW hybrid open, do not stack equipment on top or along the sides of the KW hybrid. I've seen a lot of ham shack pictures showing KW hybrid transceivers with ham gear stacked on top and close along the sides. I often wonder how long that transceiver will continue to operate before the final tubes overheat? While this may appear to "look neat", it's NOT! If this is how your ham shack is then it won't be long before the KW hybrid final tubes overheat and fail and it will not be caused by failure of the final tubes but because if the equipment "blocking" the vent holes resulting in significant reduction in air flow.

Ask yourself, would you allow air flow through your cars radiator to be blocked? If so how long would it take before your car's motor overheats? The same applies to your KW hybrid so don't be foolish by stacking gear on top and close along the sides of your KW hybrid. Also, don't build a shelving unit then place your KW hybrid in the shelf space that blocks air flow, your KW hybrid won't like that.

73
Mike W5RKL

On 9/29/2013 6:25 PM, Chris Maness wrote:
> I was running it at 100W for short exchanges. I can imagine a long
> winded QSO would melt the radio down. What power is recommended for
> RTTY on the TS-520S? I have the radio clear of stuff, it is about 5"
> from the wall. I hope that is not an issue. The cage is really clean
> as I don't think this radio was used very much at all before it died,
> and/or the original owner went SK. The radio had a clipped lead that
> fell across the circuit traces; that ruined the balanced modulator.
> After putting new diodes in her, she is running like a champ. So the
> radio probably just set for years. It looked brand new when I bought it.
>
> However, I will make it at bi-annual chore to clean it out. It wasn't
> too hot. I measured 114degF after a couple of minutes to cool down.

>
> 73 de KQ6UP
> Chris
>
>
> On Sun, Sep 29, 2013 at 4:00 PM, W5RKL <w5rkl@...
> <mailto:w5rkl@...>> wrote:
>
>
>
> I hope you are not running the 520 at full power on RTTY, not a
> good thing.
>
> Make sure the fan blades and shroud are clean of dust. Dust can
> collect rather quickly on the fan blades which causes air flow to
> be reduced.
>
> Unplug the 520, wait for the HV capacitors to discharge (about 1
> minute or is good), remove the top and bottom covers, remove the
> cover over the final amplifier, and use compressed air and/or
> canned air to remove dust collection in the final amplifier.
>
> You can have plenty of air flowing in the final enclose but if the
> tubes have a coating of dust/dirt then the heat will not radiate
> from the tube's glass envelope. Clean the final amplifier
> including the tubes, fan blades, and shroud to ensure maximum air
> flow. Also, do not stack gear along the sides, along the rear, and
> on top of the 520. This is a common mistake done by many
> inexperienced hams. Stacking equipment along the sides, rear, and
> top of the 520 restricts if not blocks the air flow. While
> stacking your gear together may "Look good", it's can
> significantly reduce air flow through the gear.
>
> 73
> Mike W5RKL
>
>
> On 9/29/2013 5:38 PM, Chris Maness wrote:
>> Enjoying the heck out of my new to me TS-520. Just curious --
>> how do I know if I am getting enough air flow across my 6146s? I
>> just found six new final tubes at an antique store for $20, but I
>> just want to make my finals last as long as possible since this
>> is a commodity item. Feels like the fan case itself is the
>> warmest part. Any of you guys have an IR thermometer that can
>> measure it? I am running the RTTY contest this afternoon, and
>> that sure does a good job of warming the radio with its 100% duty
>> cycle.
>>
>> Thanks es 73 de KQ6UP
>> Chris

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44988. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 14:24:07 UTC
From: Mike
Topic: 44969 Message: 44988

One more thing I forgot to mention.

The final amplifier, including the final tubes and associated components, and the power supplies are not designed to operate at 100% duty cycle! RTTY and PSK are 100% duty cycle modes. If you operate at full power even with short transmit durations, you are putting excess stress on the final amplifier tubes, amplifier components, and the power supplies. This is especially true when operating in a contest even with short transmit durations, where transmissions are quite often one right after the other. So keep the power output less than 50 watts, your KW hybrid will last much longer. As one response said, if you want higher power then use an amp that has the ability to withstand 100% duty cycle modes.

73
Mike W5RKL

On 9/29/2013 6:25 PM, Chris Maness wrote:
> I was running it at 100W for short exchanges. I can imagine a long
> winded QSO would melt the radio down. What power is recommended for
> RTTY on the TS-520S? I have the radio clear of stuff, it is about 5"
> from the wall. I hope that is not an issue. The cage is really clean
> as I don't think this radio was used very much at all before it died,
> and/or the original owner went SK. The radio had a clipped lead that
> fell across the circuit traces; that ruined the balanced modulator.
> After putting new diodes in her, she is running like a champ. So the
> radio probably just set for years. It looked brand new when I bought it.
>
> However, I will make it at bi-annual chore to clean it out. It wasn't
> too hot. I measured 114degF after a couple of minutes to cool down.
>
> 73 de KQ6UP
> Chris
>
>
> On Sun, Sep 29, 2013 at 4:00 PM, W5RKL <w5rkl@...
> <mailto:w5rkl@...>> wrote:
>
>
>
>
> I hope you are not running the 520 at full power on RTTY, not a
> good thing.
>
> Make sure the fan blades and shroud are clean of dust. Dust can
> collect rather quickly on the fan blades which causes air flow to
> be reduced.

>
> Unplug the 520, wait for the HV capacitors to discharge (about 1
> minute or is good), remove the top and bottom covers, remove the
> cover over the final amplifier, and use compressed air and/or
> canned air to remove dust collection in the final amplifier.
>
> You can have plenty of air flowing in the final enclose but if the
> tubes have a coating of dust/dirt then the heat will not radiate
> from the tube's glass envelope. Clean the final amplifier
> including the tubes, fan blades, and shroud to ensure maximum air
> flow. Also, do not stack gear along the sides, along the rear, and
> on top of the 520. This is a common mistake done by many
> inexperienced hams. Stacking equipment along the sides, rear, and
> top of the 520 restricts if not blocks the air flow. While
> stacking your gear together may "Look good", it's can
> significantly reduce air flow through the gear.
>
> 73
> Mike W5RKL
>
>
> On 9/29/2013 5:38 PM, Chris Maness wrote:
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>> how do I know if I am getting enough air flow across my 6146s? I
>> just found six new final tubes at an antique store for $20, but I
>> just want to make my finals last as long as possible since this
>> is a commodity item. Feels like the fan case itself is the
>> warmest part. Any of you guys have an IR thermometer that can
>> measure it? I am running the RTTY contest this afternoon, and
>> that sure does a good job of warming the radio with its 100% duty
>> cycle.
>>
>> Thanks es 73 de KQ6UP
>> Chris
>
>
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>

44989. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 14:53:39 UTC
From: Chris Maness
Topic: 44969 Message: 44989

Note taken. I have been running 25W now with JT65.

Chris KQ6UP
On Oct 1, 2013 7:24 AM, "Mike" <w5rkl@...> wrote:

>
>
> One more thing I forgot to mention.
>
> The final amplifier, including the final tubes and associated components,
> and the power supplies are not designed to operate at 100% duty cycle! RTTY
> and PSK are 100% duty cycle modes. If you operate at full power even with
> short transmit durations, you are putting excess stress on the final
> amplifier tubes, amplifier components, and the power supplies. This is
> especially true when operating in a contest even with short transmit
> durations, where transmissions are quite often one right after the other.
> So keep the power output less than 50 watts, your KW hybrid will last much
> longer. As one response said, if you want higher power then use an amp that
> has the ability to withstand 100% duty cycle modes.
>
> 73
> Mike W5RKL
>
>
>
> On 9/29/2013 6:25 PM, Chris Maness wrote:
>
>
> I was running it at 100W for short exchanges. I can imagine a long winded
> QSO would melt the radio down. What power is recommended for RTTY on the
> TS-520S? I have the radio clear of stuff, it is about 5" from the wall. I
> hope that is not an issue. The cage is really clean as I don't think this
> radio was used very much at all before it died, and/or the original owner
> went SK. The radio had a clipped lead that fell across the circuit traces;
> that ruined the balanced modulator. After putting new diodes in her, she
> is running like a champ. So the radio probably just set for years. It
> looked brand new when I bought it.
>
> However, I will make it at bi-annual chore to clean it out. It wasn't
> too hot. I measured 114degF after a couple of minutes to cool down.
>
> 73 de KQ6UP
> Chris
>
>

> On Sun, Sep 29, 2013 at 4:00 PM, W5RKL <w5rkl@...> wrote:
>
>>
>>
>> I hope you are not running the 520 at full power on RTTY, not a good
>> thing.
>>
>> Make sure the fan blades and shroud are clean of dust. Dust can collect
>> rather quickly on the fan blades which causes air flow to be reduced.
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>> Unplug the 520, wait for the HV capacitors to discharge (about 1 minute
>> or is good), remove the top and bottom covers, remove the cover over the
>> final amplifier, and use compressed air and/or canned air to remove dust
>> collection in the final amplifier.
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>> You can have plenty of air flowing in the final enclose but if the tubes
>> have a coating of dust/dirt then the heat will not radiate from the tube's
>> glass envelope. Clean the final amplifier including the tubes, fan blades,
>> and shroud to ensure maximum air flow. Also, do not stack gear along the
>> sides, along the rear, and on top of the 520. This is a common mistake done
>> by many inexperienced hams. Stacking equipment along the sides, rear, and
>> top of the 520 restricts if not blocks the air flow. While stacking your
>> gear together may "Look good", it's can significantly reduce air flow
>> through the gear.
>>
>> 73
>> Mike W5RKL
>>
>>
>> On 9/29/2013 5:38 PM, Chris Maness wrote:
>>
>>
>> Enjoying the heck out of my new to me TS-520. Just curious -- how do I
>> know if I am getting enough air flow across my 6146s? I just found six new
>> final tubes at an antique store for $20, but I just want to make my finals
>> last as long as possible since this is a commodity item. Feels like the
>> fan case itself is the warmest part. Any of you guys have an IR
>> thermometer that can measure it? I am running the RTTY contest this
>> afternoon, and that sure does a good job of warming the radio with its 100%
>> duty cycle.
>>
>> Thanks es 73 de KQ6UP
>> Chris
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44990. Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 15:42:22 UTC
From: Craig Roberts
Topic: 44440 Message: 44990

Okay, I'm confused.

My TS-830S -- when compared with my super clean sounding TS-530S -- exhibits a slight amount of receiver distortion on strong signals. The 830's frequency response is also not quite as open and transparent as the 530's, though the 830's noise floor sounds lower. Both radios' audio outputs are connected to my SP-230, so speaker response is identical.

Would swapping the 830's 1N60 diodes with Schottky diodes make a positive difference? I have read scores of forum queries on this topic and the answers appear to be almost equally divided between "Wow! What a difference!" and "Don't bother. If it ain't broke...."

I can certainly live with the 830's received audio and am reluctant to mess with any more fragile circuit board traces if the results will be negligible. However, if I can make my 830 sound as smooth and bright as my 530, I'd take the chance.

So, what's your experience, please?

Thanks (again) and 73,

Craig
W3CRR

44991. General question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 17:13:13 UTC
From: <ve2ud@...>
Topic: 44991 Message: 44991

I have discovered a output from my PLL board from conn 5 pin 2[VFO In] to a rca phono jack at the rear of the rig,as there is two extra holes for outputs if needed.

What could you use this input for.

73
Don/Ve2ud

44992. Re: [TS-520_820_530_830] General question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 17:20:31 UTC
From: Bob Lazarow
Topic: 44991 Message: 44992

Don: Unless I missed it somewhere, what rig do you have?

73

Bob/WA2JAJ

On 10/1/2013 1:13 PM, ve2ud@... wrote:
>
> I have discovered a output from my PLL board from conn 5 pin 2[VFO In
>] to a rca phono jack at the rear of the rig,as there is two extra
> holes for outputs if needed.
>
> What could you use this input for.
>
> 73
> Don/Ve2ud
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2014.0.4142 / Virus Database: 3604/6706 - Release Date: 09/28/13
>

44993. RE: General question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 17:28:19 UTC
From: <ve2ud@...>
Topic: 44991 Message: 44993

Ts830

73
Don

---In ts-520_820_530_830@yahoogroups.com, <r_lazarow@...> wrote:

Don: Unless I missed it somewhere, what rig do you have?

73

Bob/WA2JAJ

On 10/1/2013 1:13 PM, ve2ud@... wrote:

I have discovered a output from my PLL board from conn 5 pin 2[VFO In] to a rca phono jack at the rear of the rig,as there is two extra holes for outputs if needed.

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73
Don/Ve2ud

No virus found in this message.
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Version: 2014.0.4142 / Virus Database: 3604/6706 - Release Date: 09/28/13

44994. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 17:34:46 UTC
From: Don Allen
Topic: 44969 Message: 44994

On all of the Kenwood hybrids I've owned, the cooling fan functions as an exhaust fan pulling air through the vents and final cage, and exhausting the air from the rear of the fan housing, including the 520S, 820S, and 830S I still own.

73
Don W9CW

On 10/1/2013 9:17 AM, Mike wrote:
> The fan in any of the KW hybrids is not designed to provide a high
> volume of air into the final amplifier. The fan is designed to move air.
> Final amplifier heat radiates into the surrounding area in the final
> cage and the fan simply pulls air into the final enclosure and push
> heated air out of the vents. There is no added benefit by replacing the
> factory KW hybrid fan with a fan that produces a higher volume of air
> flow. The important thing is to keep the air flow moving, the fan
> blades, and fan shroud clean of dust. In addition, keep the final tube's
> clean of dust collection. Dust collected on the final tubes acts as a
> "blanket", trapping heated air against the final tubes. Dust collection
> on the fan blades and fan shroud reduces the effectiveness of the fan.
>
> Keep the vents on the side and top of the KW hybrid open, do not stack
> equipment on top or along the sides of the KW hybrid. I've seen a lot of
> ham shack pictures showing KW hybrid transceivers with ham gear stacked
> on top and close along the sides. I often wonder how long that
> transceiver will continue to operate before the final tubes overheat?
> While this may appear to "look neat", it's NOT! If this is how your ham
> shack is then it won't be long before the KW hybrid final tubes overheat
> and fail and it will not be caused by failure of the final tubes but
> because if the equipment "blocking" the vent holes resulting in
> significant reduction in air flow.
>
> Ask yourself, would you allow air flow through your cars radiator to be
> blocked? If so how long would it take before your car's motor overheats?
> The same applies to your KW hybrid so don't be foolish by stacking gear
> on top and close along the sides of your KW hybrid. Also, don't build a
> shelving unit then place your KW hybrid in the shelf space that blocks
> air flow, your KW hybrid won't like that.
>
> 73
> Mike W5RKL

44995. RE: Re: RE: RE: Re: [TS-520_820_530_830] salvaging a TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 17:41:07 UTC
From: <wagstw46@...>
Topic: 44915 Message: 44995

That is a great find. Cant beat that price. Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes, Terry I am hoping to keep her on the air as long as possible. I just scored (6) 6146B and (2) 12BY7A NOS tubes for $20 in antique store. That helps :D

Chris

On Tue, Oct 1, 2013 at 4:35 AM, <wagstw46@...> wrote:

I forgot to mention. We are all working with 35 to 40 year old radios. The boards in these rigs are not the nice glass boards with heavy plating that we have today. These are old style phenolic boards. Very easy to lift a trace/pad and many have had repeated un-soder and re-solder evolutions on them.

I have a couple of complete sets of spare boards for my TS830s and partial sets for my TS820 and TS520.

I recommend you consider this and/or buying a tech special or parts rig.! Tech specials are not cheap on Ebay. There is a limited supply of these rigs so may want to consider spending the money. Today almost impossible to find a RF board under $100. .

I agree not practical to use an Xacto knife or Dremel tool to attempt to remove carbon tracks on boards. When these deep tracks occur the board is pretty much junk.

I dont know why Mr. Davidson opted not to repair his radio. When you have this kind of failure relatively easy to contact Bob Mansker and buy a replacement final board and HV rect board. This forum is here to help with these kinds of repairs. We all have different decision making processes and chose how we spend our disposable income.

I have tried to position myself to keep my treasures on the air for a long time, but kind of like a old car can come a point where no longer willing to put anymore money in it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

There is nothing you can do to prevent a carbon track from forming on your final PC board other than visual inspection. I have never seen a carbon track develop in normal operation.

With the TS520 with phenolic octal sockets, terminal strips, and point to point wiring it would be rare for a track to develop across the phenolic socket material. There would be three possible paths. From SG pin to chassis ground, to cathode pin, and to heater pin. Two sources of voltage. No! rmal approx 250vdc SG supply and 900vdc with tube arc over.

With a TS-520S you have a final PC board which replaced the older style point to point wiring. The pc board has the octal sockets soldered to the board. Very unlikely for carbon track to develop between the solder pads of the tube pins. You can perform visual and make

sure no residual flux and no tracking is occurring.

What I have seen on mo! re than one occasion is the PC board area directly under the 100 ohm Grid Stopper resistors and the 470ua chokes deeply burned black. The PC traces are typically lifted or gone as well. This occurs when there is a hard fault that occurs and heavy current flows thru the choke coil and the resistors back to the SG supply on the HV rectifier board. Usually when this occur R6 470 ohm resistor is also burned and the board under it may be blackened and charred and/or the PC foils lifted or gone. The half wave diode may be gone as well.

What would cause this is a tube arc over and not likely a fault from SG element in the tube contacting another element in! the tube. You have two sources of voltage to produce heavy current in the SG feed. Normal 250vdc supply and 900vdc in event of arc over.

Ask yourself what would limit the current if either source was pushing that current.

R6 470 ohm resistor on the HV rectifier board is the highest resistance. 250/470 = .5 amps and 900/470 = 2 amps. Either current would would hurt 470ua choke, grid stopp! er resistors, and R6 470 ohm resistor. The heat produced over time is what chars the board under these components and ultimately lifts the foil traces. It is not an instant failure. It takes time to develop and propagate until failure occurs. Carbon resistors can take a lot of overcurrent for a long time, but horizontally oriented they can "cook" the board in close proximity below them.

I am pretty sure I provided you with protection mod for your finals. It included MOVs at the SG of the final tubes to clamp the voltage to no more than approx 300vdc. The MOV is for 900vdc anode arc over protection and will not protect against f! ault current from the normal SG supply somehow going to ground inside the tube or at the tube socket pins on the PC board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Is there anything that can be done as a preventive measure to avoid having this happen to a working radio? I am loving my TS-520 Sugar, and would be really bummed out if this happened to my radio.

73 de KQ6UP
Chris

On Sep 30, 2013 10:40 AM, <kc4flt@...> wrote:

http://www.ebay.com/itm/KENWOOD-TS-520S-FINAL-UNIT-BOARD-FOR-TUBESPARTS-/321218501506?pt=US_Ham_Radio_Transceivers&hash=item4aca1d5b82

Maybe this would be a way to go???

73 OM
Carl
KC4FLT

---In ts-520_8! 20_530_830@yahoogroups.com, <k8jd@...> wrote:

It is more charcoal on the board the final tube sockets are mounted on than the socket's themselves..

rom: Lou Blasco <radio@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, September 25, 2013 10:32 PM
Subject: Re: [TS-520_820_530_830] salvaging a TS520

That will work but why not replace the socket & repair the radio?

Lou
VK3ALB

At 11:11 26/09/2013, you wrote:

>eceiver only. My plan
>is to remove the three tubes, and disconnect the HV output
>connections at the rectifier board and secure each of the wire ends
>with an insulating sleeve. Anyone see a problem with that arrangement?
>73, K8JD

44996. RE: Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 18:03:16 UTC
From: <wagstw46@...>
Topic: 44969 Message: 44996

If you read the RCA 6146 tube data sheet you will see that max envelope temperature is 260 degrees C and that the tube is designed to run in free air with no additional cooling required.

In the old boatanchor days of Heath Apaches and Johnson Vikings and many similar transmitters no cooling fan was installed by the manufacturer. The later Heath SB and HW series transceivers had no cooling fans.

In those old boatanchors there was a lot of open space around the 6146 finals. In the transceivers to follow a small PA cage was the norm. One of first thing most of us did was to sit a muffin or whisper fan on top the PA cage and pull air from that PA cage. All kinds of tricks to slow them down and rubber mount them to quiet them down. We did this without any evidence that the fans were needed or would increase the life of the finals. No empirical data was compiled. Just seemed like needed a fan and a fan couldnt hurt. I did on my Heath transceivers.

However never gave it a thought to put a cooling fan on the Apache or Viking.

Kenwood gave us a nice slow quiet fan and it is more than adequate to ensure we dont exceed the 6146 tube envelop temperatures and ensure long life if we load and operate the radio properly for each mode we run.

Mike give very good advice. Keep fan cleaned and lubed and as he says do not stack other gear on or around the rig in an enclosed mounting position.

I cannot ever envision a time I would need to increase the cooling capacity of the factory fan. I get rigs on the bench often that have the original S2001A finals and no after market air mover installed.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On all of the Kenwood hybrids I've owned, the cooling fan functions as
an exhaust fan pulling air through the vents and final cage, and
exhausting the air from the rear of the fan housing, including the 520S,
820S, and 830S I still own.

73
Don W9CW

On 10/1/2013 9:17 AM, Mike wrote:
> The fan in any of the KW hybrids is not designed to provide a high
> volume of air into the final amplifier. The fan is designed to move air.
> Final amplifier heat radiates into the surrounding area in the final
> cage and the fan simply pulls air into the final enclosure and push
> heated air out of the vents. There is no added benefit by replacing the
> factory KW hybrid fan with a fan that produces a higher volume of air

> flow. The important thing is to keep the air flow moving, the fan
> blades, and fan shroud clean of dust. In addition, keep the final tube's
> clean of dust collection. Dust collected on the final tubes acts as a
> "blanket", trapping heated air against the final tubes. Dust collection
> on the fan blades and fan shroud reduces the effectiveness of the fan.
>
> Keep the vents on the side and top of the KW hybrid open, do not stack
> equipment on top or along the sides of the KW hybrid. I've seen a lot of
> ham shack pictures showing KW hybrid transceivers with ham gear stacked
> on top and close along the sides. I often wonder how long that
> transceiver will continue to operate before the final tubes overheat?
> While this may appear to "look neat", it's NOT! If this is how your ham
> shack is then it won't be long before the KW hybrid final tubes overheat
> and fail and it will not be caused by failure of the final tubes but
> because if the equipment "blocking" the vent holes resulting in
> significant reduction in air flow.
>
> Ask yourself, would you allow air flow through your cars radiator to be
> blocked? If so how long would it take before your car's motor overheats?
> The same applies to your KW hybrid so don't be foolish by stacking gear
> on top and close along the sides of your KW hybrid. Also, don't build a
> shelving unit then place your KW hybrid in the shelf space that blocks
> air flow, your KW hybrid won't like that.
>
> 73
> Mike W5RKL

44997. RE: RE: Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 18:17:44 UTC
From: <wagstw46@...>
Topic: 44969 Message: 44997

I forgot to mention that those old transmitters and transceivers were all tube rigs with lots of tubes (20 or more) so they produced much more heat and had no fan.

The KW hybrids only have 3 tubes so total heat load is significantly lower by comparison.

I am not saying dont need a fan on a Hybrid. I am in favor of the KW fan design and if cleaned and lubed will provide years of quiet trouble free service.

I am just saying I dont understand the need for increasing the cooling capacity? What mode are we talking? Is the max envelope temperature being exceeded running this mode? I am a SSB/CW Op so no experience with FSK or PSK modes but common sense would dictate not loading to max IP when running a continuous duty cycle mode. If you look at the KW hybrid design some models have reduced SG voltage for FSK (I will let you figure out how they do that). Too bad the instruction manuals dont give more information on how to load the rigs for these kinds of modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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> air flow, your KW hybrid won't like that.
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> Mike W5RKL

44998. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 14:47:40 UTC
From: <herpsrwe@...>
Topic: 44440 Message: 44998

5 : 1 SWR ?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report

from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look

around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.

44999. RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 15:28:56 UTC
From: <bozo231@...>
Topic: 44440 Message: 44999

while we are on the issue what is best for the radio : to tune down the wattage : by the car or by the load thanks Ron

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

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Jason, K7BOG

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To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report

from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look

around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.

This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.

45000. Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 20:29:27 UTC
From: Mike
Topic: 44440 Message: 45000

You do not "tune down the wattage". Always tune the transmitter for
maximum power output. Never reduce output power by adjusting the "LOAD"
control!

Use the CAR control in CW to control output power level.

If you need to reduce power in sideband use the battery and pot circuit
found in the group's "File" section to apply a "negative" DC voltage to
the external "ALC" connection.

73
Mike W5RKL

On 10/1/2013 10:28 AM, bozo231@... wrote:
>
> while we are on the issue what is best for the radio : to tune down
> the wattage : by the car or by the load thanks Ron
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Your very first goal is to be able to load the rig into a dummy load
> on all bands. Worry about using a tuner to load into a multi-band
> antenna after you are certain you can load "normally" in to the dummy
> load.
>
>
> If you can load the rig successfully into dummy load with the tuner in
> the Bypass Mode (just using the tuner for the wattmeter/SWR meter
> function) then nothing is wrong with your Pi-Network in the rig unless
> you are at extreme ends of the Plate Load cap or the Plate Tune cap
> position doesnt align relatively close to the white panel marking for
> the band you are loading on.
>
>
> If you end up having the Plate Load or Plate tune caps at odd
> positions to attain your 80 to 100 watts into the dummy load you may
> have bad fixed padder caps.
>
>
> What would be "normal" is approx 90 to 100 watts into 50 ohm dummy
> load on all bands with exception of 10 meters (80 watts) at approx
> 200ma plate current and you should see very close to 1:1 SWR into your
> dummy load.
>

>
> If you can do this then time to discuss the antenna and the tuner issues.
>
>
> Again, your first effort should be to make sure the rig can load
> normally into a dummy load. This proves your dummy load is good, your
> interconnecting coax jumpers are good, and the rig is good.
>
>
> If you cannot do this then no reason to attempt to use the tuner to
> load in to a multi-band antenna of any type.
>
>
> The tuner is taking the impedance that the antenna presents at the end
> of whatever kind of feed line you are using and converting it to an
> impedance that your rigs Pi-network can match. A multiband antenna can
> present a wide range of impedances (combination of resistance and
> reactive) to your rig. The rig cannot match very high impedances (
> thousands of ohms) that a multiband antenna can present. If you have
> very high impedance at the end of the feed line in the shack then RF
> can be a problem in the shack. End fed can present several thousand
> ohms which means very high RF voltage at the input to the tuner.
> Sometimes need to install counter poise to resolve this situation.
>
>
> Describe again what the antenna configuration is. Is this a OCF dipole
> or a 135 foot flat top fed with 300 ohm ladder line or open wire
> feeders or a random length end fed ??
>
>
> It could be that the Tuner has an issue?
>
>
> So tell us first if you can load rig normally into the dummy load? If
> so, then describe the complete antenna configuration.
>
>
> Having resting plate current changing has nothing to do with your
> antenna or your tuner. You can unscrew your coax connector off back of
> rig and set resting plate current. Fix that first.
>
>
> Terry
> K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>

> Installing an 'ugly balun' and getting rid of that stray RF really
> helped, but it still seems there is something mechanically wrong with
> the 520. I think that not being able to tune it properly is hurting my
> AT-230's ability to successfully tune my antenna. I noticed that on 10
> and 15 the tuner works fine, but when I get to 20 or 40 it won't match
> at all. I also still need to ground the radio itself, I have the rig
> plugged into a standard wall outlet, but in my house, the wall outlets
> are not grounded (older home), maybe it'll help a little to get the
> rig properly grounded.
>
>
> I wish I had the cash to have a professional look at it and realign
> everything for me. Either way, I'll work on testing those issues that
> were mentioned by Terry and see where that takes me.
>
>
> Jason, K7BOG
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Sounds like an antenna issue caused the radio problems.
>
> ---
> *From:* "jason.bogstie@..." <jason.bogstie@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, September 30, 2013 12:47 AM
> *Subject:* [TS-520_820_530_830] RE: New Ham, Tuning issues
>
> Hey Terry and everyone:
>
> Sorry this took me so long, I was waiting on parts for my antenna and
> my AT-230 to arrive in the mail.
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> and SWR meter. This is what I observed.
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> changed for some reason.
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> antenna and got it to about 5:1 SWR with a nice torroid on it to choke
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> Terry K9TW
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> *To:*
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> *Subject:* RE: Re:
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> physically split the case open.
>
> Need to have rig unplugged and let
> set for awhile to led bleeders
> discharge the HV filter caps. Then
> remove PA cage cover. Then connect
> ground jumper from top of plate
> choke and ground for a few
> seconds. Now safe to use a good
> flashlite and inspect these items.
>
> I would also look at both
> capacitor shaft couplers at the PA
> cage and make sure screws are
> tight. Can also watch the travel
> and make sure full open and full
> close align with markings on the
> front panel.
>
> Terry K9TW
>
>
> --- In
> TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com>
> wrote:
>
> Hi Terry:
>
> Ah ha. I am a CW op so I
> always have had a key plugged
> in (but no mic). Anyway, with

> a key plugged in you don't get
> any output with the alternate
> procedure without closing the
> key for obvious reasons. I've
> been so used to how the radio
> responded when I switched over
> from tune to CW with a key
> connected that I ended up
> thinking the key was
> necessary. My bad. For me
> the long procedure from the
> manual works fine since I
> always have the key connected
> and normally have the radio in
> VOX mode (to save wear on the
> send switch) but I have a
> better understanding now.
> Thank you. I will also study
> the diagram to try to better
> understand the relationship
> between the load capacitor and
> antenna load.
>
> This will also help Jason
> since I took him through the
> long procedure from the manual
> that uses a key. He can just
> unplug his keyer and will be
> able to move from tuning to
> loading once he has the drive
> and plate a resonance (peaked
> and dipped) without all of the
> additional gyrations.
>
> Questions: This still leaves
> Jason's TS-520's issue with
> load. Even though I was using
> the long procedure with the
> key, I think the results are
> still accurate. He is getting
> a maximum output of 70w at
> 200ma with the load at min
> (fully CCW) and reducing the
> load capacitance (increasing
> the load/turning load CW)
> actually reduces his output.
> This isn't normal, right? I
> can simulate this on my TS-830
> but it pains me. If I
> intentionally turn the load up

> too much, output falls off as
> I increase the load. So...I
> think in Jason's TS520 it is
> as if even at maximum
> capacitance (minimum load) he
> doesn't have enough to balance
> against the 50 ohm dummy
> load---resonance is off the
> minimum end of the load. Does
> that sound like a reasonable
> conclusion? Is the next step
> for us to try the tune up
> procedure on all bands and
> report back (your 10m
> suggestion from before) or is
> there something else that we
> should check first?
>
> Thanks,
> Brian (and Jason)
>
> ---
> *From:* "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com
>
> *Sent:* Saturday, September
> 14, 2013 1:18 PM
> *Subject:* RE: Re: Re:
> [TS-520_820_530_830] RE: New
> Ham, Tuning issues
>
> You dont need the key or vox
> or any of the gyrations you
> are putting your self thru to
> load your TS830.
>
> The reason Ip indicates approx
> 60ma when you switch from Tune
> to CW mode is that you have
> the plates meshed on the Plate
> load cap and you are shunting
> the RF current around the
> dummy load and circulating it
> in the Tank.
>
> It is OK to crack the Plate
> Load control open a little at
> initial loading so you can see

> 70 or 80 ma or so if that
> helps you.
>
> At this point with plates
> fully meshed you have maximum
> capacitance and lowest
> capacitive reactance so the RF
> current in the tank is going
> to like to flow thru the plate
> load cap and not thru the
> dummy load. Sometime look at
> formula for Xc and you will
> see it is an inverse
> relationship. It will help you
> understand what I am telling you.
>
> OK --You havent started
> tightening up the coupling yet
> and shifting the tank circuit
> RF circ current to the dummy
> load resistance. Each time you
> open the plates of the Load
> cap a little more you are
> decreasing the capacitance and
> increasing the capacitive
> reactance XC. This allows more
> current to flow in the dummy
> load resistor or the antenna.
>
> When you get to full load you
> will have opened the Plate
> Load capactor to the point
> that the XC is approx equal to
> the dummy load or antenna
> resistance. At this point you
> will have used half of the
> stored energy in the tank and
> there will be equal RF current
> flowing thru the Plate load
> capacitor and the dummy load
> resistor. At that point with
> 100 watts output power there
> will be approx 1.4 RF amps
> flowing thru the Plate load
> cap and 1.4 RF amps flowing
> thru the 50 ohm dummy load.
>
> This is all simple ohms law
> for parallel resistors, but
> not too many folks really

> understand what they are doing
> or how it works or have just
> never given it any serious
> thought.
>
> After you make that initial
> plate current dip in Tune mode
> you do not need to do any more
> dip and load procedure. Only
> reason you do this initial dip
> is to get the tank circuit
> adjusted close to resonance so
> when you go to CW mode and
> apply full screen grid voltage
> to the finals you dont peg the
> IP meter if the tank is tuned
> off resonance. This could
> damage your finals if left
> keyed too long at this high Ip
> level.
>
> Read the very last note in the
> TS-830 loading procedure. It
> tells you after they have
> taught you dip and load you
> dont have to use it as it isnt
> best or easiest way to load a
> Class AB1 linear amp!
>
> It directs you to place meter
> in RF position and Flip to
> Send and alternately adjust
> the plate Load and Tune
> controls for maximum indicated
> relative power (RF voltage).
>
> With your wattmeter in line
> leave your TS830 meter in IP.
> Now after making that initial
> plate current dip in Tune mode
> flip to Send in CW mode and
> alternately adjust Plate Load
> and Plate tune controls for
> approx 100watts output.
>
> Your wattmeter will be far
> more sensitive to any changes
> you make than your IP meter.
> You will quickly be able to
> find the combination that

> gives you max rf output power.
> Take a quick look at IP and it
> should be close to 225ma. If a
> little over dont worry about
> it as 265ma is the real limit.
>
> Lastly, if you are having to
> increase the Car level at the
> late stage of tuning you are
> not setting it high enough in
> the early Drive control
> peaking step. There is no
> reason to have to do this.
> When you peak the Drive give
> yourself something to look at.
> If you peg the ALC meter just
> reduce the Car level pot to
> get it off the peg.
>
> Terry K9TW
>
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>

45001. Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 20:47:39 UTC
From: Mike
Topic: 44969 Message: 45001

Initially the Heathkit Apache TX-1 did not have a final cage fan. Heath added that later on but the fan was small. The final amplifier, a pair of 6146As, ran much hotter, AM mode, than the KW hybrids. The small fan Heath used ran from a small 120VAC phonograph type motor. The motor in my Apache was bad, turned at less than half speed. I trashed the fan assembly and installed a larger 120VAC muffin fan. I had the fan blow air into the final cage. This arrangement did not produce an excessive amount of duty collection on the fan blade, fan shroud, or the final tubes and components. Cleaning the fan and final amplifier was easy, canned air removed any dust collected on the fan and final tubes and components.

I did the same thing by attaching a small 12VDC muffin fan to the rear portion of the final cage with my Drake T4XB and T4XC transmitters. The fan blew air into the final cage and the fan was powered from a half wave rectifier from the 12VAC filament supply. I used a single silicon diode and an 8ufd 25VDC filter capacitor to provide the 12VDC for the fan. The fan ran at about the same speed as the KW hybrid fans. Cleaning of the fan and final enclosure takes about 5 minutes one the covers are removed.

73
Mike W5RKL

On 10/1/2013 1:03 PM, wagstw46@... wrote:
>
> If you read the RCA 6146 tube data sheet you will see that max
> envelope temperature is 260 degrees C and that the tube is designed to
> run in free air with no additional cooling required.
>
>
> In the old boatanchor days of Heath Apaches and Johnson Vikings and
> many similar transmitters no cooling fan was installed by the
> manufacturer. The later Heath SB and HW series transceivers had no
> cooling fans.
>
>
> In those old boatanchors there was a lot of open space around the 6146
> finals. In the transceivers to follow a small PA cage was the norm.
> One of first thing most of us did was to sit a muffin or whisper fan
> on top the PA cage and pull air from that PA cage. All kinds of tricks
> to slow them down and rubber mount them to quiet them down. We did
> this without any evidence that the fans were needed or would increase
> the life of the finals. No empirical data was compiled. Just seemed
> like needed a fan and a fan couldnt hurt. I did on my Heath transceivers.
>

>
> However never gave it a thought to put a cooling fan on the Apache or
> Viking.
>
>
> Kenwood gave us a nice slow quiet fan and it is more than adequate to
> ensure we dont exceed the 6146 tube envelop temperatures and ensure
> long life if we load and operate the radio properly for each mode we run.
>
>
> Mike give very good advice. Keep fan cleaned and lubed and as he says
> do not stack other gear on or around the rig in an enclosed mounting
> position.
>
>
> I cannot ever envision a time I would need to increase the cooling
> capacity of the factory fan. I get rigs on the bench often that have
> the original S2001A finals and no after market air mover installed.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> On all of the Kenwood hybrids I've owned, the cooling fan functions as
> an exhaust fan pulling air through the vents and final cage, and
> exhausting the air from the rear of the fan housing, including the 520S,
> 820S, and 830S I still own.
>
> 73
> Don W9CW
>
>
> On 10/1/2013 9:17 AM, Mike wrote:
> > The fan in any of the KW hybrids is not designed to provide a high
> > volume of air into the final amplifier. The fan is designed to
> move air.
> > Final amplifier heat radiates into the surrounding area in the final
> > cage and the fan simply pulls air into the final enclosure and push
> > heated air out of the vents. There is no added benefit by
> replacing the
> > factory KW hybrid fan with a fan that produces a higher volume
> of air
> > flow. The important thing is to keep the air flow moving, the fan
> > blades, and fan shroud clean of dust. In addition, keep the
> final tube's
> > clean of dust collection. Dust collected on the final tubes acts

> as a
> > "blanket", trapping heated air against the final tubes. Dust
> collection
> > on the fan blades and fan shroud reduces the effectiveness of
> the fan.
> >
> > Keep the vents on the side and top of the KW hybrid open, do not
> stack
> > equipment on top or along the sides of the KW hybrid. I've seen
> a lot of
> > ham shack pictures showing KW hybrid transceivers with ham gear
> stacked
> > on top and close along the sides. I often wonder how long that
> > transceiver will continue to operate before the final tubes
> overheat?
> > While this may appear to "look neat", it's NOT! If this is how
> your ham
> > shack is then it won't be long before the KW hybrid final tubes
> overheat
> > and fail and it will not be caused by failure of the final tubes but
> > because if the equipment "blocking" the vent holes resulting in
> > significant reduction in air flow.
> >
> > Ask yourself, would you allow air flow through your cars
> radiator to be
> > blocked? If so how long would it take before your car's motor
> overheats?
> > The same applies to your KW hybrid so don't be foolish by
> stacking gear
> > on top and close along the sides of your KW hybrid. Also, don't
> build a
> > shelving unit then place your KW hybrid in the shelf space that
> blocks
> > air flow, your KW hybrid won't like that.
> >
> > 73
> > Mike W5RKL
>
>

45002. Fw: [TS-520_820_530_830] RE: 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 02:21:12 UTC
From: Joseph Stiles
Topic: 45002 Message: 45002

Greetings Group,

  Seems that certain msg's are coming back without being posted, like the one below.
  So, sorry for the re-post and extra bandwidth

73 Joe
WB7UQU
Group Co-owner

----- Forwarded Message -----
From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, September 30, 2013 11:04 AM
Subject: Re: [TS-520_820_530_830] RE: 520s send/rec switch not working

Steve,

  Welcome to the phrase "CB HACK" or "FREE BANDING." Without going into detail..the "mod" allows the rig to receive and transmit
in the CB and other non-ham band areas Generally, from about the low 26Mhz area and up above 29Mhz. This mod is usually easy to remove, unless the
hacker has cut some diodes on the "digital readout" board...then it could become a problem re-doing the diode(s) leads. I have also seen
the PLL board hack...but I have not seen it as much as the above mentioned. Also, the famous "QRO" mode could have been done to get
every last milliwatt of power out of the finals...this is stupid and causes damage to numerous components. The most common QRO mod is moving
1 wire from the "210" post to the "300" post on the rectifier board. This raises the voltage to the final tubes
screens...thus "more power." Also, changing
the value of the 470 ohm resistor..which I think is R-11 on the rectifier board. Compare the wires you SEE to the wiring schematic.

 As far as the band "blanking out"...could be a couple of problems...MOST common is the "wiper" inside the VFO unit has gotten some gunk/corrosion
on it. The VFO is easy to remove..using the 4 screws on the front. Pull out slowly..as there are wires connected to it for the voltage/signals and for the
lights. I usually do this with the rigs top and bottom covers removed....rig UNPLUGGED from the power(my standard disclaimer). Remove the dial lamps and,
the connector on the rear of the VFO...it just un-plugs. Remove the screws holding the cover in place...the wiper is at the rear..use some contact cleaner...operate
the VFO through its travel several times...blow off with "canned air" and repeat once...you can reconnect the connector on the
rear...turn rig back on and check for
proper operation before fully reinstalling it. Try this first and let us know

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 29, 2013 8:08 PM
Subject: [TS-520_820_530_830] RE: 520s send/rec switch not working

I hate to add to my last topic with a different topic. But I am having problems finding the post button. Is it me or is this new format a problem for everybody.

I just came into a 530s. there is a 28MHZ mod that i would like to rid myself of. looks obvious on the surface. a 2 position switch and 4 wires making and breaking some wires going to the VFO board. Anybody know if there are more mods to be on the look out for, maybe some that are not as obvious as a switch and bell wire being strung here and there. The digital display will also blank out from time to time, either when band switching or just tuning across the dial on some bands.

I am looking for info on the 530s including how to do an alignment, etc..the basic stuff.
but like I said before I am having problems navigating this forum now.
So far it seems to tune up on 20m but not so much on 40m. made some contacts, VFO seems to be on target, audio is good. Anything to look for that 530s are known for? My Other rig is the 520s

again thanks for the input guys

steve

---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:

thats probably what fixed it. LOL.
Then I went to watch TV. Good show on Niagra falls was on, then all the water came through the screen.

I picked up a cheap 530 today. and I am hunting info on it now it has some problems..
the cheap part.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

   Glad that it "fixed itself." Just remember that usually when an "intermittent" problem starts...at the most
inopportune time...it will become "chronic."

  Did you by chance give it an "eye poke" or a "head bonk?"
sointenly....nyuk...nyuk

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com

Sent: Monday, September 23, 2013 8:31 PM
Subject: RE: Re: [TS-520_820_530_830] 520s send/rec switch not working

Thanks Joe..and the rest of the thread.

Tonight the switched worked. overtime and on 80 meters as well as 20 meters. Either I have an intermindant or perhaps i didnt give the heater enough time to warm up. But now that its working, its hard to trouble shoot. If i have to go in for another reason, I'll check the relay and get it cleaned up..or replaced. The good news is I went and got some more canned air for the occasion and it was on sale for 10 bucks for 3 cans. so now i am well stocked.

Thanks everybody.

steve

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>
>>
>>Steve,
>>
>> I would suspect RL-2
first, it's under the metal shield by the final amp board. UNPLUG RIG!, let it sit, then check
>>to see if there's anymore high voltage lurking around. Remove shield...remove relay (it pulls out), you will need a fine
>>screwdriver or similar tool to remove the plastic cover from the relay. Use some card stock wetted with contact cleaner
>>and clean all the contacts...some canned air comes in handy here. Re-install relay and check for operation.
>>There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
>>may have gotten some corrosion on them from no use, but worked correctly on 20 meters. Clean all the bandswitch wafer
>>contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be
fine now
>>
>>
>>
>>
>>
>>73 Joe
>>WB7UQU
>>
>>
>>
>>
>>_________________________________
>> From: "yioutta_99@..." <yioutta_99@...>
>>To: TS-520_820_530_830@yahoogroups.com

>>Sent: Sunday, September 22, 2013 8:14 PM
>>Subject: [TS-520_820_530_830] 520s send/rec switch not working
>>
>>
>>
>>
>>Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.
>>
>>
>>After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately.   So from past experience, would this be the switch, the relay, or power to the relay?
 .....Possibly the band switch??
>>
>>
>>I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.
>>
>>
>>Thanks
>>
>>
>>Steve
>>
>>

45003. msg test & inquiry

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 21:13:49 UTC
From: Joseph Stiles
Topic: 45003 Message: 45003

Greeting Group

  Your caring Group Co-owner here...have any of the members here, had messages returned in the recent past and, up to now, by the yahoo "MAILER-DAEMON"
as undeliverable to the "TS-520_.....830@yahoogroups.com?" I tried the other day and twice since, to answer member "yiotta_99" regarding
the "cb hack" he found in a newly acquired rig...the msg came back...maybe "yahoo" is peed-off and messing with us(me). I have sent
several messages to other well known members here...and they have disappeared..or came back as "undeliverable" to this group. Nothing
has changed as far as any setting...etc...my regular email...etc. ...is ok.

  Some members here(very few actually) are on "moderate," which means that either me-wb7uqu, Gordon -n6wk, Mike-w5rkl or, the other group "demi-gods" must "approve" the message/content before it is posted here which, depending on the time of day or, day of the week, maybe delayed. I know that the "powers that be" strive to review new member requests, review "moderated" messages...and take care of this groups business.

  So...I may be QRT, until I can get an answer from "yahoo" about what's going on. So far, "they" have not seen fit to respond to my inquiry.

  Let's see IF this msg gets posted.............

73 Joe
WB7UQU
Group Co-owner

45004. Re: [TS-520_820_530_830] msg test & inquiry

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 21:31:34 UTC
From: Mike
Topic: 45003 Message: 45004

Joe,

I have seen messages, some of mine, have taken quite a while to get posted. This doesn't happen all the times but it does happen. This has occurred not only after Yahoo made the change but it also has occurred before they made the change. I have even seen messages that appear to get "lost" in the "bit bucket" then after a few days, even as long as a week, suddenly appear.

I can't say with any certainty what is causing this, only Yahoo knows. Don't expect a quick response from Yahoo, they are slow to respond. Yahoo took a couple of weeks to respond to my comments about their bad choice for change.

73
Mike W5RKL

On 10/1/2013 4:13 PM, Joseph Stiles wrote:
> Greeting Group
>
> Your caring Group Co-owner here...have any of the members here, had
> messages returned in the recent past and, up to now, by the yahoo
> "MAILER-DAEMON"
> as undeliverable to the "TS-520_.....830@yahoogroups.com?" I tried
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> has changed as far as any setting...etc...my regular email...etc.
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> here which, depending on the time of day or, day of the week, maybe
> delayed. I know that the "powers that be" strive to review new member
> requests, review "moderated" messages...and take care of this groups
> business.
>
> So...I may be QRT, until I can get an answer from "yahoo" about
> what's going on. So far, "they" have not seen fit to respond to my
> inquiry.
>
> Let's see IF this msg gets posted.............
> 73 Joe

> WB7UQU
> Group Co-owner
>

45005. RE: Re: [TS-520_820_530_830] TS-520 Air Flow?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 21:40:00 UTC
From: <wagstw46@...>
Topic: 44969 Message: 45005

Ok my Apache did not have a fan and many other 6146 rigs of that era did not.

Point I was trying to make is no reason to remove the KW fan and adapt any other higher volume fan to it as was reported to this forum. Running hot is a very subjective thing. Keeping the Kenwood fan clean, lubed and the cabinet vent holes unobstructed is all you need for Hybrid to perform at its design ratings for the design modes.

Just my opinion based on personal experience and seeing TS520 rigs with original Matsushita tubes and no signs of overheating in the PA cage.

If people want to mod the rig with higher volume fans it surely wont hurt anything other than perhaps cause dust build up on all parts in PA cage to accumulate at much faster rate. I have seen rigs with greasy dust thickly deposited on the tube glass envelopes that surely was impeding the heat transfer from glass to air.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Initially the Heathkit Apache TX-1 did not have a final cage fan. Heath added that later on but the fan was small. The final amplifier, a pair of 6146As, ran much hotter, AM mode, than the KW hybrids. The small fan Heath used ran from a small 120VAC phonograph type motor. The motor in my Apache was bad, turned at less than half speed. I trashed the fan assembly and installed a larger 120VAC muffin fan. I had the fan blow air into the final cage. This arrangement did not produce an excessive amount of duty collection on the fan blade, fan shroud, or the final tubes and components. Cleaning the fan and final amplifier was easy, canned air removed any dust collected on the fan and final tubes and components.

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73
Mike W5RKL

On 10/1/2013 1:03 PM, wagstw46@... wrote:

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In those old boatanchors there was a lot of open space around the 6146 finals. In the transceivers to follow a small PA cage was the norm. One of first thing most of us did was to sit a muffin or whisper fan on top the PA cage and pull air from that PA cage. All kinds of tricks to slow them down and rubber mount them to quiet them down. We did this without any evidence that the fans were needed or would increase the life of the finals. No empirical data was compiled. Just seemed like needed a fan and a fan couldnt hurt. I did on my Heath transceivers.

However never gave it a thought to put a cooling fan on the Apache or Viking.

Kenwood gave us a nice slow quiet fan and it is more than adequate to ensure we dont exceed the 6146 tube envelop temperatures and ensure long life if we load and operate the radio properly for each mode we run.

Mike give very good advice. Keep fan cleaned and lubed and as he says do not stack other gear on or around the rig in an enclosed mounting position.

I cannot ever envision a time I would need to increase the cooling capacity of the factory fan. I get rigs on the bench often that have the original S2001A finals and no after market air mover installed.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On all of the Kenwood hybrids I've owned, the cooling fan functions as
an exhaust fan pulling air through the vents and final cage, and
exhausting the air from the rear of the fan housing, including the 520S,
820S, and 830S I still own.

73
Don W9CW

On 10/1/2013 9:17 AM, Mike wrote:
> The fan in any of the KW hybrids is not designed to provide a high
> volume of air into the final amplifier. The fan is designed to move air.
> Final amplifier heat radiates into the surrounding area in the final
> cage and the fan simply pulls air into the final enclosure and push
> heated air out of the vents. There is no added benefit by replacing the
> factory KW hybrid fan with a fan that produces a higher volume of air
> flow. The important thing is to keep the air flow moving, the fan
> blades, and fan shroud clean of dust. In addition, keep the final tube's
> clean of dust collection. Dust collected on the final tubes acts as a
> "blanket", trapping heated air against the final tubes. Dust collection
> on the fan blades and fan shroud reduces the effectiveness of the fan.
>
> Keep the vents on the side and top of the KW hybrid open, do not stack
> equipment on top or along the sides of the KW hybrid. I've seen a lot of
> ham shack pictures showing KW hybrid transceivers with ham gear stacked
> on top and close along the sides. I often wonder how long that
> transceiver will continue to operate before the final tubes overheat?
> While this may appear to "look neat", it's NOT! If this is how your ham
> shack is then it won't be long before the KW hybrid final tubes overheat

> and fail and it will not be caused by failure of the final tubes but
> because if the equipment "blocking" the vent holes resulting in
> significant reduction in air flow.
>
> Ask yourself, would you allow air flow through your cars radiator to be
> blocked? If so how long would it take before your car's motor overheats?
> The same applies to your KW hybrid so don't be foolish by stacking gear
> on top and close along the sides of your KW hybrid. Also, don't build a
> shelving unit then place your KW hybrid in the shelf space that blocks
> air flow, your KW hybrid won't like that.
>
> 73
> Mike W5RKL

45006. Re: msg test & inquiry

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 23:43:43 UTC
From: M. J. Synowiec
Topic: 45003 Message: 45006

Hi Joe, Mike & all,

Joe, Yours is not an isolated case I have had the same happen and in addition I've had an entire 2 to 3 days messages from a number of groups show up as new after they had been read & deleted from email. This NEO thing stinks big-time but I doubt Yahoo will ever admit responsibility, or their mistake in rolling-out NEO in this half(?)-ready condition. If past performance is any guide anyway.

Well... enough grousing. Back to the program already in progress.

Vy 73,
mjsyn(Mike)
K8SYN

45007. RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 23:57:08 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45007

PHA+SGkgUm9uOjwvcD48cD48YnI+PC9wPjxwIHN0eWxlPSJjb2xvcjpyZ2IoMCwgMCwgMCk7Zm9udC1zaXplOjEzLj
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emU6MTMuMzMzMzMzMDE1NDQxODk1cHg7Zm9udC1mYW1pbHk6YXJpY(Message over 64 KB, truncated)

45008. General Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-02 00:06:04 UTC
From: <ve2ud@...>
Topic: 45008 Message: 45008

Retrying this again as he did not get posted

Bob
The rig is a ts830.
They soldered a two wire shielded cable from the bottom of the PLL board [conn 5 and routed it out to the back of the rig to a rca phono plug.
Conn 5 on the PLL board is for VFO input
I would like to know what they had in mind when they installed this plug.

73
Don/Ve2ud

45009. Re: [TS-520_820_530_830] General Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-02 00:36:47 UTC
From: Bob Lazarow
Topic: 45008 Message: 45009

Don: Actually, it did get posted a few hours ago. I am researching into your question, but have found nothing as of yet. Please check this group's archieves, and I will respond if/when I found out something. Good luck with this..I also have an 830s

TO GROUP: I have been seeing several messages that owner stated were never posted...but they were

73

Bob /WA2JAJ

On 10/1/2013 8:06 PM, ve2ud@... wrote:
>
> Retrying this again as he did not get posted
>
>
> Bob
> The rig is a ts830.
> They soldered a two wire shielded cable from the bottom of the PLL
> board [conn 5 and routed it out to the back of the rig to a rca phono
> plug.
> Conn 5 on the PLL board is for VFO input
> I would like to know what they had in mind when they installed this plug.
>
> 73
> Don/Ve2ud
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2014.0.4142 / Virus Database: 3604/6706 - Release Date: 09/28/13
>

45010. TS-830S L41 Coil rewinding

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-02 05:25:16 UTC
From: <n6wk@...>
Topic: 45010 Message: 45010

I am now rewinding the L-41 Coils. I charge $20.00 each.. EXCHANGE. Meaning, I charge $20.00 for the rewound coil plus your old Coil in exchange.
I presently have two coils available that are rewound and tested.
I will NOT sell a coil without an exchange one in return.
If interested, contact me OFF-list at N6WK at N6WK.COM

45011. RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 02:14:28 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45011

No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?

My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.

All this is just speculation until we know what he is using.

After he gets rig to load properly into 50 ohm dummy load we can all jump in and help resolve the antenna and tuner issues that may exist.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

5 : 1 SWR ?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can

match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

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--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

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I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM
Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?

Thanks,
Brian (and Jason)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com

Sent: Saturday, September 14, 2013 1:18 PM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues

You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.

The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.

It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.

At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.

OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.

When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you wc ?Oz?□? □??ty

45012. RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 02:56:39 UTC
From: <jason.bogstie@...>
Topic: 44440 Message: 45012

I am still working on testing those items you pointed out, Terry. I am trying to get a hold of a voltmeter to see what those values are.

As far as my antenna goes, it's a 40 meter center-fed dipole, each leg is cut at 32 feet. The dipole has a center insulator with a line isolator attached. The isolator is what ended my 'RF in the shack' issues. The dipole is mounted in an inverted V formation, with the center insulator hoisted up on a PVC pipe, 17 feet into the air (about as high as I can get it on my property). both ends of the V are mounted about 5 feet off the ground, the angle is greater than 90 degrees. The feedline is 25 feet of RG-213U coming off of my roof and into my house and connecting to my AT-230.

After adding the line isolator, the SWR is 5:1 at 7.200mhz,

My rig is also now grounded, electrically, to my house's electrical grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is also grounded, with a strap connecting the tuner directly to my TS520. The tuner is connected to the 520 and the 520 is connected to the ground rod.

My house is surrounded, basically, by the power company's high voltage wires. The furthest away I could get the dipole from these HV wires is about 15 feet, maybe. I can't get any further away from the power company's lines than that. I haven't heard any noise on the 520 from those power lines, but I don't know if they might be an issue as well.

I just wanted to get that thrown out there for you to chew on, while I get a voltmeter to test the rig.

The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz (40 meters), I get an electrical arcing noise from the 520. I also noticed that if I calibrate the tuner for too long, to check my antenna's SWR, it will blow the fuse in the TS520. Maybe that's normal, but I am not sure so I thought I would mention it.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?

My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.

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Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

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Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM

Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?

Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?

Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.

There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.

As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.

If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.

One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.

Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.

I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry:

Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.

This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.

Questions: This still leaves Jason's TS-520's issue with load. Even though I wa1?,j□?????m???jם

45013. RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 11:15:25 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45013

First thing. It is ok to place a 1:1 choke in line at the center insulator but can tell you hams ran resonant dipoles for many many years with the coax directly feeding each leg of the dipole and never knew there was any current on outside of the shield and never caused any RF problems in the shack. At this point dont worry about that.

467/7.2mhz = 64 foot 10 inches or 32 foot 5 inches each leg.

Your 64 foot = 467/64 = 7.297mhz. Your antenna is too short for 7.2 mhz assuming that is where you want it to be resonant at. You can easily add about 6 inches to each end and just let it hang done at the end insulator eye. No need to remove and add wire at this point.

Was 7.200 your objective? Center of phone band? Center of the allocation? If you insist on using Tuner and having 1:1 across the band then just cut it for 7.150mhz.

You can easily determine whether you need to add or remove wire by loading into it on either side of where you now have this "low or best" SWR of 5:1 and see which direction causes lower SWR. .

If the SWR gets lower as you move up in frequency you know antenna is too short and you need to add wire to each leg. If SWR gets better as you move down in frequency then you know antenna is too long and you need to remove wire on each leg.

Make sure you check my math.

Using a 40 meter antenna on 80 meters is not going to be very efficient.

Should never get an electrical arcing noise in PA cage when loading a 40 meter dipole on 40 meters. Most common reason for arcing is Plate load cap arcing over but you almost need to have an open at the SO-239 to get high enough RF voltage.

Just remove this Tuner and use the RF detector position and load your radio exactly as the manual says to do. Move up to 7.297mhz and load there. After you get the initial dip in Tune mode then go to CW mode and put meter in RF and load by alternately adjusting the Plate Load and Tune controls for maximum relative power indication on your meter. Place meter switch back to Ip and make sure not exceeding approx 200 ma. The rig is loaded.

If you cannot load this radio without a Tuner into a dummy load on 40 meters or into a 40 meter dipole there is no point in adding a Tuner into the equation. If rig arcs over loading into dummy load and or antenna check your coax jumpers. May have a bad jumper. Takes a very high VSWR to produce very high RF voltage across the Plate Load cap. Highest would be if you have an open. If you have an open the rig will try to load into it and not easy for you to recognize that by looking at RF or IP meter position unless you have experience.

When you can load normally on all bands into the dummy load and into the 40 meter dipole on 40 meters then time to see if you have a good Tuner.

Terry K9TW

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---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am still working on testing those items you pointed out, Terry. I am trying to get a hold of a voltmeter to see what those values are.

As far as my antenna goes, it's a 40 meter center-fed dipole, each leg is cut at 32 feet. The dipole has a center insulator with a line isolator attached. The isolator is what ended my 'RF in the shack' issues. The dipole is mounted in an inverted V formation, with the center insulator hoisted up on a PVC pipe, 17 feet into the air (about as high as I can get it on my property). both ends of the V are mounted about 5 feet off the ground, the angle is greater than 90 degrees. The feedline is 25 feet of RG-213U coming off of my roof and into my house and connecting to my AT-230.

After adding the line isolator, the SWR is 5:1 at 7.200mhz,

My rig is also now grounded, electrically, to my house's electrical grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is also grounded, with a strap connecting the tuner directly to my TS520. The tuner is connected to the 520 and the 520 is connected to the ground rod.

My house is surrounded, basically, by the power company's high voltage wires. The furthest away I could get the dipole from these HV wires is about 15 feet, maybe. I can't get any further away from the power company's lines than that. I haven't heard any noise on the 520 from those power lines, but I don't know if they might be an issue as well.

I just wanted to get that thrown out there for you to chew on, while I get a voltmeter to test the rig.

The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz (40 meters), I get an electrical arcing noise from the 520. I also noticed that if I calibrate the tuner for too long, to check my antenna's SWR, it will blow the fuse in the TS520. Maybe that's normal, but I am not sure so I thought I would mention it.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?

My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.

All this is just speculation until we know what he is using.

After he gets rig to load properly into 50 ohm dummy load we can all jump in and help resolve the antenna and tuner issues that may exist.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

5 : 1 SWR ?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.

I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different than a TS-830 then answer is no difference other than limiting the plate current to 200ma.

Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.

Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.

I typically do not teach new folks to load in CW.

However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.

When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power

position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.

Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.

WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.

After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey, Terry:

I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.

Thanks

Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:

Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.

-Jason, K7BOG

--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:

Terry:

Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.

Brian (K7TKT)

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, September 14, 2013 6:07 PM

Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues

Brian:

No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.

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There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Pc ?Oz?□? □??ty

45014. RF Probe

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 11:20:41 UTC
From: Don Allen
Topic: 44969 Message: 45014

For those you may need a RF probe, Hendricks QRP Kits offers the "N2CX Accuprobe Plus" kit for $40. Apparently, this is a redesign of an earlier RF probe that Joe Everhart N2CX designed for the NORTEX QRP club. From the specs listed on the website, it appears that it would be excellent for use with the Kenwood hybrids.

http://www.qrpkits.com/accuprobe.html

I noted this in the "Kit-Building" column of the October 2013 issue of CQ that arrived yesterday.

73
Don W9CW

45015. RE: RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 11:54:29 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45015

PHA+SSBmb3Jnb3QgJm5ic3A7dG8gbWVudGlvbiB0aGF0IGF0IHRoZSBsZW5ndGggeW91IGhhdmUgY3V0IHlvdXIgND
AgbWV0ZXIgZGlwb2xlIHlvdSBUdW5lciBzaG91bGQgYmUgYWJsZSB0byBwcmVzZW50IGEgMToxIFNXUiB0byB5b3Vy
IDUyMCBhY3Jvc3MgdGhlIGVudGlyZSA0MCBtZXRlciBiYW5kLiBJdCBpcyBhcHBhcmVudGx5IGJyb2tlbiBhbmQgbm
90IGFibGUgdG8gdGhhdCBvciB5b3UgZG8gbm90IGtub3cgaG93IHRvIHVzZSXIgaXQuIEF0IHNvbWUgcG9zdCBJIHNl
ZW0gdG8gcmVjYWxsIHlvdSBtZW50aW9uZWQgYSBUb3JvaWQuIEhhdmUgeW91IGFkZGVkIGEgNDoxIGJhbHVuIGV4dG
VybmFsIHRvIHlvdXIgVHVuZXI/Jm5ic3A7PC9wPjxwPjxicj48L3A+PHAgc3R5bGU9ImNvbG9yOnJnYigwLCAwLCAw
KTtmb250LXNpemU6MTMuMzMzMzMzMDE1NDQxODk1cHg7Zm9udC1mYW1pbHk6YXJpYWwsIGhlbHZldGljYSwgY2xlYW
4sIHNhbnMtc2VyaWY7YmFja2dyb3VuZC1jb2xvcjp0cmFuc3BhcmVudDtmb250LXN0eWxlOm5vcm1hbDsiPjEuIFNv
IGFnYWluIG15IHJlY29tbWVuZGF0aW9uIGlzIHRvIHJlbW92ZSB0aGUgVHVuZXIgb3IgcGxhY2UgaXQgaW4gQnlwYX
NzIGFuZCBmaXJzdCBsb2FkIGludG8gZHVtbXkgbG9hZCB0byBwcm92ZSB5b3UgaGF2ZSBnb29kIDUyMCBhbmQgZ29v
ZCBjb2F4IGp1bXBlcnMgdG8geW91ciBkdW1teSBsb2FkLiZuYnNwOzwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsID
AsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtmb250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBj
bGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+PG
JyPjwvcD48cCBzdHlsZT0iY29sb3I6cmdiKDAsIDAsIDApO2ZvbnQtc2l6ZToxMy4zMzMzMzMwMTU0NDE4OTVweDtm
b250LWZhbWlseTphcmlhbCwgaGVsdmV0aWNhLCBjbGVhbiwgc2Fucy1zZXJpZjtiYWNrZ3JvdW5kLWNvbG9yOnRyYW
5zcGFyZW50O2ZvbnQtc3R5bGU6bm9ybWFsOyI+Mi4gVGhlbiBsb2FkIGludG8gdGhlIDQwIG1ldGVyIGFudGVubmEg
YXJvdW5kIDcuMjk1IHdoaWNoIGlzIHdoZXJlIGl0IGFwcGVhcnMgaXQgc2hvdWxkIGJlIGNsb3NlIHRvIHJlc29hbm
FuY2UuJm5ic3A7PC9wPjxwIHN0eWxlPSJjb2xvcjpyZ2IoMCwgMCwgMCk7Zm9udC1zaXplOjEzLjMzMzMzMzAxNTQ0
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9sb3I6dHJhbnNwYXJlbnQ7Zm9udC1zdHlsZTpub3JtYWw7Ij48YnI+PC9wPjxwIHN0eWxlPSJjb2xvcjpyZ2IoMCwg
MCwgMCk7Zm9udC1zaXplOjEzLjMzMzMzMzAxNTQ0MTg5NXB4O2ZvbnQtZmFtaWx5OmFyaWFsLCBoZWx2ZXRpY2EsIG
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0yMTMyODM3MTc0eWdycHMteWl2LTEyMjY3MzY3N(Message over 64 KB, truncated)

45016. Re: [TS-520_820_530_830] RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 12:11:02 UTC
From: Bob Lazarow
Topic: 44440 Message: 45016

On a very basic level, what about the coax and connectors? Is this a store assembled set-up, or home made? What type of coax is it? Have you tested for coax assembly shorts or continuity?

I ask because in your discussion below I didn't see any discussion, unless it was in an earlier post that I missed. And Terry is 100% spot on (he usually is) :forget about the antenna until every thing works properly into a known good dummy load straight from the rig. There are too many variables now.

Good luck

Bob/WA2JAJ

On 10/2/2013 10:56 PM, jason.bogstie@... wrote:
>
> I am still working on testing those items you pointed out, Terry. I am
> trying to get a hold of a voltmeter to see what those values are.
>
>
> As far as my antenna goes, it's a 40 meter center-fed dipole, each leg
> is cut at 32 feet. The dipole has a center insulator with a line
> isolator attached. The isolator is what ended my 'RF in the shack'
> issues. The dipole is mounted in an inverted V formation, with the
> center insulator hoisted up on a PVC pipe, 17 feet into the air (about
> as high as I can get it on my property). both ends of the V are
> mounted about 5 feet off the ground, the angle is greater than 90
> degrees. The feedline is 25 feet of RG-213U coming off of my roof and
> into my house and connecting to my AT-230.
>
>
> After adding the line isolator, the SWR is 5:1 at 7.200mhz,
>
>
> My rig is also now grounded, electrically, to my house's electrical
> grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is
> also grounded, with a strap connecting the tuner directly to my TS520.
> The tuner is connected to the 520 and the 520 is connected to the
> ground rod.
>
>
> My house is surrounded, basically, by the power company's high voltage
> wires. The furthest away I could get the dipole from these HV wires is
> about 15 feet, maybe. I can't get any further away from the power
> company's lines than that. I haven't heard any noise on the 520 from
> those power lines, but I don't know if they might be an issue as well.

>
>
> I just wanted to get that thrown out there for you to chew on, while I
> get a voltmeter to test the rig.
>
>
> The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it
> tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz
> (40 meters), I get an electrical arcing noise from the 520. I also
> noticed that if I calibrate the tuner for too long, to check my
> antenna's SWR, it will blow the fuse in the TS520. Maybe that's
> normal, but I am not sure so I thought I would mention it.
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> No reason to worry about 5:1 swr until we know what kind of antenna
> configuration and what freq he is trying to load it on. May be
> perfectly understandable. Ever see the SWR loading a typical G5RV on
> 15 or 17 meters?
>
>
> My guess is with all the RF in the shack may be using end fed antenna?
> May be using an OCF dipole but I have used them and no problems with
> RF in shack but I feed with 4:1 current balun at the offset feed point.
>
>
> All this is just speculation until we know what he is using.
>
>
> After he gets rig to load properly into 50 ohm dummy load we can all
> jump in and help resolve the antenna and tuner issues that may exist.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> 5 : 1 SWR ?
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Your very first goal is to be able to load the rig into a dummy load

> on all bands. Worry about using a tuner to load into a multi-band
> antenna after you are certain you can load "normally" in to the dummy
> load.
>
>
> If you can load the rig successfully into dummy load with the tuner in
> the Bypass Mode (just using the tuner for the wattmeter/SWR meter
> function) then nothing is wrong with your Pi-Network in the rig unless
> you are at extreme ends of the Plate Load cap or the Plate Tune cap
> position doesnt align relatively close to the white panel marking for
> the band you are loading on.
>
>
> If you end up having the Plate Load or Plate tune caps at odd
> positions to attain your 80 to 100 watts into the dummy load you may
> have bad fixed padder caps.
>
>
> What would be "normal" is approx 90 to 100 watts into 50 ohm dummy
> load on all bands with exception of 10 meters (80 watts) at approx
> 200ma plate current and you should see very close to 1:1 SWR into your
> dummy load.
>
>
> If you can do this then time to discuss the antenna and the tuner issues.
>
>
> Again, your first effort should be to make sure the rig can load
> normally into a dummy load. This proves your dummy load is good, your
> interconnecting coax jumpers are good, and the rig is good.
>
>
> If you cannot do this then no reason to attempt to use the tuner to
> load in to a multi-band antenna of any type.
>
>
> The tuner is taking the impedance that the antenna presents at the end
> of whatever kind of feed line you are using and converting it to an
> impedance that your rigs Pi-network can match. A multiband antenna can
> present a wide range of impedances (combination of resistance and
> reactive) to your rig. The rig cannot match very high impedances (
> thousands of ohms) that a multiband antenna can present. If you have
> very high impedance at the end of the feed line in the shack then RF
> can be a problem in the shack. End fed can present several thousand
> ohms which means very high RF voltage at the input to the tuner.
> Sometimes need to install counter poise to resolve this situation.
>
>
> Describe again what the antenna configuration is. Is this a OCF dipole
> or a 135 foot flat top fed with 300 ohm ladder line or open wire

> feeders or a random length end fed ??
>
>
> It could be that the Tuner has an issue?
>
>
> So tell us first if you can load rig normally into the dummy load? If
> so, then describe the complete antenna configuration.
>
>
> Having resting plate current changing has nothing to do with your
> antenna or your tuner. You can unscrew your coax connector off back of
> rig and set resting plate current. Fix that first.
>
>
> Terry
> K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Installing an 'ugly balun' and getting rid of that stray RF really
> helped, but it still seems there is something mechanically wrong with
> the 520. I think that not being able to tune it properly is hurting my
> AT-230's ability to successfully tune my antenna. I noticed that on 10
> and 15 the tuner works fine, but when I get to 20 or 40 it won't match
> at all. I also still need to ground the radio itself, I have the rig
> plugged into a standard wall outlet, but in my house, the wall outlets
> are not grounded (older home), maybe it'll help a little to get the
> rig properly grounded.
>
>
> I wish I had the cash to have a professional look at it and realign
> everything for me. Either way, I'll work on testing those issues that
> were mentioned by Terry and see where that takes me.
>
>
> Jason, K7BOG
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Sounds like an antenna issue caused the radio problems.
>
> *From:* "jason.bogstie@..." <jason.bogstie@...>
> *To:* TS-520_820_530_830@yahoogroups.com

> *Sent:* Monday, September 30, 2013 12:47 AM
> *Subject:* [TS-520_820_530_830] RE: New Ham, Tuning issues
>
> Hey Terry and everyone:
>
> Sorry this took me so long, I was waiting on parts for my antenna and
> my AT-230 to arrive in the mail.
>
> I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter
> and SWR meter. This is what I observed.
>
> 80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
> 40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
> 20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
> 15 meters: CAR value: 2.75, 210 ma, 80 watts
> 10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.
>
> I tuned into the center of the band, for voice, on each band.
>
> I noticed that in general, when I keyed the 520 up, the needle for ma
> would sit at about 240 or 250 ma and then slowly drop off to 210ma on
> average. I also noticed I had to readjust the bias control for 60ma
> when I began this whole thing. It was correct the other day, but
> changed for some reason.
>
> I got all of the stray RF in my shack under control and I checked my
> antenna and got it to about 5:1 SWR with a nice torroid on it to choke
> the stray RF. I got a 59 signal report from SW Washington (I am in SW
> Idaho). I noticed that my tuner won't match the antenna at all on 40
> meters or 20 meters, but will match on 15 and 10. I don't know if that
> is because of an issue with the radio, or the tuner itself, but it was
> an observation. I get a better SWR on 40 when I am using my antenna
> without the tuner. In fact, the ham in Washington couldn't hear me at
> all when I was passing through the tuner, but gave me the 59 without
> the tuner.
>
> I opened the radio and visually inspected the components you, Terry,
> suggested. Nothing looks burned, the coils are still shiny and bright
> and none of the caps looked like they popped, everything, visually,
> looks clean.
>
> What should I do now?
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> When I said that I was "exactly sure" I meant to type that I was "NOT
> EXACTLY" sure what you were asking. Should have waited for your
> response.. Sorry!
>

> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> OK sorry for the confusion. I am clearly
> confused on who I am taking to at this point
> and what the problem is. I dont think we
> discussed yet how to measure/test the fixed
> padder caps in any rig. I think we last left
> off with asking you to load test your rig on
> each band and not just 40 and 20 meters and
> reporting back the results?
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I was referring to checking and replacing the
> padder caps and the other items you described
> the other day. Brain was helping me tune my
> TS-520 and the discussion was about
> complications with that. You mentioned in a
> couple of previous posts that you were talking
> about a TS-830. I was concerned there was some
> confusion about what model of Kenwood was
> experiencing the issues described in this
> thread. If they all work the same, I'll get
> those padder caps tested and look at the other
> items referred to in your previous post.
>
> I hope that's not more confusing, hehe. Brian
> knows better than I do and was able to explain
> the problems better than I could.
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I am exactly sure what you are asking. If you
> are asking about how to load a TS520 that has
> no Tune Ip indication to get that initial
> plate current dip and is it different than a
> TS-830 then answer is no difference other than
> limiting the plate current to 200ma.
>
> Some people with lots of experience load in CW

> mode. Some do this as they have a good
> understanding of what is going on and the
> pre-cautions using this method.
>
> Others do it because the Tune position of
> their rig quit years ago and too lazy to fix
> it or dont know how to fix it.
>
> I typically do not teach new folks to load in CW.
>
> However if your rigs Tune position is out and
> you cannot get that initial plate current dip
> then you can do it by reducing the Car Level
> pot to minimum and with meter in Ip position
> Flip to Send and slowly bring the Car Level up
> to something under 100ma. Have to be careful
> because Ip can jump very high pretty quickly
> with very little more opening of the pot.
>
> When you get say around 80ma to 100ma then
> adjust the plate Tune capacitor for a dip or
> minimum in plate current and then unkey the
> rig. Now ready to use the RF relative power
> position of the panel meter or your external
> wattmeter to start coupling load. Flip to
> Send and alternately adjust Plate Load and
> Plate Tune controls for max relative power on
> your RF meter position or approx 100 watts
> output on your wattmeter. Unkey the rig.
>
> Watching the Ip meter flip to send again and
> if you are reasonably close to 200ma Ip you
> are done and ready to operate CW or SSB.
>
> WIth a good Tune position I recommend you
> follow the instructions in your TS520 manual.
> Only confusing step is peaking the Drive which
> says to adjust for maximum meter deflection
> and everyone and I mean everyone asks "what
> maximum"? The ALC black box maximum or the
> meter full scale maximum. As I think I told
> you black box is meaningless at this step but
> OK to just peak Drive control at max range on it.
>
> After you get that initial plate current dip
> in Tune mode then all the Kenwood instruction
> manuals direct you to load by alternately
> adjusting :Load and Tune controls for max RF
> relative power. If you have an external
> wattmeter leave meter in Ip and load for

> approx 100 watts out without exceeding 200ma.
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Hey, Terry:
>
> I noticed you mentioned these steps for a
> TS-830. I am running a TS-520, does that
> change any of the above things you suggested?
> There might have been some confusion earlier
> about what model of Kenwood was having issues.
>
> Thanks
>
> Jason, K7BOG
>
>
> --- In ts-520_820_530_830@yahoogroups.com,
> <jason.bogstie@...> wrote:
>
> Yes, Thank you for the input Terry. I'll
> coordinate with Brian and see what can be
> done! I got the parts for my dummy load, I
> plan to put it all together on Monday, so
> maybe I can try to tune my 520 on all bands
> and see what happens, then I can have some
> more data for Brian and I.
>
> -Jason, K7BOG
>
>
> --- In
> ts-520_820_530_830@yahoogroups.com,
> <brian_forney@...> wrote:
>
> Terry:
>
> Thanks for the insight and
> next steps. I'm very
> careful around the HV caps
> and always make extra sure
> everything is discharged
> before poking around in
> there. I'll coordinate
> performing these steps

> with Jason and report
> back. If should be
> educational to take a look
> around inside.
>
> Brian (K7TKT)
>
> *From:* "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com
>
> *Sent:* Saturday,
> September 14, 2013 6:07 PM
> *Subject:* RE: Re:
> [TS-520_820_530_830] New
> Ham, Tuning issues
>
> Brian:
>
> No problem with using a
> Key to load the rig. Just
> not necessary when bench
> testing a rig. The 830
> manual contributes to this
> when early on they tell
> you to connect dummy load
> or antenna and connect a
> Key and then flip to Send
> and check resting plate
> current. However they fail
> to tell you to press the
> Key or close the slider if
> a straight Key. Later
> under Transmission section
> under CW header they tell
> you again to install a
> Key. Poorly written.
>
> When you turn the Plate
> Load cap control CW off
> the full CCW position and
> you see the RF output
> power on the wattmeter go
> down do you then
> immediately adjust the
> Plate Tune capacitor to
> try to bring the RF output
> power back up?
>

> Anytime the Load cap is
> moved open or closed you
> need to make a slight
> adjustment with the Tune
> capacitor to restore the
> tank to resonance. What
> happens when you do this?
>
> Typically once the
> reactance of the Plate
> Load capacitor is close to
> the impedance of the load
> (antenna or dummy load)
> opening the plates (CW)
> any more usually does not
> result in anymore RF
> output on the wattmeter.
> You reach a point where
> opening the plates more
> does not result in
> coupling any more load.
> The final tubes just
> cannot supply any more RF
> Line current to the Tank.
>
> There is no doubt that
> loading on 40 meters into
> a 50 ohm dummy load you
> should not be at maximum
> RF output with the Plate
> Load cap full CCW (plates
> fully meshed). As you
> suggest it is not
> "normal". You know that
> from your own TS-830.
>
> As I mentioned this is
> indicative of bad fixed
> padder caps that are
> switched in on the lower
> bands. The reason that
> this is necessary is if
> they installed an air
> variable capacitor that
> had the necessary high
> level of capacitance on
> the lower bands it would
> then have a minimum
> capacitance with the
> plates completely open

> that would be far too high
> to function on higher
> bands. 10 meters is the
> biggest challenge for the
> designers. Same for the
> Plate Tune capacitor.
>
> If you get time it would
> be good to see if it loads
> normal on 15 and 10
> meters. I would try
> loading on all the bands
> and make a chart of how it
> behaves. Where does the
> plate Load cap end up for
> approx 100 watts output at
> 200ma Ip.
>
> One other thing you should
> look at if comfortable is
> the main RF plate choke
> and the small VHF choke at
> a right angle at its base
> and the rf bypass cap at
> its base. If these show
> signs of overheating then
> will need to be replaced.
> The by pass cap can
> actually physically split
> the case open.
>
> Need to have rig unplugged
> and let set for awhile to
> led bleeders discharge the
> HV filter caps. Then
> remove PA cage cover. Then
> connect ground jumper from
> top of plate choke and
> ground for a few seconds.
> Now safe to use a good
> flashlite and inspect
> these items.
>
> I would also look at both
> capacitor shaft couplers
> at the PA cage and make
> sure screws are tight. Can
> also watch the travel and
> make sure full open and
> full close align with

> markings on the front panel.
>
> Terry K9TW
>
>
> --- In
> TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com>
> wrote:
>
> Hi Terry:
>
> Ah ha. I am a CW op
> so I always have had a
> key plugged in (but no
> mic). Anyway, with a
> key plugged in you
> don't get any output
> with the alternate
> procedure without
> closing the key for
> obvious reasons. I've
> been so used to how
> the radio responded
> when I switched over
> from tune to CW with a
> key connected that I
> ended up thinking the
> key was necessary. My
> bad. For me the long
> procedure from the
> manual works fine
> since I always have
> the key connected and
> normally have the
> radio in VOX mode (to
> save wear on the send
> switch) but I have a
> better understanding
> now. Thank you. I
> will also study the
> diagram to try to
> better understand the
> relationship between
> the load capacitor and
> antenna load.
>
> This will also help
> Jason since I took him
> through the long

> procedure from the
> manual that uses a
> key. He can just
> unplug his keyer and
> will be able to move
> from tuning to loading
> once he has the drive
> and plate a resonance
> (peaked and dipped)
> without all of the
> additional gyrations.
>
> Questions: This still
> leaves Jason's
> TS-520's issue with
> load. Even though I
> was using the long
> procedure with the
> key, I think the
> results are still
> accurate. He is
> getting a maximum
> output of 70w at 200ma
> with the load at min
> (fully CCW) and
> reducing the load
> capacitance
> (increasing the
> load/turning load CW)
> actually reduces his
> output. This isn't
> normal, right? I can
> simulate this on my
> TS-830 but it pains
> me. If I
> intentionally turn the
> load up too much,
> output falls off as I
> increase the load.
> So...I think in
> Jason's TS520 it is as
> if even at maximum
> capacitance (minimum
> load) he doesn't have
> enough to balance
> against the 50 ohm
> dummy load---resonance
> is off the minimum end
> of the load. Does
> that sound like a

> reasonable conclusion?
> Is the next step for
> us to try the tune up
> procedure on all bands
> and report back (your
> 10m suggestion from
> before) or is there
> something else that we
> should check first?
>
> Thanks,
> Brian (and Jason)
>
> *From:* "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com
>
> *Sent:* Saturday,
> September 14, 2013 1:18 PM
> *Subject:* RE: Re: Re:
> [TS-520_820_530_830]
> RE: New Ham, Tuning issues
>
> You dont need the key
> or vox or any of the
> gyrations you are
> putting your self thru
> to load your TS830.
>
> The reason Ip
> indicates approx 60ma
> when you switch from
> Tune to CW mode is
> that you have the
> plates meshed on the
> Plate load cap and you
> are shunting the RF
> current around the
> dummy load and
> circulating it in the
> Tank.
>
> It is OK to crack the
> Plate Load control
> open a little at
> initial loading so you
> can see 70 or 80 ma or
> so if that helps you.
>

> At this point with
> plates fully meshed
> you have maximum
> capacitance and lowest
> capacitive reactance
> so the RF current in
> the tank is going to
> like to flow thru the
> plate load cap and not
> thru the dummy load.
> Sometime look at
> formula for Xc and you
> will see it is an
> inverse relationship.
> It will help you
> understand what I am
> telling you.
>
> OK --You havent
> started tightening up
> the coupling yet and
> shifting the tank
> circuit RF circ
> current to the dummy
> load resistance. Each
> time you open the
> plates of the Load cap
> a little more you are
> decreasing the
> capacitance and
> increasing the
> capacitive reactance
> XC. This allows more
> current to flow in the
> dummy load resistor or
> the antenna.
>
> When you get to full
> load you will have
> opened the Plate Load
> capactor to the point
> that the XC is approx
> equal to the dummy
> load or antenna
> resistance. At this
> point you will have
> used half of the
> stored energy in the
> tank and there will be
> equal RF current

> flowing thru the Plate
> load capacitor and the
> dummy load resistor.
> At that point with 100
> watts output power
> there will be approx
> 1.4 RF amps flowing
> thru the Plate load
> cap and 1.4 RF amps
> flowing thru the 50
> ohm dummy load.
>
> This is all simple
> ohms law for parallel
> resistors, but not too
> many folks really
> understand what they
> are doing or how it
> works or have just
> never given it any
> serious thought.
>
> After you make that
> initial plate current
> dip in Tune mode you
> do not need to do any
> more dip and load
> procedure. Only reason
> you do this initial
> dip is to get the tank
> circuit adjusted close
> to resonance so when
> you go to CW mode and
> apply full screen grid
> voltage to the finals
> you dont peg the IP
> meter if the tank is
> tuned off resonance.
> This could damage your
> finals if left keyed
> too long at this high
> Ip level.
>
> Read the very last
> note in the TS-830
> loading procedure. It
> tells you after they
> have taught you dip
> and load you dont have
> to use it as it isnt

> best or easiest way to
> load a Class AB1
> linear amp!
>
> It directs you to
> place meter in RF
> position and Flip to
> Send and alternately
> adjust the plate Load
> and Tune controls for
> maximum indicated
> relative power (RF
> voltage).
>
> With your wattmeter in
> line leave your TS830
> meter in IP. Now after
> making that initial
> plate current dip in
> Tune mode flip to Send
> in CW mode and
> alternately adjust
> Plate Load and Plate
> tune controls for
> approx 100watts output.
>
> Your wattmeter will be
> far more sensitive to
> any changes you make
> than your IP meter.
> You will quickly be
> able to find the
> combination that gives
> you max rf output
> power. Take a quick
> look at IP and it
> should be close to
> 225ma. If a little
> over dont worry about
> it as 265ma is the
> real limit.
>
> Lastly, if you are
> having to increase the
> Car level at the late
> stage of tuning you
> are not setting it
> high enough in the
> early Drive control
> peaking step. There is

> no reason to have to
> do this. When you peak
> the Drive give
> yourself something to
> look at. If you peg
> the ALC meter just
> reduce the Car level
> pot to get it off the
> peg.
>
> Terry K9TW
>
>
>
>
>
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>
>
>
>
>
> No virus found in this message.
> Checked by AVG - www.avg.com <http://www.avg.com>
> Version: 2014.0.4142 / Virus Database: 3604/6706 - Release Date: 09/28/13
>

45017. Re: [TS-520_820_530_830] RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 12:28:27 UTC
From: Mike
Topic: 44440 Message: 45017

Jason,

Have you tried to trim your dipole ends a small amount at a time for the lowest SWR? When you trim the ends, don't cut the excess wire at the ends, simply shorten the ends by pulling the wire farther through the end insulators and folding the excess wire back along the ends a little at a time. Start with an inch or two on both ends, checking the SWR meter. Each time you trim the length of both side the antenna must be put back up to its intended height above ground before checking the SWR. You will notice the SWR becoming less as you trim, shorten the overall length of both ends by pulling the end wire through the end insulators and twist/wrap the excess end wire around and along itself at both ends. At some point during the trimming process you will find the SWR is the lowest it will be. When you achieve that level of SWR, stop trimming and put the antenna back up to its intended height above ground, you're done.

You said your antenna is cut to 32 feet long on each side. If you use the formula, 468 / freq in Mhz, the initial "Ball Park" end to end length of a dipole for 7.200Mhz is 65 feet (468 / 7.200 = 65). Each side will be approximately 32' 6" long(65 / 2 = 32.6). Once you have built the antenna so each side is approximately 32' 6" long, you now begin to "trim" the length of each side as I stated above.

If youuse coax feed line and want to use a balun, use a 1:1 balun, not a 4:1 balun.

The antenna itself must be kept as far away from surrounding objects as possible, especially metal fences, metal roofs, metal rain gutters etc.

73
Mike W5RKL

On 10/2/2013 9:56 PM, jason.bogstie@... wrote:
>
> I am still working on testing those items you pointed out, Terry. I am
> trying to get a hold of a voltmeter to see what those values are.
>
>
> As far as my antenna goes, it's a 40 meter center-fed dipole, each leg
> is cut at 32 feet. The dipole has a center insulator with a line
> isolator attached. The isolator is what ended my 'RF in the shack'
> issues. The dipole is mounted in an inverted V formation, with the
> center insulator hoisted up on a PVC pipe, 17 feet into the air (about
> as high as I can get it on my property). both ends of the V are
> mounted about 5 feet off the ground, the angle is greater than 90
> degrees. The feedline is 25 feet of RG-213U coming off of my roof and

> into my house and connecting to my AT-230.
>
>
> After adding the line isolator, the SWR is 5:1 at 7.200mhz,
>
>
> My rig is also now grounded, electrically, to my house's electrical
> grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is
> also grounded, with a strap connecting the tuner directly to my TS520.
> The tuner is connected to the 520 and the 520 is connected to the
> ground rod.
>
>
> My house is surrounded, basically, by the power company's high voltage
> wires. The furthest away I could get the dipole from these HV wires is
> about 15 feet, maybe. I can't get any further away from the power
> company's lines than that. I haven't heard any noise on the 520 from
> those power lines, but I don't know if they might be an issue as well.
>
>
> I just wanted to get that thrown out there for you to chew on, while I
> get a voltmeter to test the rig.
>
>
> The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it
> tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz
> (40 meters), I get an electrical arcing noise from the 520. I also
> noticed that if I calibrate the tuner for too long, to check my
> antenna's SWR, it will blow the fuse in the TS520. Maybe that's
> normal, but I am not sure so I thought I would mention it.
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> No reason to worry about 5:1 swr until we know what kind of antenna
> configuration and what freq he is trying to load it on. May be
> perfectly understandable. Ever see the SWR loading a typical G5RV on
> 15 or 17 meters?
>
>
> My guess is with all the RF in the shack may be using end fed antenna?
> May be using an OCF dipole but I have used them and no problems with
> RF in shack but I feed with 4:1 current balun at the offset feed point.
>
>
> All this is just speculation until we know what he is using.
>
>

> After he gets rig to load properly into 50 ohm dummy load we can all
> jump in and help resolve the antenna and tuner issues that may exist.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> 5 : 1 SWR ?
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Your very first goal is to be able to load the rig into a dummy load
> on all bands. Worry about using a tuner to load into a multi-band
> antenna after you are certain you can load "normally" in to the dummy
> load.
>
>
> If you can load the rig successfully into dummy load with the tuner in
> the Bypass Mode (just using the tuner for the wattmeter/SWR meter
> function) then nothing is wrong with your Pi-Network in the rig unless
> you are at extreme ends of the Plate Load cap or the Plate Tune cap
> position doesnt align relatively close to the white panel marking for
> the band you are loading on.
>
>
> If you end up having the Plate Load or Plate tune caps at odd
> positions to attain your 80 to 100 watts into the dummy load you may
> have bad fixed padder caps.
>
>
> What would be "normal" is approx 90 to 100 watts into 50 ohm dummy
> load on all bands with exception of 10 meters (80 watts) at approx
> 200ma plate current and you should see very close to 1:1 SWR into your
> dummy load.
>
>
> If you can do this then time to discuss the antenna and the tuner issues.
>
>
> Again, your first effort should be to make sure the rig can load
> normally into a dummy load. This proves your dummy load is good, your
> interconnecting coax jumpers are good, and the rig is good.
>
>

> If you cannot do this then no reason to attempt to use the tuner to
> load in to a multi-band antenna of any type.
>
>
> The tuner is taking the impedance that the antenna presents at the end
> of whatever kind of feed line you are using and converting it to an
> impedance that your rigs Pi-network can match. A multiband antenna can
> present a wide range of impedances (combination of resistance and
> reactive) to your rig. The rig cannot match very high impedances (
> thousands of ohms) that a multiband antenna can present. If you have
> very high impedance at the end of the feed line in the shack then RF
> can be a problem in the shack. End fed can present several thousand
> ohms which means very high RF voltage at the input to the tuner.
> Sometimes need to install counter poise to resolve this situation.
>
>
> Describe again what the antenna configuration is. Is this a OCF dipole
> or a 135 foot flat top fed with 300 ohm ladder line or open wire
> feeders or a random length end fed ??
>
>
> It could be that the Tuner has an issue?
>
>
> So tell us first if you can load rig normally into the dummy load? If
> so, then describe the complete antenna configuration.
>
>
> Having resting plate current changing has nothing to do with your
> antenna or your tuner. You can unscrew your coax connector off back of
> rig and set resting plate current. Fix that first.
>
>
> Terry
> K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Installing an 'ugly balun' and getting rid of that stray RF really
> helped, but it still seems there is something mechanically wrong with
> the 520. I think that not being able to tune it properly is hurting my
> AT-230's ability to successfully tune my antenna. I noticed that on 10
> and 15 the tuner works fine, but when I get to 20 or 40 it won't match
> at all. I also still need to ground the radio itself, I have the rig
> plugged into a standard wall outlet, but in my house, the wall outlets
> are not grounded (older home), maybe it'll help a little to get the
> rig properly grounded.

>
>
> I wish I had the cash to have a professional look at it and realign
> everything for me. Either way, I'll work on testing those issues that
> were mentioned by Terry and see where that takes me.
>
>
> Jason, K7BOG
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Sounds like an antenna issue caused the radio problems.
>
> *From:* "jason.bogstie@..." <jason.bogstie@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, September 30, 2013 12:47 AM
> *Subject:* [TS-520_820_530_830] RE: New Ham, Tuning issues
>
> Hey Terry and everyone:
>
> Sorry this took me so long, I was waiting on parts for my antenna and
> my AT-230 to arrive in the mail.
>
> I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter
> and SWR meter. This is what I observed.
>
> 80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
> 40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
> 20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
> 15 meters: CAR value: 2.75, 210 ma, 80 watts
> 10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.
>
> I tuned into the center of the band, for voice, on each band.
>
> I noticed that in general, when I keyed the 520 up, the needle for ma
> would sit at about 240 or 250 ma and then slowly drop off to 210ma on
> average. I also noticed I had to readjust the bias control for 60ma
> when I began this whole thing. It was correct the other day, but
> changed for some reason.
>
> I got all of the stray RF in my shack under control and I checked my
> antenna and got it to about 5:1 SWR with a nice torroid on it to choke
> the stray RF. I got a 59 signal report from SW Washington (I am in SW
> Idaho). I noticed that my tuner won't match the antenna at all on 40
> meters or 20 meters, but will match on 15 and 10. I don't know if that
> is because of an issue with the radio, or the tuner itself, but it was
> an observation. I get a better SWR on 40 when I am using my antenna

> without the tuner. In fact, the ham in Washington couldn't hear me at
> all when I was passing through the tuner, but gave me the 59 without
> the tuner.
>
> I opened the radio and visually inspected the components you, Terry,
> suggested. Nothing looks burned, the coils are still shiny and bright
> and none of the caps looked like they popped, everything, visually,
> looks clean.
>
> What should I do now?
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> When I said that I was "exactly sure" I meant to type that I was "NOT
> EXACTLY" sure what you were asking. Should have waited for your
> response.. Sorry!
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> OK sorry for the confusion. I am clearly
> confused on who I am taking to at this point
> and what the problem is. I dont think we
> discussed yet how to measure/test the fixed
> padder caps in any rig. I think we last left
> off with asking you to load test your rig on
> each band and not just 40 and 20 meters and
> reporting back the results?
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I was referring to checking and replacing the
> padder caps and the other items you described
> the other day. Brain was helping me tune my
> TS-520 and the discussion was about
> complications with that. You mentioned in a
> couple of previous posts that you were talking
> about a TS-830. I was concerned there was some
> confusion about what model of Kenwood was
> experiencing the issues described in this
> thread. If they all work the same, I'll get
> those padder caps tested and look at the other

> items referred to in your previous post.
>
> I hope that's not more confusing, hehe. Brian
> knows better than I do and was able to explain
> the problems better than I could.
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I am exactly sure what you are asking. If you
> are asking about how to load a TS520 that has
> no Tune Ip indication to get that initial
> plate current dip and is it different than a
> TS-830 then answer is no difference other than
> limiting the plate current to 200ma.
>
> Some people with lots of experience load in CW
> mode. Some do this as they have a good
> understanding of what is going on and the
> pre-cautions using this method.
>
> Others do it because the Tune position of
> their rig quit years ago and too lazy to fix
> it or dont know how to fix it.
>
> I typically do not teach new folks to load in CW.
>
> However if your rigs Tune position is out and
> you cannot get that initial plate current dip
> then you can do it by reducing the Car Level
> pot to minimum and with meter in Ip position
> Flip to Send and slowly bring the Car Level up
> to something under 100ma. Have to be careful
> because Ip can jump very high pretty quickly
> with very little more opening of the pot.
>
> When you get say around 80ma to 100ma then
> adjust the plate Tune capacitor for a dip or
> minimum in plate current and then unkey the
> rig. Now ready to use the RF relative power
> position of the panel meter or your external
> wattmeter to start coupling load. Flip to
> Send and alternately adjust Plate Load and
> Plate Tune controls for max relative power on
> your RF meter position or approx 100 watts
> output on your wattmeter. Unkey the rig.
>
> Watching the Ip meter flip to send again and
> if you are reasonably close to 200ma Ip you

> are done and ready to operate CW or SSB.
>
> WIth a good Tune position I recommend you
> follow the instructions in your TS520 manual.
> Only confusing step is peaking the Drive which
> says to adjust for maximum meter deflection
> and everyone and I mean everyone asks "what
> maximum"? The ALC black box maximum or the
> meter full scale maximum. As I think I told
> you black box is meaningless at this step but
> OK to just peak Drive control at max range on it.
>
> After you get that initial plate current dip
> in Tune mode then all the Kenwood instruction
> manuals direct you to load by alternately
> adjusting :Load and Tune controls for max RF
> relative power. If you have an external
> wattmeter leave meter in Ip and load for
> approx 100 watts out without exceeding 200ma.
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Hey, Terry:
>
> I noticed you mentioned these steps for a
> TS-830. I am running a TS-520, does that
> change any of the above things you suggested?
> There might have been some confusion earlier
> about what model of Kenwood was having issues.
>
> Thanks
>
> Jason, K7BOG
>
>
> --- In ts-520_820_530_830@yahoogroups.com,
> <jason.bogstie@...> wrote:
>
> Yes, Thank you for the input Terry. I'll
> coordinate with Brian and see what can be
> done! I got the parts for my dummy load, I
> plan to put it all together on Monday, so
> maybe I can try to tune my 520 on all bands
> and see what happens, then I can have some
> more data for Brian and I.

>
> -Jason, K7BOG
>
>
> --- In
> ts-520_820_530_830@yahoogroups.com,
> <brian_forney@...> wrote:
>
> Terry:
>
> Thanks for the insight and
> next steps. I'm very
> careful around the HV caps
> and always make extra sure
> everything is discharged
> before poking around in
> there. I'll coordinate
> performing these steps
> with Jason and report
> back. If should be
> educational to take a look
> around inside.
>
> Brian (K7TKT)
>
> *From:* "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com
>
> *Sent:* Saturday,
> September 14, 2013 6:07 PM
> *Subject:* RE: Re:
> [TS-520_820_530_830] New
> Ham, Tuning issues
>
> Brian:
>
> No problem with using a
> Key to load the rig. Just
> not necessary when bench
> testing a rig. The 830
> manual contributes to this
> when early on they tell
> you to connect dummy load
> or antenna and connect a
> Key and then flip to Send
> and check resting plate
> current. However they fail
> to tell you to press the

> Key or close the slider if
> a straight Key. Later
> under Transmission section
> under CW header they tell
> you again to install a
> Key. Poorly written.
>
> When you turn the Plate
> Load cap control CW off
> the full CCW position and
> you see the RF output
> power on the wattmeter go
> down do you then
> immediately adjust the
> Plate Tune capacitor to
> try to bring the RF output
> power back up?
>
> Anytime the Load cap is
> moved open or closed you
> need to make a slight
> adjustment with the Tune
> capacitor to restore the
> tank to resonance. What
> happens when you do this?
>
> Typically once the
> reactance of the Plate
> Load capacitor is close to
> the impedance of the load
> (antenna or dummy load)
> opening the plates (CW)
> any more usually does not
> result in anymore RF
> output on the wattmeter.
> You reach a point where
> opening the plates more
> does not result in
> coupling any more load.
> The final tubes just
> cannot supply any more RF
> Line current to the Tank.
>
> There is no doubt that
> loading on 40 meters into
> a 50 ohm dummy load you
> should not be at maximum
> RF output with the Plate
> Load cap full CCW (plates
> fully meshed). As you

> suggest it is not
> "normal". You know that
> from your own TS-830.
>
> As I mentioned this is
> indicative of bad fixed
> padder caps that are
> switched in on the lower
> bands. The reason that
> this is necessary is if
> they installed an air
> variable capacitor that
> had the necessary high
> level of capacitance on
> the lower bands it would
> then have a minimum
> capacitance with the
> plates completely open
> that would be far too high
> to function on higher
> bands. 10 meters is the
> biggest challenge for the
> designers. Same for the
> Plate Tune capacitor.
>
> If you get time it would
> be good to see if it loads
> normal on 15 and 10
> meters. I would try
> loading on all the bands
> and make a chart of how it
> behaves. Where does the
> plate Load cap end up for
> approx 100 watts output at
> 200ma Ip.
>
> One other thing you should
> look at if comfortable is
> the main RF plate choke
> and the small VHF choke at
> a right angle at its base
> and the rf bypass cap at
> its base. If these show
> signs of overheating then
> will need to be replaced.
> The by pass cap can
> actually physically split
> the case open.
>
> Need to have rig unplugged

> and let set for awhile to
> led bleeders discharge the
> HV filter caps. Then
> remove PA cage cover. Then
> connect ground jumper from
> top of plate choke and
> ground for a few seconds.
> Now safe to use a good
> flashlite and inspect
> these items.
>
> I would also look at both
> capacitor shaft couplers
> at the PA cage and make
> sure screws are tight. Can
> also watch the travel and
> make sure full open and
> full close align with
> markings on the front panel.
>
> Terry K9TW
>
>
> --- In
> TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com>
> wrote:
>
> Hi Terry:
>
> Ah ha. I am a CW op
> so I always have had a
> key plugged in (but no
> mic). Anyway, with a
> key plugged in you
> don't get any output
> with the alternate
> procedure without
> closing the key for
> obvious reasons. I've
> been so used to how
> the radio responded
> when I switched over
> from tune to CW with a
> key connected that I
> ended up thinking the
> key was necessary. My
> bad. For me the long
> procedure from the
> manual works fine

> since I always have
> the key connected and
> normally have the
> radio in VOX mode (to
> save wear on the send
> switch) but I have a
> better understanding
> now. Thank you. I
> will also study the
> diagram to try to
> better understand the
> relationship between
> the load capacitor and
> antenna load.
>
> This will also help
> Jason since I took him
> through the long
> procedure from the
> manual that uses a
> key. He can just
> unplug his keyer and
> will be able to move
> from tuning to loading
> once he has the drive
> and plate a resonance
> (peaked and dipped)
> without all of the
> additional gyrations.
>
> Questions: This still
> leaves Jason's
> TS-520's issue with
> load. Even though I
> was using the long
> procedure with the
> key, I think the
> results are still
> accurate. He is
> getting a maximum
> output of 70w at 200ma
> with the load at min
> (fully CCW) and
> reducing the load
> capacitance
> (increasing the
> load/turning load CW)
> actually reduces his
> output. This isn't
> normal, right? I can

> simulate this on my
> TS-830 but it pains
> me. If I
> intentionally turn the
> load up too much,
> output falls off as I
> increase the load.
> So...I think in
> Jason's TS520 it is as
> if even at maximum
> capacitance (minimum
> load) he doesn't have
> enough to balance
> against the 50 ohm
> dummy load---resonance
> is off the minimum end
> of the load. Does
> that sound like a
> reasonable conclusion?
> Is the next step for
> us to try the tune up
> procedure on all bands
> and report back (your
> 10m suggestion from
> before) or is there
> something else that we
> should check first?
>
> Thanks,
> Brian (and Jason)
>
> *From:* "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com
>
> *Sent:* Saturday,
> September 14, 2013 1:18 PM
> *Subject:* RE: Re: Re:
> [TS-520_820_530_830]
> RE: New Ham, Tuning issues
>
> You dont need the key
> or vox or any of the
> gyrations you are
> putting your self thru
> to load your TS830.
>
> The reason Ip
> indicates approx 60ma

> when you switch from
> Tune to CW mode is
> that you have the
> plates meshed on the
> Plate load cap and you
> are shunting the RF
> current around the
> dummy load and
> circulating it in the
> Tank.
>
> It is OK to crack the
> Plate Load control
> open a little at
> initial loading so you
> can see 70 or 80 ma or
> so if that helps you.
>
> At this point with
> plates fully meshed
> you have maximum
> capacitance and lowest
> capacitive reactance
> so the RF current in
> the tank is going to
> like to flow thru the
> plate load cap and not
> thru the dummy load.
> Sometime look at
> formula for Xc and you
> will see it is an
> inverse relationship.
> It will help you
> understand what I am
> telling you.
>
> OK --You havent
> started tightening up
> the coupling yet and
> shifting the tank
> circuit RF circ
> current to the dummy
> load resistance. Each
> time you open the
> plates of the Load cap
> a little more you are
> decreasing the
> capacitance and
> increasing the
> capacitive reactance

> XC. This allows more
> current to flow in the
> dummy load resistor or
> the antenna.
>
> When you get to full
> load you will have
> opened the Plate Load
> capactor to the point
> that the XC is approx
> equal to the dummy
> load or antenna
> resistance. At this
> point you will have
> used half of the
> stored energy in the
> tank and there will be
> equal RF current
> flowing thru the Plate
> load capacitor and the
> dummy load resistor.
> At that point with 100
> watts output power
> there will be approx
> 1.4 RF amps flowing
> thru the Plate load
> cap and 1.4 RF amps
> flowing thru the 50
> ohm dummy load.
>
> This is all simple
> ohms law for parallel
> resistors, but not too
> many folks really
> understand what they
> are doing or how it
> works or have just
> never given it any
> serious thought.
>
> After you make that
> initial plate current
> dip in Tune mode you
> do not need to do any
> more dip and load
> procedure. Only reason
> you do this initial
> dip is to get the tank
> circuit adjusted close
> to resonance so when

> you go to CW mode and
> apply full screen grid
> voltage to the finals
> you dont peg the IP
> meter if the tank is
> tuned off resonance.
> This could damage your
> finals if left keyed
> too long at this high
> Ip level.
>
> Read the very last
> note in the TS-830
> loading procedure. It
> tells you after they
> have taught you dip
> and load you dont have
> to use it as it isnt
> best or easiest way to
> load a Class AB1
> linear amp!
>
> It directs you to
> place meter in RF
> position and Flip to
> Send and alternately
> adjust the plate Load
> and Tune controls for
> maximum indicated
> relative power (RF
> voltage).
>
> With your wattmeter in
> line leave your TS830
> meter in IP. Now after
> making that initial
> plate current dip in
> Tune mode flip to Send
> in CW mode and
> alternately adjust
> Plate Load and Plate
> tune controls for
> approx 100watts output.
>
> Your wattmeter will be
> far more sensitive to
> any changes you make
> than your IP meter.
> You will quickly be
> able to find the

> combination that gives
> you max rf output
> power. Take a quick
> look at IP and it
> should be close to
> 225ma. If a little
> over dont worry about
> it as 265ma is the
> real limit.
>
> Lastly, if you are
> having to increase the
> Car level at the late
> stage of tuning you
> are not setting it
> high enough in the
> early Drive control
> peaking step. There is
> no reason to have to
> do this. When you peak
> the Drive give
> yourself something to
> look at. If you peg
> the ALC meter just
> reduce the Car level
> pot to get it off the
> peg.
>
> Terry K9TW
>
>
>
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>
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>
>

45018. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 13:16:53 UTC
From: Mike
Topic: 44440 Message: 45018

Hi Terry,

I didn't see your response before I made mine, sorry about that. I'll bow out and let you continue.

73
Mike W5RKL

On 10/3/2013 6:15 AM, wagstw46@... wrote:
>
> First thing. It is ok to place a 1:1 choke in line at the center
> insulator but can tell you hams ran resonant dipoles for many many
> years with the coax directly feeding each leg of the dipole and never
> knew there was any current on outside of the shield and never caused
> any RF problems in the shack. At this point dont worry about that.
>
>
> 467/7.2mhz = 64 foot 10 inches or 32 foot 5 inches each leg.
>
>
> Your 64 foot = 467/64 = 7.297mhz. Your antenna is too short for 7.2
> mhz assuming that is where you want it to be resonant at. You can
> easily add about 6 inches to each end and just let it hang done at the
> end insulator eye. No need to remove and add wire at this point.
>
>
> Was 7.200 your objective? Center of phone band? Center of the
> allocation? If you insist on using Tuner and having 1:1 across the
> band then just cut it for 7.150mhz.
>
>
> You can easily determine whether you need to add or remove wire by
> loading into it on either side of where you now have this "low or
> best" SWR of 5:1 and see which direction causes lower SWR. .
>
>
> If the SWR gets lower as you move up in frequency you know antenna is
> too short and you need to add wire to each leg. If SWR gets better as
> you move down in frequency then you know antenna is too long and you
> need to remove wire on each leg.
>
>
> Make sure you check my math.
>
>
> Using a 40 meter antenna on 80 meters is not going to be very efficient.

>
>
> Should never get an electrical arcing noise in PA cage when loading a
> 40 meter dipole on 40 meters. Most common reason for arcing is Plate
> load cap arcing over but you almost need to have an open at the SO-239
> to get high enough RF voltage.
>
>
> Just remove this Tuner and use the RF detector position and load your
> radio exactly as the manual says to do. Move up to 7.297mhz and load
> there. After you get the initial dip in Tune mode then go to CW mode
> and put meter in RF and load by alternately adjusting the Plate Load
> and Tune controls for maximum relative power indication on your meter.
> Place meter switch back to Ip and make sure not exceeding approx 200
> ma. The rig is loaded.
>
>
> If you cannot load this radio without a Tuner into a dummy load on 40
> meters or into a 40 meter dipole there is no point in adding a Tuner
> into the equation. If rig arcs over loading into dummy load and or
> antenna check your coax jumpers. May have a bad jumper. Takes a very
> high VSWR to produce very high RF voltage across the Plate Load cap.
> Highest would be if you have an open. If you have an open the rig will
> try to load into it and not easy for you to recognize that by looking
> at RF or IP meter position unless you have experience.
>
>
> When you can load normally on all bands into the dummy load and into
> the 40 meter dipole on 40 meters then time to see if you have a good
> Tuner.
>
>
> Terry K9TW
>
>
>
> .
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I am still working on testing those items you pointed out, Terry. I am
> trying to get a hold of a voltmeter to see what those values are.
>
>
> As far as my antenna goes, it's a 40 meter center-fed dipole, each leg
> is cut at 32 feet. The dipole has a center insulator with a line
> isolator attached. The isolator is what ended my 'RF in the shack'

> issues. The dipole is mounted in an inverted V formation, with the
> center insulator hoisted up on a PVC pipe, 17 feet into the air (about
> as high as I can get it on my property). both ends of the V are
> mounted about 5 feet off the ground, the angle is greater than 90
> degrees. The feedline is 25 feet of RG-213U coming off of my roof and
> into my house and connecting to my AT-230.
>
>
> After adding the line isolator, the SWR is 5:1 at 7.200mhz,
>
>
> My rig is also now grounded, electrically, to my house's electrical
> grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is
> also grounded, with a strap connecting the tuner directly to my TS520.
> The tuner is connected to the 520 and the 520 is connected to the
> ground rod.
>
>
> My house is surrounded, basically, by the power company's high voltage
> wires. The furthest away I could get the dipole from these HV wires is
> about 15 feet, maybe. I can't get any further away from the power
> company's lines than that. I haven't heard any noise on the 520 from
> those power lines, but I don't know if they might be an issue as well.
>
>
> I just wanted to get that thrown out there for you to chew on, while I
> get a voltmeter to test the rig.
>
>
> The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it
> tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz
> (40 meters), I get an electrical arcing noise from the 520. I also
> noticed that if I calibrate the tuner for too long, to check my
> antenna's SWR, it will blow the fuse in the TS520. Maybe that's
> normal, but I am not sure so I thought I would mention it.
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> No reason to worry about 5:1 swr until we know what kind of antenna
> configuration and what freq he is trying to load it on. May be
> perfectly understandable. Ever see the SWR loading a typical G5RV on
> 15 or 17 meters?
>
>
> My guess is with all the RF in the shack may be using end fed antenna?
> May be using an OCF dipole but I have used them and no problems with
> RF in shack but I feed with 4:1 current balun at the offset feed point.

>
>
> All this is just speculation until we know what he is using.
>
>
> After he gets rig to load properly into 50 ohm dummy load we can all
> jump in and help resolve the antenna and tuner issues that may exist.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> 5 : 1 SWR ?
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Your very first goal is to be able to load the rig into a dummy load
> on all bands. Worry about using a tuner to load into a multi-band
> antenna after you are certain you can load "normally" in to the dummy
> load.
>
>
> If you can load the rig successfully into dummy load with the tuner in
> the Bypass Mode (just using the tuner for the wattmeter/SWR meter
> function) then nothing is wrong with your Pi-Network in the rig unless
> you are at extreme ends of the Plate Load cap or the Plate Tune cap
> position doesnt align relatively close to the white panel marking for
> the band you are loading on.
>
>
> If you end up having the Plate Load or Plate tune caps at odd
> positions to attain your 80 to 100 watts into the dummy load you may
> have bad fixed padder caps.
>
>
> What would be "normal" is approx 90 to 100 watts into 50 ohm dummy
> load on all bands with exception of 10 meters (80 watts) at approx
> 200ma plate current and you should see very close to 1:1 SWR into your
> dummy load.
>
>
> If you can do this then time to discuss the antenna and the tuner issues.
>
>

> Again, your first effort should be to make sure the rig can load
> normally into a dummy load. This proves your dummy load is good, your
> interconnecting coax jumpers are good, and the rig is good.
>
>
> If you cannot do this then no reason to attempt to use the tuner to
> load in to a multi-band antenna of any type.
>
>
> The tuner is taking the impedance that the antenna presents at the end
> of whatever kind of feed line you are using and converting it to an
> impedance that your rigs Pi-network can match. A multiband antenna can
> present a wide range of impedances (combination of resistance and
> reactive) to your rig. The rig cannot match very high impedances (
> thousands of ohms) that a multiband antenna can present. If you have
> very high impedance at the end of the feed line in the shack then RF
> can be a problem in the shack. End fed can present several thousand
> ohms which means very high RF voltage at the input to the tuner.
> Sometimes need to install counter poise to resolve this situation.
>
>
> Describe again what the antenna configuration is. Is this a OCF dipole
> or a 135 foot flat top fed with 300 ohm ladder line or open wire
> feeders or a random length end fed ??
>
>
> It could be that the Tuner has an issue?
>
>
> So tell us first if you can load rig normally into the dummy load? If
> so, then describe the complete antenna configuration.
>
>
> Having resting plate current changing has nothing to do with your
> antenna or your tuner. You can unscrew your coax connector off back of
> rig and set resting plate current. Fix that first.
>
>
> Terry
> K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Installing an 'ugly balun' and getting rid of that stray RF really
> helped, but it still seems there is something mechanically wrong with
> the 520. I think that not being able to tune it properly is hurting my
> AT-230's ability to successfully tune my antenna. I noticed that on 10

> and 15 the tuner works fine, but when I get to 20 or 40 it won't match
> at all. I also still need to ground the radio itself, I have the rig
> plugged into a standard wall outlet, but in my house, the wall outlets
> are not grounded (older home), maybe it'll help a little to get the
> rig properly grounded.
>
>
> I wish I had the cash to have a professional look at it and realign
> everything for me. Either way, I'll work on testing those issues that
> were mentioned by Terry and see where that takes me.
>
>
> Jason, K7BOG
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Sounds like an antenna issue caused the radio problems.
>
> *From:* "jason.bogstie@..." <jason.bogstie@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, September 30, 2013 12:47 AM
> *Subject:* [TS-520_820_530_830] RE: New Ham, Tuning issues
>
> Hey Terry and everyone:
>
> Sorry this took me so long, I was waiting on parts for my antenna and
> my AT-230 to arrive in the mail.
>
> I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter
> and SWR meter. This is what I observed.
>
> 80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
> 40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
> 20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
> 15 meters: CAR value: 2.75, 210 ma, 80 watts
> 10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.
>
> I tuned into the center of the band, for voice, on each band.
>
> I noticed that in general, when I keyed the 520 up, the needle for ma
> would sit at about 240 or 250 ma and then slowly drop off to 210ma on
> average. I also noticed I had to readjust the bias control for 60ma
> when I began this whole thing. It was correct the other day, but
> changed for some reason.
>
> I got all of the stray RF in my shack under control and I checked my
> antenna and got it to about 5:1 SWR with a nice torroid on it to choke

> the stray RF. I got a 59 signal report from SW Washington (I am in SW
> Idaho). I noticed that my tuner won't match the antenna at all on 40
> meters or 20 meters, but will match on 15 and 10. I don't know if that
> is because of an issue with the radio, or the tuner itself, but it was
> an observation. I get a better SWR on 40 when I am using my antenna
> without the tuner. In fact, the ham in Washington couldn't hear me at
> all when I was passing through the tuner, but gave me the 59 without
> the tuner.
>
> I opened the radio and visually inspected the components you, Terry,
> suggested. Nothing looks burned, the coils are still shiny and bright
> and none of the caps looked like they popped, everything, visually,
> looks clean.
>
> What should I do now?
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> When I said that I was "exactly sure" I meant to type that I was "NOT
> EXACTLY" sure what you were asking. Should have waited for your
> response.. Sorry!
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> OK sorry for the confusion. I am clearly
> confused on who I am taking to at this
> point and what the problem is. I dont
> think we discussed yet how to measure/test
> the fixed padder caps in any rig. I think
> we last left off with asking you to load
> test your rig on each band and not just 40
> and 20 meters and reporting back the results?
>
> Terry K9TW
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I was referring to checking and replacing
> the padder caps and the other items you
> described the other day. Brain was helping
> me tune my TS-520 and the discussion was
> about complications with that. You
> mentioned in a couple of previous posts

> that you were talking about a TS-830. I
> was concerned there was some confusion
> about what model of Kenwood was
> experiencing the issues described in this
> thread. If they all work the same, I'll
> get those padder caps tested and look at
> the other items referred to in your
> previous post.
>
> I hope that's not more confusing, hehe.
> Brian knows better than I do and was able
> to explain the problems better than I could.
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I am exactly sure what you are asking. If
> you are asking about how to load a TS520
> that has no Tune Ip indication to get that
> initial plate current dip and is it
> different than a TS-830 then answer is no
> difference other than limiting the plate
> current to 200ma.
>
> Some people with lots of experience load
> in CW mode. Some do this as they have a
> good understanding of what is going on
> and the pre-cautions using this method.
>
> Others do it because the Tune position of
> their rig quit years ago and too lazy to
> fix it or dont know how to fix it.
>
> I typically do not teach new folks to load
> in CW.
>
> However if your rigs Tune position is out
> and you cannot get that initial plate
> current dip then you can do it by reducing
> the Car Level pot to minimum and with
> meter in Ip position Flip to Send and
> slowly bring the Car Level up to something
> under 100ma. Have to be careful because Ip
> can jump very high pretty quickly with
> very little more opening of the pot.
>
> When you get say around 80ma to 100ma
> then adjust the plate Tune capacitor for a
> dip or minimum in plate current and then

> unkey the rig. Now ready to use the RF
> relative power position of the panel meter
> or your external wattmeter to start
> coupling load. Flip to Send and
> alternately adjust Plate Load and Plate
> Tune controls for max relative power on
> your RF meter position or approx 100
> watts output on your wattmeter. Unkey the
> rig.
>
> Watching the Ip meter flip to send again
> and if you are reasonably close to 200ma
> Ip you are done and ready to operate CW or
> SSB.
>
> WIth a good Tune position I recommend you
> follow the instructions in your TS520
> manual. Only confusing step is peaking the
> Drive which says to adjust for maximum
> meter deflection and everyone and I mean
> everyone asks "what maximum"? The ALC
> black box maximum or the meter full scale
> maximum. As I think I told you black box
> is meaningless at this step but OK to
> just peak Drive control at max range on it.
>
> After you get that initial plate current
> dip in Tune mode then all the Kenwood
> instruction manuals direct you to load by
> alternately adjusting :Load and Tune
> controls for max RF relative power. If you
> have an external wattmeter leave meter in
> Ip and load for approx 100 watts out
> without exceeding 200ma.
>
> Terry K9TW
>
>
>
> --- In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Hey, Terry:
>
> I noticed you mentioned these steps for a
> TS-830. I am running a TS-520, does that
> change any of the above things you
> suggested? There might have been some
> confusion earlier about what model of
> Kenwood was having issues.

>
> Thanks
>
> Jason, K7BOG
>
>
> --- In ts-520_820_530_830@yahoogroups.com,
> <jason.bogstie@...> wrote:
>
> Yes, Thank you for the input Terry. I'll
> coordinate with Brian and see what can be
> done! I got the parts for my dummy load, I
> plan to put it all together on Monday, so
> maybe I can try to tune my 520 on all
> bands and see what happens, then I can
> have some more data for Brian and I.
>
> -Jason, K7BOG
>
>
> --- In
> ts-520_820_530_830@yahoogroups.com,
> <brian_forney@...> wrote:
>
> Terry:
>
> Thanks for the insight
> and next steps. I'm
> very careful around
> the HV caps and always
> make extra sure
> everything is
> discharged before
> poking around in
> there. I'll
> coordinate performing
> these steps with Jason
> and report back. If
> should be educational
> to take a look around
> inside.
>
> Brian (K7TKT)
>
> *From:* "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com
>
> *Sent:* Saturday,

> September 14, 2013 6:07 PM
> *Subject:* RE: Re:
> [TS-520_820_530_830]
> New Ham, Tuning issues
>
> Brian:
>
> No problem with using
> a Key to load the rig.
> Just not necessary
> when bench testing a
> rig. The 830 manual
> contributes to this
> when early on they
> tell you to connect
> dummy load or antenna
> and connect a Key and
> then flip to Send and
> check resting plate
> current. However they
> fail to tell you to
> press the Key or close
> the slider if a
> straight Key. Later
> under Transmission
> section under CW
> header they tell you
> again to install a
> Key. Poorly written.
>
> When you turn the
> Plate Load cap control
> CW off the full CCW
> position and you see
> the RF output power on
> the wattmeter go down
> do you then
> immediately adjust the
> Plate Tune capacitor
> to try to bring the RF
> output power back up?
>
> Anytime the Load cap
> is moved open or
> closed you need to
> make a slight
> adjustment with the
> Tune capacitor to
> restore the tank to
> resonance. What

> happens when you do this?
>
> Typically once the
> reactance of the Plate
> Load capacitor is
> close to the impedance
> of the load (antenna
> or dummy load) opening
> the plates (CW) any
> more usually does not
> result in anymore RF
> output on the
> wattmeter. You reach a
> point where opening
> the plates more does
> not result in coupling
> any more load. The
> final tubes just
> cannot supply any more
> RF Line current to the
> Tank.
>
> There is no doubt that
> loading on 40 meters
> into a 50 ohm dummy
> load you should not be
> at maximum RF output
> with the Plate Load
> cap full CCW (plates
> fully meshed). As you
> suggest it is not
> "normal". You know
> that from your own TS-830.
>
> As I mentioned this is
> indicative of bad
> fixed padder caps that
> are switched in on the
> lower bands. The
> reason that this is
> necessary is if they
> installed an air
> variable capacitor
> that had the necessary
> high level of
> capacitance on the
> lower bands it would
> then have a minimum
> capacitance with the
> plates completely open

> that would be far too
> high to function on
> higher bands. 10
> meters is the biggest
> challenge for the
> designers. Same for
> the Plate Tune capacitor.
>
> If you get time it
> would be good to see
> if it loads normal on
> 15 and 10 meters. I
> would try loading on
> all the bands and make
> a chart of how it
> behaves. Where does
> the plate Load cap end
> up for approx 100
> watts output at 200ma Ip.
>
> One other thing you
> should look at if
> comfortable is the
> main RF plate choke
> and the small VHF
> choke at a right angle
> at its base and the rf
> bypass cap at its
> base. If these show
> signs of overheating
> then will need to be
> replaced. The by pass
> cap can actually
> physically split the
> case open.
>
> Need to have rig
> unplugged and let set
> for awhile to led
> bleeders discharge the
> HV filter caps. Then
> remove PA cage cover.
> Then connect ground
> jumper from top of
> plate choke and ground
> for a few seconds. Now
> safe to use a good
> flashlite and inspect
> these items.
>

> I would also look at
> both capacitor shaft
> couplers at the PA
> cage and make sure
> screws are tight. Can
> also watch the travel
> and make sure full
> open and full close
> align with markings on
> the front panel.
>
> Terry K9TW
>
>
> --- In
> TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com>
> wrote:
>
> Hi Terry:
>
> Ah ha. I am a CW
> op so I always
> have had a key
> plugged in (but no
> mic). Anyway,
> with a key plugged
> in you don't get
> any output with
> the alternate
> procedure without
> closing the key
> for obvious
> reasons. I've
> been so used to
> how the radio
> responded when I
> switched over from
> tune to CW with a
> key connected that
> I ended up
> thinking the key
> was necessary. My
> bad. For me the
> long procedure
> from the manual
> works fine since I
> always have the
> key connected and
> normally have the

> radio in VOX mode
> (to save wear on
> the send switch)
> but I have a
> better
> understanding now.
> Thank you. I
> will also study
> the diagram to try
> to better
> understand the
> relationship
> between the load
> capacitor and
> antenna load.
>
> This will also
> help Jason since I
> took him through
> the long procedure
> from the manual
> that uses a key.
> He can just
> unplug his keyer
> and will be able
> to move from
> tuning to loading
> once he has the
> drive and plate a
> resonance (peaked
> and dipped)
> without all of the
> additional gyrations.
>
> Questions: This
> still leaves
> Jason's TS-520's
> issue with load.
> Even though I was
> using the long
> procedure with the
> key, I think the
> results are still
> accurate. He is
> getting a maximum
> output of 70w at
> 200ma with the
> load at min (fully
> CCW) and reducing
> the load

> capacitance
> (increasing the
> load/turning load
> CW) actually
> reduces his
> output. This
> isn't normal,
> right? I can
> simulate this on
> my TS-830 but it
> pains me. If I
> intentionally turn
> the load up too
> much, output falls
> off as I increase
> the load. So...I
> think in Jason's
> TS520 it is as if
> even at maximum
> capacitance
> (minimum load) he
> doesn't have
> enough to balance
> against the 50 ohm
> dummy
> load---resonance
> is off the minimum
> end of the load.
> Does that sound
> like a reasonable
> conclusion? Is
> the next step for
> us to try the tune
> up procedure on
> all bands and
> report back (your
> 10m suggestion
> from before) or is
> there something
> else that we
> should check first?
>
> Thanks,
> Brian (and Jason)
>
> *From:*
> "wagstw46@..."
> <wagstw46@...>
> *To:*
> TS-520_820_530_830@yahoogroups.com

>
> *Sent:* Saturday,
> September 14, 2013
> 1:18 PM
> *Subject:* RE: Re:
> Re:
> [TS-520_820_530_830]
> RE: New Ham,
> Tuning issues
>
> You dont need the
> key or vox or any
> of the gyrations
> you are putting
> your self thru to
> load your TS830.
>
> The reason Ip
> indicates approx
> 60ma when you
> switch from Tune
> to CW mode is that
> you have the
> plates meshed on
> the Plate load cap
> and you are
> shunting the RF
> current around the
> dummy load and
> circulating it in
> the Tank.
>
> It is OK to crack
> the Plate Load
> control open a
> little at initial
> loading so you can
> see 70 or 80 ma or
> so if that helps you.
>
> At this point with
> plates fully
> meshed you have
> maximum
> capacitance and
> lowest capacitive
> reactance so the
> RF current in the
> tank is going to
> like to flow thru

> the plate load cap
> and not thru the
> dummy load.
> Sometime look at
> formula for Xc and
> you will see it is
> an inverse
> relationship. It
> will help you
> understand what I
> am telling you.
>
> OK --You havent
> started tightening
> up the coupling
> yet and shifting
> the tank circuit
> RF circ current to
> the dummy load
> resistance. Each
> time you open the
> plates of the Load
> cap a little more
> you are decreasing
> the capacitance
> and increasing the
> capacitive
> reactance XC. This
> allows more
> current to flow in
> the dummy load
> resistor or the
> antenna.
>
> When you get to
> full load you will
> have opened the
> Plate Load
> capactor to the
> point that the XC
> is approx equal to
> the dummy load or
> antenna
> resistance. At
> this point you
> will have used
> half of the stored
> energy in the tank
> and there will be
> equal RF current

> flowing thru the
> Plate load
> capacitor and the
> dummy load
> resistor. At that
> point with 100
> watts output power
> there will be
> approx 1.4 RF amps
> flowing thru the
> Plate load cap and
> 1.4 RF amps
> flowing thru the
> 50 ohm dummy load.
>
> This is all
> simple ohms law
> for parallel
> resistors, but not
> too many folks
> really understand
> what they are
> doing or how it
> works or have just
> never given it any
> serious thought.
>
> After you make
> that initial plate
> current dip in
> Tune mode you do
> not need to do any
> more dip and load
> procedure. Only
> reason you do this
> initial dip is to
> get the tank
> circuit adjusted
> close to resonance
> so when you go to
> CW mode and apply
> full screen grid
> voltage to the
> finals you dont
> peg the IP meter
> if the tank is
> tuned off
> resonance. This
> could damage your
> finals if left

> keyed too long at
> this high Ip level.
>
> Read the very last
> note in the TS-830
> loading procedure.
> It tells you after
> they have taught
> you dip and load
> you dont have to
> use it as it isnt
> best or easiest
> way to load a
> Class AB1 linear amp!
>
> It directs you to
> place meter in RF
> position and Flip
> to Send and
> alternately adjust
> the plate Load and
> Tune controls for
> maximum indicated
> relative power (RF
> voltage).
>
> With your
> wattmeter in line
> leave your TS830
> meter in IP. Now
> after making that
> initial plate
> current dip in
> Tune mode flip to
> Send in CW mode
> and alternately
> adjust Plate Load
> and Plate tune
> controls for
> approx 100watts
> output.
>
> Your wattmeter
> will be far more
> sensitive to any
> changes you make
> than your IP
> meter. You will
> quickly be able to
> find the

> combination that
> gives you max rf
> output power. Take
> a quick look at IP
> and it should be
> close to 225ma. If
> a little over dont
> worry about it as
> 265ma is the real
> limit.
>
> Lastly, if you are
> having to increase
> the Car level at
> the late stage of
> tuning you are not
> setting it high
> enough in the
> early Drive
> control peaking
> step. There is no
> reason to have to
> do this. When you
> peak the Drive
> give yourself
> something to look
> at. If you peg the
> ALC meter just
> reduce the Car
> level pot to get
> it off the peg.
>
> Terry K9TW
>
>
>
>
>
>
>
>
>
>
>
>
>
>

45019. Re: [TS-520_820_530_830] RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 13:58:54 UTC
From: Brian Forney
Topic: 44440 Message: 45019

Hi Jason:

You've got a lot of variables going. I would recommend you work on one small thing at a time, building in a logical sequence towards your ultimate goal of getting on the air. If it were me I would do the following:

1. FORGET THE ANTENNA for now.
2. VERIFY THAT YOUR DUMMY LOAD IS WORKING. As I recall, you built this yourself (which is super!) but don't have test gear. The TS-520 and your SWR meter should be enough to check it.
2a. Connect your dummy load to your SWR meter and connect your SWR meter to the radio. If you are using your AT230, use the dummy load position (no tuning).
2b. Pick a frequency and tune up your TS-520 in the tune position only (peak the drive, dip the plate). Don't switch to CW mode and don't do anything with the load. You don't need 100 watts to see if your dummy load is working (we can test it's power handling capacity later...) You should now have a low power RF signal which is adequate for checking your dummy load. (With the radio in TUNE and SEND you should have at least 10w of output)
2c. Use the power setting on your SWR meter to verify that you have at least 5w of power output from the radio. You will probably have more.
2d. Using the low power RF output of your radio calibrate your SWR meter and then read your SWR. It should be 1:1. If it isn't, then you'll need to move on to testing each piece of equipment in your dummy load set up (coax jumpers, SWR meter, dummy load).
2e. Repeat for each band. Assuming 1:1 in each band then you now know you have a working dummy load, 2 working coax jumpers and a working SWR meter. With this you can move on to the next step, building on the knowledge that you have a known good load/test set up to test against.
3. TEST LOADING THE RADIO into your (now tested) dummy load
3a. Route your output to the dummy load as before
3b. Tune (peak drive, dip plate, load to 200ma) your radio as per instructions from the group or your manual
3c. Re-calibrate your SWR meter (necessary due to the change in power). Set to measure SWR
3d. Note the SWR, load control position and watts out for each band (If you see anything other than a 1:1 SWR, stop. Don't leave the radio in send any longer than you need to in order to take good readings). You might also want to give your radio and dummy load a couple minute break between each band.
3e. Report back to the group

From here we would move on through steps of getting reasonable power at expected plate ma / load control positions. This goes back to the original concern about your difficulty loading the radio on certain bands. Note all of this is still without ever connecting your antenna. Only once everything is working normally into the dummy load would it be time to tackle the antenna, knowing that we have a reliable source of RF that won't arc or blow fuses when properly loaded into a reasonable load.

Glad to hear about your grounding. 5' of heavy cable to a ground rod bonded to your utility service ground is great. Recommend you not daisy chain the ground in the shack (connecting device A to device B to ground). Ideally the ground should connect to a ground bar / ground bus and each device connect directly to that. However, this does not matter until EVERYTHING else is working so this could be for addressing someday in the future after you are happily on the air and want to do some tweaking. It should not have any bearing on what you are working through now.

If I have any of that wrong, hopefully someone on the group will correct.

73,
  Brian (K7TKT)

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, October 2, 2013 8:56 PM
Subject: [TS-520_820_530_830] RE: RE: RE: New Ham, Tuning issues

I am still working on testing those items you pointed out, Terry. I am trying to get a hold of a voltmeter to see what those values are.

As far as my antenna goes, it's a 40 meter center-fed dipole, each leg is cut at 32 feet. The dipole has a center insulator with a line isolator attached. The isolator is what ended my 'RF in the shack' issues. The dipole is mounted in an inverted V formation, with the center insulator hoisted up on a PVC pipe, 17 feet into the air (about as high as I can get it on my property). both ends of the V are mounted about 5 feet off the ground, the angle is greater than 90 degrees. The feedline is 25 feet of RG-213U coming off of my roof and into my house and connecting to my AT-230.

After adding the line isolator, the SWR is 5:1 at 7.200mhz,

My rig is also now grounded, electrically, to my house's electrical grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is also grounded, with a strap connecting the tuner directly to my TS520. The tuner is connected to the 520 and the 520 is connected to the ground rod.

My house is surrounded, basically, by the power company's high voltage wires. The furthest away I could get the dipole from these HV wires is about 15 feet, maybe. I can't get any further away from the power company's lines than that. I haven't heard any noise on the 520 from those power lines, but I don't know if they might be an issue as well.

I just wanted to get that thrown out there for you to chew on, while I get a voltmeter to test the rig.

The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz (40 meters), I get an electrical arcing noise from the 520. I also noticed that if I calibrate the tuner for too long, to check my antenna's SWR, it will blow the fuse in the TS520. Maybe that's normal, but I am not sure so I thought I would mention it.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?

My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.

All this is just speculation until we know what he is using.

After he gets rig to load properly into 50 ohm dummy load we can all jump in and help resolve the antenna and tuner issues that may exist.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

5 : 1 SWR ?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
15 meters: CAR value: 2.75, 210 ma, 80 watts
10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.

I tuned into the center of the band, for voice, on each band.

I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.

I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.

I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they popped, everything, visually, looks clean.

What should I do now?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!

Terry K9TW

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>
>>>>>>
>>>>>>OK sorry for the confusion. I am clearly confused on who I am taking to at this
 point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?
>>>>>>
>>>>>>
>>>>>>Terry K9TW
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>>>>>>
>>>>>>---
In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>
>>>>>>
>>>>>>I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.
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>>>>>>
>>>>>>I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.

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>>>>>>
>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com>
wrote:
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>>>>>>
>>>>>>I am exactly sure what you are asking. If you are asking about how to load a TS520
that has no Tune Ip indication to get that initial plate current dip and is it different
than a TS-830 then answer is no difference other than limiting the plate current to 200ma.
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>>>>>>
>>>>>>Some people with lots of experience load in CW mode. Some do this as they have a good
understanding of what is going on and the pre-cautions using this method.
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>>>>>>
>>>>>>Others do it because the Tune position of their rig quit years ago and too lazy to
fix it or dont know how to fix it.
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>>>>>>
>>>>>>I typically do not teach new folks to load in CW.
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>>>>>>
>>>>>>However if your rigs Tune position is out and you cannot get that initial plate
current dip then you can do it by reducing the Car Level pot to minimum and with meter in
Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have
to be careful because Ip can jump very high pretty quickly with very little more opening of
the pot.
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>>>>>>
>>>>>>When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip
or minimum in plate current and then unkey the rig. Now ready to use the RF relative power
position of the panel meter or your external wattmeter to start coupling load. Flip to
Send and alternately adjust Plate Load and Plate Tune controls for max relative power on
your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.
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>>>>>>
>>>>>>Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip
you are done and ready to operate CW or SSB.
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>>>>>>
>>>>>>WIth a good Tune position I recommend you follow the instructions in your TS520
manual. Only confusing step is peaking the Drive which says to adjust for maximum meter
deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum
or the meter full scale maximum. As I think I told you black box is meaningless at this
step but OK to just peak Drive control at max range on it.
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>>>>>>
>>>>>>After you get that initial plate current dip in Tune mode then all the Kenwood
instruction manuals direct you to load by alternately adjusting :Load and Tune controls for
max RF relative power. If you have an external wattmeter leave meter in Ip and load for

approx 100 watts out without exceeding 200ma.
>>>>>>
>>>>>>
>>>>>>Terry K9TW
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>>>>>>
>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com>
wrote:
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>>>>>>
>>>>>>Hey, Terry:
>>>>>>
>>>>>>
>>>>>>I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.
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>>>>>>
>>>>>>Thanks
>>>>>>
>>>>>>
>>>>>>Jason, K7BOG
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>>>>>>
>>>>>>--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:
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>>>>>>
>>>>>>Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.
>>>>>>
>>>>>>
>>>>>>-Jason, K7BOG
>>>>>>
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>>>>>>
>>>>>>--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>Terry:
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>>>>>>>>>>
>>>>>>>>>>Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.
>>>>>>>>>>

>>>>>>>>>>>
>>>>>>>>>>>Brian (K7TKT)
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>>>>>>>>>>>
>>>>>>>>>>>From: "wagstw46@..." <wagstw46@...>
>>>>>>>>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>>>>>>>>Sent: Saturday, September 14, 2013 6:07 PM
>>>>>>>>>>>Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues
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>>>>>>>>>>>Brian:
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>>>>>>>>>>>
>>>>>>>>>>>No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?
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>>>>>>>>>>>
>>>>>>>>>>>Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.
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>>>>>>>>>>>
>>>>>>>>>>>There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.
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>>>>>>>>>>>As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to

function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.
>>>>>>>>>>>
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>>>>>>>>>>>
>>>>>>>>>>>I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>Terry K9TW
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>>>>>>>>>>>
>>>>>>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>Hi Terry:
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.
>>>>>>>>>>>
>>>>>>>>>>>
>>>>>>>>>>>This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning

to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>Thanks,
>>>>>>>>>>>> Brian (and Jason)
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>From: "wagstw46@..." <wagstw46@...>
>>>>>>>>>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>>>>>>>>>Sent: Saturday, September 14, 2013 1:18 PM
>>>>>>>>>>>>Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues
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>>>>>>>>>>>>
>>>>>>>>>>>>You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>> It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive

reactance XC. This allows more current to flow in the dummy load resistor or the antenna.
>>>>>>>>>>>>
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>>>>>>>>>>>>When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4 RF amps flowing thru the 50 ohm dummy load.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.
>>>>>>>>>>>>
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>>>>>>>>>>>>
>>>>>>>>>>>>After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.
>>>>>>>>>>>>
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>>>>>>>>>>>>Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.
>>>>>>>>>>>>
>>>>>>>>>>>>
>>>>>>>>>>>>Terry K9TW

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45020. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 14:00:47 UTC
From: Brian Forney
Topic: 44440 Message: 45020

Mike...ditto on my response. Was typing and didn't see yours. Still think it would be wise to make sure everything is working right in the shack before moving on to the antenna but I will yield to you folks with more experience.

73,
  Brian (K7TKT)

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, October 3, 2013 7:16 AM
Subject: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Hi Terry,

I didn't see your response before I made mine, sorry about that.
I'll bow out and let you continue.

73
Mike W5RKL

On 10/3/2013 6:15 AM, wagstw46@... wrote:

>First thing. It is ok to place a 1:1 choke in line at the center insulator but can tell you hams ran resonant dipoles for many many years with the coax directly feeding each leg of the dipole and never knew there was any current on outside of the shield and never caused any RF problems in the shack. At this point dont worry about that.
>
>
>467/7.2mhz = 64 foot 10 inches or 32 foot 5 inches each leg.
>
>
>Your 64 foot = 467/64 = 7.297mhz. Your antenna is too short for 7.2 mhz assuming that is where you want it to be resonant at. You can easily add about 6 inches to each end and just let it hang done at the end insulator eye. No need to remove and add wire at this point.
>
>
>Was 7.200 your objective? Center of phone band? Center of the allocation? If you insist on using Tuner and having 1:1 across the band then just cut it for 7.150mhz.
>
>
>You can easily determine whether you need to add or remove wire by loading into it on either side of where you now have this "low or best" SWR of 5:1 and see which direction causes lower SWR. .
>
>
>If the SWR gets lower as you move up in frequency you know antenna is too short and you

need to add wire to each leg. If SWR gets better as you move down in frequency then you know antenna is too long and you need to remove wire on each leg.
>
>
>Make sure you check my math.
>
>
>Using a 40 meter antenna on 80 meters is not going to be very efficient.
>
>
>Should never get an electrical arcing noise in PA cage when loading a 40 meter dipole on 40 meters. Most common reason for arcing is Plate load cap arcing over but you almost need to have an open at the SO-239 to get high enough RF voltage.
>
>
>Just remove this Tuner and use the RF detector position and load your radio exactly as the manual says to do. Move up to 7.297mhz and load there. After you get the initial dip in Tune mode then go to CW mode and put meter in RF and load by alternately adjusting the Plate Load and Tune controls for maximum relative power indication on your meter. Place meter switch back to Ip and make sure not exceeding approx 200 ma. The rig is loaded.
>
>
>If you cannot load this radio without a Tuner into a dummy load on 40 meters or into a 40 meter dipole there is no point in adding a Tuner into the equation. If rig arcs over loading into dummy load and or antenna check your coax jumpers. May have a bad jumper. Takes a very high VSWR to produce very high RF voltage across the Plate Load cap. Highest would be if you have an open. If you have an open the rig will try to load into it and not easy for you to recognize that by looking at RF or IP meter position unless you have experience.
>
>
>When you can load normally on all bands into the dummy load and into the 40 meter dipole on 40 meters then time to see if you have a good Tuner.
>
>
>Terry K9TW
>
>
>
>
> .
>
>
>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>I am still working on testing those items you pointed out, Terry. I am trying to get a hold of a voltmeter to see what those values are.
>
>
>As far as my antenna goes, it's a 40 meter center-fed dipole, each leg is cut at 32 feet.

The dipole has a center insulator with a line isolator attached. The isolator is what ended my 'RF in the shack' issues. The dipole is mounted in an inverted V formation, with the center insulator hoisted up on a PVC pipe, 17 feet into the air (about as high as I can get it on my property). both ends of the V are mounted about 5 feet off the ground, the angle is greater than 90 degrees. The feedline is 25 feet of RG-213U coming off of my roof and into my house and connecting to my AT-230.
>
>
>After adding the line isolator, the SWR is 5:1 at 7.200mhz,
>
>
>My rig is also now grounded, electrically, to my house's electrical grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is also grounded, with a strap connecting the tuner directly to my TS520. The tuner is connected to the 520 and the 520 is connected to the ground rod.
>
>
>My house is surrounded, basically, by the power company's high voltage wires. The furthest away I could get the dipole from these HV wires is about 15 feet, maybe. I can't get any further away from the power company's lines than that. I haven't heard any noise on the 520 from those power lines, but I don't know if they might be an issue as well.
>
>
>I just wanted to get that thrown out there for you to chew on, while I get a voltmeter to test the rig.
>
>
>The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz (40 meters), I get an electrical arcing noise from the 520. I also noticed that if I calibrate the tuner for too long, to check my antenna's SWR, it will blow the fuse in the TS520. Maybe that's normal, but I am not sure so I thought I would mention it.
>
>
>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?
>
>
>My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.
>
>
>All this is just speculation until we know what he is using.
>
>
>After he gets rig to load properly into 50 ohm dummy load we can all jump in and help

resolve the antenna and tuner issues that may exist.
>
>
>Terry K9TW
>
>
>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>   5 : 1 SWR ?
>
>
>---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
>
>Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.
>
>
>If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.
>
>
>If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.
>
>
>What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.
>
>
>If you can do this then time to discuss the antenna and the tuner issues.
>
>
>Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.
>
>
>If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.
>
>
>The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of

resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.
>
>
>Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??
>
>
>
>It could be that the Tuner has an issue?
>
>
>So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.
>
>
>Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.
>
>
>Terry
>K9TW
>
>
>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.
>
>
>I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.
>
>
>Jason, K7BOG
>
>
>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>

>Sounds like an antenna issue caused the radio problems.
>
>
>From: "jason.bogstie@..." <jason.bogstie@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Monday, September 30, 2013 12:47 AM
>Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues
>
>
>
>
>Hey Terry and everyone:
>
>
>Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.
>
>
>I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.
>
>
>80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts
>40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts
>20 meters: Load 3/4 to meshed, CAR value: 5, 220 ma, 60 watts
>15 meters: CAR value: 2.75, 210 ma, 80 watts
>10 meters: Load 1/2, CAR value: 4, 210 ma, 80 watts.
>
>
>I tuned into the center of the band, for voice, on each band.
>
>
>I noticed that in general, when I keyed the 520 up, the needle for ma would sit at about 240 or 250 ma and then slowly drop off to 210ma on average. I also noticed I had to readjust the bias control for 60ma when I began this whole thing. It was correct the other day, but changed for some reason.
>
>
>I got all of the stray RF in my shack under control and I checked my antenna and got it to about 5:1 SWR with a nice torroid on it to choke the stray RF. I got a 59 signal report from SW Washington (I am in SW Idaho). I noticed that my tuner won't match the antenna at all on 40 meters or 20 meters, but will match on 15 and 10. I don't know if that is because of an issue with the radio, or the tuner itself, but it was an observation. I get a better SWR on 40 when I am using my antenna without the tuner. In fact, the ham in Washington couldn't hear me at all when I was passing through the tuner, but gave me the 59 without the tuner.
>
>
>I opened the radio and visually inspected the components you, Terry, suggested. Nothing looks burned, the coils are still shiny and bright and none of the caps looked like they

popped, everything, visually, looks clean.
>
>
>What should I do now?
>
>
>---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
>
>When I said that I was "exactly sure" I meant to type that I was "NOT EXACTLY" sure what you were asking. Should have waited for your response.. Sorry!
>
>
>Terry K9TW
>
>
>
>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>OK sorry for the confusion. I am clearly confused on who I am taking to at this point and what the problem is. I dont think we discussed yet how to measure/test the fixed padder caps in any rig. I think we last left off with asking you to load test your rig on each band and not just 40 and 20 meters and reporting back the results?
>>>>>>>>
>>>>>>>>
>>>>>>>>Terry K9TW
>>>>>>>>
>>>>>>>>
>>>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>I was referring to checking and replacing the padder caps and the other items you described the other day. Brain was helping me tune my TS-520 and the discussion was about complications with that. You mentioned in a couple of previous posts that you were talking about a TS-830. I was concerned there was some confusion about what model of Kenwood was experiencing the issues described in this thread. If they all work the same, I'll get those padder caps tested and look at the other items referred to in your previous post.
>>>>>>>>
>>>>>>>>
>>>>>>>>I hope that's not more confusing, hehe. Brian knows better than I do and was able to explain the problems better than I could.
>>>>>>>>
>>>>>>>>
>>>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>I am exactly sure what you are asking. If you are asking about how to load a TS520 that has no Tune Ip indication to get that initial plate current dip and is it different

than a TS-830 then answer is no difference other than limiting the plate current to 200ma.
>>>>>>>>
>>>>>>>>
>>>>>>>>Some people with lots of experience load in CW mode. Some do this as they have a good understanding of what is going on and the pre-cautions using this method.
>>>>>>>>
>>>>>>>>
>>>>>>>>Others do it because the Tune position of their rig quit years ago and too lazy to fix it or dont know how to fix it.
>>>>>>>>
>>>>>>>>
>>>>>>>>I typically do not teach new folks to load in CW.
>>>>>>>>
>>>>>>>>
>>>>>>>>However if your rigs Tune position is out and you cannot get that initial plate current dip then you can do it by reducing the Car Level pot to minimum and with meter in Ip position Flip to Send and slowly bring the Car Level up to something under 100ma. Have to be careful because Ip can jump very high pretty quickly with very little more opening of the pot.
>>>>>>>>
>>>>>>>>
>>>>>>>>When you get say around 80ma to 100ma then adjust the plate Tune capacitor for a dip or minimum in plate current and then unkey the rig. Now ready to use the RF relative power position of the panel meter or your external wattmeter to start coupling load. Flip to Send and alternately adjust Plate Load and Plate Tune controls for max relative power on your RF meter position or approx 100 watts output on your wattmeter. Unkey the rig.
>>>>>>>>
>>>>>>>>
>>>>>>>>Watching the Ip meter flip to send again and if you are reasonably close to 200ma Ip you are done and ready to operate CW or SSB.
>>>>>>>>
>>>>>>>>
>>>>>>>>WIth a good Tune position I recommend you follow the instructions in your TS520 manual. Only confusing step is peaking the Drive which says to adjust for maximum meter deflection and everyone and I mean everyone asks "what maximum"? The ALC black box maximum or the meter full scale maximum. As I think I told you black box is meaningless at this step but OK to just peak Drive control at max range on it.
>>>>>>>>
>>>>>>>>
>>>>>>>>After you get that initial plate current dip in Tune mode then all the Kenwood instruction manuals direct you to load by alternately adjusting :Load and Tune controls for max RF relative power. If you have an external wattmeter leave meter in Ip and load for approx 100 watts out without exceeding 200ma.
>>>>>>>>
>>>>>>>>
>>>>>>>>Terry K9TW
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com>

wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>Hey, Terry:
>>>>>>>>
>>>>>>>>
>>>>>>>>I noticed you mentioned these steps for a TS-830. I am running a TS-520, does that change any of the above things you suggested? There might have been some confusion earlier about what model of Kenwood was having issues.
>>>>>>>>
>>>>>>>>
>>>>>>>>Thanks
>>>>>>>>
>>>>>>>>
>>>>>>>>Jason, K7BOG
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>--- In ts-520_820_530_830@yahoogroups.com, <jason.bogstie@...> wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>Yes, Thank you for the input Terry. I'll coordinate with Brian and see what can be done! I got the parts for my dummy load, I plan to put it all together on Monday, so maybe I can try to tune my 520 on all bands and see what happens, then I can have some more data for Brian and I.
>>>>>>>>
>>>>>>>>
>>>>>>>>-Jason, K7BOG
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>--- In ts-520_820_530_830@yahoogroups.com, <brian_forney@...> wrote:
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>Terry:
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>Thanks for the insight and next steps. I'm very careful around the HV caps and always make extra sure everything is discharged before poking around in there. I'll coordinate performing these steps with Jason and report back. If should be educational to take a look around inside.
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>Brian (K7TKT)
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>From: "wagstw46@..." <wagstw46@...>
>>>>>>>>>>>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>>>>>>>>>>>Sent: Saturday, September 14, 2013 6:07 PM
>>>>>>>>>>>>>>Subject: RE: Re: [TS-520_820_530_830] New Ham, Tuning issues
>>>>>>>>>>>>>>

>>>>>>>>>>>>>
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>>>>>>>>>>>>>
>>>>>>>>>>>>>Brian:
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>No problem with using a Key to load the rig. Just not necessary when bench testing a rig. The 830 manual contributes to this when early on they tell you to connect dummy load or antenna and connect a Key and then flip to Send and check resting plate current. However they fail to tell you to press the Key or close the slider if a straight Key. Later under Transmission section under CW header they tell you again to install a Key. Poorly written.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>When you turn the Plate Load cap control CW off the full CCW position and you see the RF output power on the wattmeter go down do you then immediately adjust the Plate Tune capacitor to try to bring the RF output power back up?
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Anytime the Load cap is moved open or closed you need to make a slight adjustment with the Tune capacitor to restore the tank to resonance. What happens when you do this?
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Typically once the reactance of the Plate Load capacitor is close to the impedance of the load (antenna or dummy load) opening the plates (CW) any more usually does not result in anymore RF output on the wattmeter. You reach a point where opening the plates more does not result in coupling any more load. The final tubes just cannot supply any more RF Line current to the Tank.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>There is no doubt that loading on 40 meters into a 50 ohm dummy load you should not be at maximum RF output with the Plate Load cap full CCW (plates fully meshed). As you suggest it is not "normal". You know that from your own TS-830.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>As I mentioned this is indicative of bad fixed padder caps that are switched in on the lower bands. The reason that this is necessary is if they installed an air variable capacitor that had the necessary high level of capacitance on the lower bands it would then have a minimum capacitance with the plates completely open that would be far too high to function on higher bands. 10 meters is the biggest challenge for the designers. Same for the Plate Tune capacitor.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>If you get time it would be good to see if it loads normal on 15 and 10 meters. I would try loading on all the bands and make a chart of how it behaves. Where does the plate Load cap end up for approx 100 watts output at 200ma Ip.
>>>>>>>>>>>>>
>>>>>>>>>>>>>

>>>>>>>>>>>>>One other thing you should look at if comfortable is the main RF plate choke and the small VHF choke at a right angle at its base and the rf bypass cap at its base. If these show signs of overheating then will need to be replaced. The by pass cap can actually physically split the case open.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Need to have rig unplugged and let set for awhile to led bleeders discharge the HV filter caps. Then remove PA cage cover. Then connect ground jumper from top of plate choke and ground for a few seconds. Now safe to use a good flashlite and inspect these items.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>I would also look at both capacitor shaft couplers at the PA cage and make sure screws are tight. Can also watch the travel and make sure full open and full close align with markings on the front panel.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Terry K9TW
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Hi Terry:
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Ah ha. I am a CW op so I always have had a key plugged in (but no mic). Anyway, with a key plugged in you don't get any output with the alternate procedure without closing the key for obvious reasons. I've been so used to how the radio responded when I switched over from tune to CW with a key connected that I ended up thinking the key was necessary. My bad. For me the long procedure from the manual works fine since I always have the key connected and normally have the radio in VOX mode (to save wear on the send switch) but I have a better understanding now. Thank you. I will also study the diagram to try to better understand the relationship between the load capacitor and antenna load.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>This will also help Jason since I took him through the long procedure from the manual that uses a key. He can just unplug his keyer and will be able to move from tuning to loading once he has the drive and plate a resonance (peaked and dipped) without all of the additional gyrations.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>Questions: This still leaves Jason's TS-520's issue with load. Even though I was using the long procedure with the key, I think the results are still accurate. He is getting a maximum output of 70w at 200ma with the load at min (fully CCW) and reducing the load capacitance (increasing the load/turning load CW) actually reduces his output. This

isn't normal, right? I can simulate this on my TS-830 but it pains me. If I intentionally turn the load up too much, output falls off as I increase the load. So...I think in Jason's TS520 it is as if even at maximum capacitance (minimum load) he doesn't have enough to balance against the 50 ohm dummy load---resonance is off the minimum end of the load. Does that sound like a reasonable conclusion? Is the next step for us to try the tune up procedure on all bands and report back (your 10m suggestion from before) or is there something else that we should check first?
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>Thanks,
>>>>>>>>>>>>>> Brian (and Jason)
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>From: "wagstw46@..." <wagstw46@...>
>>>>>>>>>>>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>>>>>>>>>>>Sent: Saturday, September 14, 2013 1:18 PM
>>>>>>>>>>>>>>Subject: RE: Re: Re: [TS-520_820_530_830] RE: New Ham, Tuning issues
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>You dont need the key or vox or any of the gyrations you are putting your self thru to load your TS830.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>The reason Ip indicates approx 60ma when you switch from Tune to CW mode is that you have the plates meshed on the Plate load cap and you are shunting the RF current around the dummy load and circulating it in the Tank.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>> It is OK to crack the Plate Load control open a little at initial loading so you can see 70 or 80 ma or so if that helps you.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>At this point with plates fully meshed you have maximum capacitance and lowest capacitive reactance so the RF current in the tank is going to like to flow thru the plate load cap and not thru the dummy load. Sometime look at formula for Xc and you will see it is an inverse relationship. It will help you understand what I am telling you.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>OK --You havent started tightening up the coupling yet and shifting the tank circuit RF circ current to the dummy load resistance. Each time you open the plates of the Load cap a little more you are decreasing the capacitance and increasing the capacitive reactance XC. This allows more current to flow in the dummy load resistor or the antenna.
>>>>>>>>>>>>>
>>>>>>>>>>>>>
>>>>>>>>>>>>>>When you get to full load you will have opened the Plate Load capactor to the point that the XC is approx equal to the dummy load or antenna resistance. At this point you will have used half of the stored energy in the tank and there will be equal RF current flowing thru the Plate load capacitor and the dummy load resistor. At that point with 100 watts output power there will be approx 1.4 RF amps flowing thru the Plate load cap and 1.4

RF amps flowing thru the 50 ohm dummy load.
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>This is all simple ohms law for parallel resistors, but not too many folks really understand what they are doing or how it works or have just never given it any serious thought.
>>>>>>>>>>>>>>
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>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>After you make that initial plate current dip in Tune mode you do not need to do any more dip and load procedure. Only reason you do this initial dip is to get the tank circuit adjusted close to resonance so when you go to CW mode and apply full screen grid voltage to the finals you dont peg the IP meter if the tank is tuned off resonance. This could damage your finals if left keyed too long at this high Ip level.
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>Read the very last note in the TS-830 loading procedure. It tells you after they have taught you dip and load you dont have to use it as it isnt best or easiest way to load a Class AB1 linear amp!
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>It directs you to place meter in RF position and Flip to Send and alternately adjust the plate Load and Tune controls for maximum indicated relative power (RF voltage).
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>With your wattmeter in line leave your TS830 meter in IP. Now after making that initial plate current dip in Tune mode flip to Send in CW mode and alternately adjust Plate Load and Plate tune controls for approx 100watts output.
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>Your wattmeter will be far more sensitive to any changes you make than your IP meter. You will quickly be able to find the combination that gives you max rf output power. Take a quick look at IP and it should be close to 225ma. If a little over dont worry about it as 265ma is the real limit.
>>>>>>>>>>>>>>
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>>>>>>>>>>>>>>>Lastly, if you are having to increase the Car level at the late stage of tuning you are not setting it high enough in the early Drive control peaking step. There is no reason to have to do this. When you peak the Drive give yourself something to look at. If you peg the ALC meter just reduce the Car level pot to get it off the peg.
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>
>>>>>>>>>>>>>>>Terry K9TW
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45021. RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 16:07:47 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45021

I have suggested more than once:
1. Fix the resting plate current issue
2. Confirm can load on all bands into dummy load.
3. Make sure all coax jumpers being used are not open or shorted or have a high resistance connection.
4. Then try to load into 40 meter coax fed dipole with Tuner in Bypass (using same jumpers).
5. I suspect antenna as currently assembled is resonant outside top end of 40 meter band. Appears he has cut it short for 7.200 mhz. A very quick check would be to load just below 7.300 to see if SWR is lower than 5:1 there..
6. Another very quick check is hang alligator clip leads off the copper flat top wire at each end insulator and just let them hang down. Then go down to around 7.150 and test load. See if adding 10- 12 inches moves resonance down and lowers SWR.
7. I am concerned about this Toroid. What is it and where installed? Is it a 1:1 choke at the input to the Tuner? Is it a 4:1 balun at input of Tuner? I sure hope not.
8. All this RF in shack with a coax fed 1/2 wave dipole is not norm. Perhaps he has one leg longer than other or there is a lot of interaction between nearby objects causing unbalance?

He is waiting on test equipment to measure operating bias voltage. Can just go ahead and Deoxit the bias voltage pot and clean and reset it now and see if that fixes is resting plate current issue.

If it does in about 10 minutes with this Tuner out of the equation he can find out where the dipole is resonant at and add or subtract wire as needed to put it where he wants it. Again if he plans to use Tuner all the time as so many new folks seem to think is necessary then just cut it for 7.150 and use Tuner to present 1:1 wherever he wants to operate. I dont understand why anyone wants to put two impedance matching devices in series to feed a resonant dipole and add 3 more mystery knobs to twiddle everytime you move 5 khz, but I see it all the time. I dont have the energy to try to educate anyone on this. Only time you need a "transmatch" is when you want to multi-band an antenna. Then better to use as much flat top as you can and feed with 300 ohm ladder line (not coax) and use balanced tuner. For coax fed and multiband then can look at G5RV or OCF dipoles. . .

There is plenty of help for him here when it comes to Tuners and Antennas. I will back off at this point and if he needs help troubleshooting the radio I will be available. I am much more comfortable in that role.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Mike...ditto on my response. Was typing and didn't see yours. Still think it would be wise to make sure everything is working right in the shack before moving on to the antenna but I will yield to you folks with more experience.

73,
Brian (K7TKT)

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, October 3, 2013 7:16 AM
Subject: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Hi Terry,

I didn't see your response before I made mine, sorry about that. I'll bow out and let you continue.

73
Mike W5RKL

On 10/3/2013 6:15 AM, wagstw46@... wrote:

First thing. It is ok to place a 1:1 choke in line at the center insulator but can tell you hams ran resonant dipoles for many many years with the coax directly feeding each leg of the dipole and never knew there was any current on outside of the shield and never caused any RF problems in the shack. At this point dont worry about that.

467/7.2mhz = 64 foot 10 inches or 32 foot 5 inches each leg.

Your 64 foot = 467/64 = 7.297mhz. Your antenna is too short for 7.2 mhz assuming that is where you want it to be resonant at. You can easily add about 6 inches to each end and just let it hang done at the end insulator eye. No need to remove and add wire at this point.

Was 7.200 your objective? Center of phone band? Center of the allocation? If you insist on using Tuner and having 1:1 across the band then just cut it for 7.150mhz.

You can easily determine whether you need to add or remove wire by loading into it on either side of where you now have this "low or best" SWR of 5:1 and see which direction causes lower SWR. .

If the SWR gets lower as you move up in frequency you know antenna is too short and you need to add wire to each leg. If SWR gets better as you move down in frequency then you know antenna is too long and you need to remove wire on each leg.

Make sure you check my math.

Using a 40 meter antenna on 80 meters is not going to be very efficient.

Should never get an electrical arcing noise in PA cage when loading a 40 meter dipole on 40 meters. Most common reason for arcing is Plate load cap arcing over but you almost need to have an open at the SO-239 to get high enough RF voltage.

Just remove this Tuner and use the RF detector position and load your radio exactly as the manual says to do. Move up to 7.297mhz and load there. After you get the initial dip in Tune mode then go to CW mode and put meter in RF and load by alternately adjusting the Plate Load and Tune controls for maximum relative power indication on your meter. Place meter switch back to Ip and make sure not exceeding approx 200 ma. The rig is loaded.

If you cannot load this radio without a Tuner into a dummy load on 40 meters or into a 40 meter dipole there is no point in adding a Tuner into the equation. If rig arcs over loading into dummy load and or antenna check your coax jumpers. May have a bad jumper. Takes a very high VSWR to produce very high RF voltage across the Plate Load cap. Highest would be if you have an open. If you have an open the rig will try to load into it and not easy for you to recognize that by looking at RF or IP meter position unless you have experience.

When you can load normally on all bands into the dummy load and into the 40 meter dipole on 40 meters then time to see if you have a good Tuner.

Terry K9TW

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---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am still working on testing those items you pointed out, Terry. I am trying to get a hold of a voltmeter to see what those values are.

As far as my antenna goes, it's a 40 meter center-fed dipole, each leg is cut at 32 feet. The dipole has a center insulator with a line isolator attached. The isolator is what ended my 'RF in the shack' issues. The dipole is mounted in an inverted V formation, with the center insulator hoisted up on a PVC pipe, 17 feet into the air (about as high as I can get it on my property). both ends of the V are mounted about 5 feet off the ground, the angle is greater than 90 degrees. The feedline is 25 feet of RG-213U coming off of my roof and into my house and connecting to my AT-230.

After adding the line isolator, the SWR is 5:1 at 7.200mhz,

My rig is also now grounded, electrically, to my house's electrical grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is also grounded, with a strap connecting the tuner directly to my TS520. The tuner is connected to the 520 and the 520 is connected to the ground rod.

My house is surrounded, basically, by the power company's high voltage wires. The furthest away I could get the dipole from these HV wires is about 15 feet, maybe. I can't get any further away from the power company's lines than that. I haven't heard any noise on the 520 from those power lines, but I don't know if they might be an issue as well.

I just wanted to get that thrown out there for you to chew on, while I get a voltmeter to test the rig.

The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz (40 meters), I get an electrical arcing noise from the 520. I also noticed that if I calibrate the tuner for too long, to check my antenna's SWR, it will blow the fuse in the TS520. Maybe that's normal, but I am not sure so I thought I would mention it.

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No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?

My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.

All this is just speculation until we know what he is using.

After he gets rig to load properly into 50 ohm dummy load we can all jump in and help resolve the antenna and tuner issues that may exist.

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Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

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I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where that takes me.

Jason, K7BOG

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Sounds like an antenna issue caused the radio problems.

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

Hey Terry and everyone:

Sorry this took me so long, I was waiting on parts for my antenna and my AT-230 to arrive in the mail.

I tuned my TS-520 into a dummy load, using the AT-230 as a wattmeter and SWR meter. This is what I observed.

80 meters: Load just about fully meshed, CAR value: 5, 210 ma, 100 watts

40 meters: Load fully meshed, CAR value: 2.75, 210 ma, 80 watts

45022. RE: RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 16:34:56 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45022

I forgot to mention to set the forward sensitivity on your SWR bridge you dont need to use full power. If you are blowing the rigs primary fuse trying to set the SWR bridge sensitivity pot then you probably have rig key down too long in an off resonant state.

Before setting the SWR bridge follow normal loading by peaking your ALC drive, placing rig in Tune mode and perform your Plate current dip. Leave in Tune and adjust your SWR meter sensitivity. As someone mentioned you do not need full power to check SWR of your antenna.

You may want to consider buying a Drake W4 wattmeter and just use the nomograph to read SWR from Forward and Reflected power or buy a MFJ Cross Needle wattmeter. Can then use either meter as a Loading aid, a wattmeter, and SWR meter with no adjustment of a forward power sensitivity pot required. Very easy to use.

Of course the fuse blowing can be due to other problems but try dipping plate current in Tune mode then set SWR bridge in Tune mode and measure SWR in Tune mode.

Terry K9TW

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I have suggested more than once:
1. Fix the resting plate current issue
2. Confirm can load on all bands into dummy load.
3. Make sure all coax jumpers being used are not open or shorted or have a high resistance connection.
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If it does in about 10 minutes with this Tuner out of the equation he can find out where the dipole is resonant at and add or subtract wire as needed to put it where he wants it.

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There is plenty of help for him here when it comes to Tuners and Antennas. I will back off at this point and if he needs help troubleshooting the radio I will be available. I am much more comfortable in that role.

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From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, October 3, 2013 7:16 AM
Subject: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

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Sent: Monday, September 30, 2013 12:47 AM
Subject: [TS-520_820_530_830] RE: New Ham, Tuning issues

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45023. RE: RE: RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 17:54:31 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45023

One final final final comment. I promise!

If you are going to use a 40 meter coax fed dipole as a multi-band antenna why do you care what the SWR is? The SWR is going to be all over the place depending on harmonic relationship of band your are loading on. As long at your Tuner can handle the impedance that is presented there is no reason to ever measure the SWR. You dont measure SWR on a multiband antenna fed with 300 or 450 or 600 ohm feeders. Impedance on a classic center fed Zepp with 300 ohm feedline can range from 100 ohms to 5000 ohms. Common to see 1200 ohms which would be 1200/50 = 24:1 SWR. No concern about this as the 300 ohm line has very low loss. As long as the Tuner can take that 1200 ohms and transform it to approx 50 ohms for the transmitter this high SWR is of no significance.

Same for your coax fed multiband dipole. As long as the Tuner can take the high impedance presented and transform it to close to 50 ohms for you TS-520 the SWR is meaningless other than one significant difference and that is the coax losses which you have chosen to accept by using this method of feed.

Not a very good idea to feed a multiband antenna with coax except in special cases like G5RV or OCF dipoles. It will work but not best efficiency. It is convenient from getting feed line into the shack. I guess that is why it is used?

If you need help with the rig let me know.

Terry

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First thing. It is ok to place a 1:1 choke in line at the center insulator but can tell you hams ran resonant dipoles for many many years with the coax directly feeding each leg of the dipole and never knew there was any current on outside of the shield and never caused any RF problems in the shack. At this point dont worry about that.

467/7.2mhz = 64 foot 10 inches or 32 foot 5 inches each leg.

Your 64 foot = 467/64 = 7.297mhz. Your antenna is too short for 7.2 mhz assuming that is where you want it to be resonant at. You can easily add about 6 inches to each end and just let it hang done at the end insulator eye. No need to remove and add wire at this point.

Was 7.200 your objective? Center of phone band? Center of the allocation? If you insist on using Tuner and having 1:1 across the band then just cut it for 7.150mhz.

You can easily determine whether you need to add or remove wire by loading into it on either side of where you now have this "low or best" SWR of 5:1 and see which direction causes lower SWR. .

If the SWR gets lower as you move up in frequency you know antenna is too short and you need to add wire to each leg. If SWR gets better as you move down in frequency then you know antenna is too long and you need to remove wire on each leg.

Make sure you check my math.

Using a 40 meter antenna on 80 meters is not going to be very efficient.

Should never get an electrical arcing noise in PA cage when loading a 40 meter dipole on 40 meters. Most common reason for arcing is Plate load cap arcing over but you almost need to have an open at the SO-239 to get high enough RF voltage.

Just remove this Tuner and use the RF detector position and load your radio exactly as the manual says to do. Move up to 7.297mhz and load there. After you get the initial dip in Tune mode then go to CW mode and put meter in RF and load by alternately adjusting the Plate Load and Tune controls for maximum relative power indication on your meter. Place meter switch back to Ip and make sure not exceeding approx 200 ma. The rig is loaded.

If you cannot load this radio without a Tuner into a dummy load on 40 meters or into a 40 meter dipole there is no point in adding a Tuner into the equation. If rig arcs over loading into dummy load and or antenna check your coax jumpers. May have a bad jumper. Takes a very high VSWR to produce very high RF voltage across the Plate Load cap. Highest would be if you have an open. If you have an open the rig will try to load into it and not easy for you to recognize that by looking at RF or IP meter position unless you have experience.

When you can load normally on all bands into the dummy load and into the 40 meter dipole on 40 meters then time to see if you have a good Tuner.

Terry K9TW

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---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am still working on testing those items you pointed out, Terry. I am trying to get a hold of a voltmeter to see what those values are.

As far as my antenna goes, it's a 40 meter center-fed dipole, each leg is cut at 32 feet. The dipole has a center insulator with a line isolator attached. The isolator is what ended my 'RF in the shack' issues. The dipole is mounted in an inverted V formation, with the center insulator hoisted up on a PVC pipe, 17 feet into the air (about as high as I can get it on my property). both ends of the V are mounted about 5 feet off the ground, the angle is greater than 90 degrees. The feedline is 25 feet of RG-213U coming off of my roof and into my house and connecting to my AT-230.

After adding the line isolator, the SWR is 5:1 at 7.200mhz,

My rig is also now grounded, electrically, to my house's electrical grounding rod, with a 5 ft piece of heavy gauge wire. The AT-230 is also grounded, with a strap connecting the tuner directly to my TS520. The tuner is connected to the 520 and the 520 is connected to the ground rod.

My house is surrounded, basically, by the power company's high voltage wires. The furthest away I could get the dipole from these HV wires is about 15 feet, maybe. I can't get any further away from the power company's lines than that. I haven't heard any noise on the 520 from those power lines, but I don't know if they might be an issue as well.

I just wanted to get that thrown out there for you to chew on, while I get a voltmeter to test the rig.

The tuner will not tune the antenna on 3.5 mhz, 7mhz or 14 mhz, but it tunes on 21, 28 and 29 mhz. When I try to tune the antenna on 7 mhz (40 meters), I get an electrical arcing noise from the 520. I also noticed that if I calibrate the tuner for too long, to check my antenna's SWR, it will blow the fuse in the TS520. Maybe that's normal, but I am not sure so I thought I would mention it.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

No reason to worry about 5:1 swr until we know what kind of antenna configuration and what freq he is trying to load it on. May be perfectly understandable. Ever see the SWR loading a typical G5RV on 15 or 17 meters?

My guess is with all the RF in the shack may be using end fed antenna? May be using an OCF dipole but I have used them and no problems with RF in shack but I feed with 4:1 current balun at the offset feed point.

All this is just speculation until we know what he is using.

After he gets rig to load properly into 50 ohm dummy load we can all jump in and help resolve the antenna and tuner issues that may exist.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

5 : 1 SWR ?

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Your very first goal is to be able to load the rig into a dummy load on all bands. Worry about using a tuner to load into a multi-band antenna after you are certain you can load "normally" in to the dummy load.

If you can load the rig successfully into dummy load with the tuner in the Bypass Mode (just using the tuner for the wattmeter/SWR meter function) then nothing is wrong with your Pi-Network in the rig unless you are at extreme ends of the Plate Load cap or the Plate Tune cap position doesnt align relatively close to the white panel marking for the band you are loading on.

If you end up having the Plate Load or Plate tune caps at odd positions to attain your 80 to 100 watts into the dummy load you may have bad fixed padder caps.

What would be "normal" is approx 90 to 100 watts into 50 ohm dummy load on all bands with exception of 10 meters (80 watts) at approx 200ma plate current and you should see very close to 1:1 SWR into your dummy load.

If you can do this then time to discuss the antenna and the tuner issues.

Again, your first effort should be to make sure the rig can load normally into a dummy load. This proves your dummy load is good, your interconnecting coax jumpers are good, and the rig is good.

If you cannot do this then no reason to attempt to use the tuner to load in to a multi-band antenna of any type.

The tuner is taking the impedance that the antenna presents at the end of whatever kind of feed line you are using and converting it to an impedance that your rigs Pi-network can match. A multiband antenna can present a wide range of impedances (combination of resistance and reactive) to your rig. The rig cannot match very high impedances (thousands of ohms) that a multiband antenna can present. If you have very high impedance at the end of the feed line in the shack then RF can be a problem in the shack. End fed can present several thousand ohms which means very high RF voltage at the input to the tuner. Sometimes need to install counter poise to resolve this situation.

Describe again what the antenna configuration is. Is this a OCF dipole or a 135 foot flat top fed with 300 ohm ladder line or open wire feeders or a random length end fed ??

It could be that the Tuner has an issue?

So tell us first if you can load rig normally into the dummy load? If so, then describe the complete antenna configuration.

Having resting plate current changing has nothing to do with your antenna or your tuner. You can unscrew your coax connector off back of rig and set resting plate current. Fix that first.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Installing an 'ugly balun' and getting rid of that stray RF really helped, but it still seems there is something mechanically wrong with the 520. I think that not being able to tune it properly is hurting my AT-230's ability to successfully tune my antenna. I noticed that on 10 and 15 the tuner works fine, but when I get to 20 or 40 it won't match at all. I also still need to ground the radio itself, I have the rig plugged into a standard wall outlet, but in my house, the wall outlets are not grounded (older home), maybe it'll help a little to get the rig properly grounded.

I wish I had the cash to have a professional look at it and realign everything for me. Either way, I'll work on testing those issues that were mentioned by Terry and see where t1?,j□?????m???jם

45024. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 18:13:58 UTC
From: Mike
Topic: 44440 Message: 45024

A good multi band antenna is the G5RV. I fed the G5RV with RG-8x and used a Drake MN-2000 tuner. The exciter was a Drake T4XC transmitter. I've used it with a Heathkit HW-101. Tuning the transmitter into a 50 ohm dummy load first then switching to the tuner, not touching the transmitter controls but adjust only the tuner controls for lowest SWR. Works every time.

There are various models of the G5RV, I used the 102 foot version. Tuning on 80 was a bit tight, less than 30Khz of bandwidth, and I could get the SWR to 1.2:1. On the higher bands it worked very well and tuning the tuner was much easier.

The G5RV can be errected as a horizontal dipole or in an inverted vee fashion. I had mine in the horizontal fashion, I have the real estate needed for the 102 foot version. I do not recommend wrapping the 450 ohm line around a support object such as a tree if you don't have the real estate. The G5RV should put up as high as possible so the 450 ohm line is straight. If you do not have the real estate for 102 foot long version then there's a shorter version you might be able to use. Either way, the G5RV works very well as a multi band antenna.

73
Mike W5RKL

45025. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 19:27:48 UTC
From: Don Cunningham
Topic: 44440 Message: 45025

Mike,

I have to agree fully on the G5RV 102' version as a VERY good multiband antenna. I don't know why they get such a bad name, and for some, they are the only thing that comes close to fitting their lot. I don't know anything about the reduced sized version, but I used one of the 102' variety for MANY years on a city lot as my only way of getting on 8 megs down to the bottom of 80M. It was hung near 50' at the center and just above fence height on the ends inverted vee style, so the angle exceeded 90 degrees, I am sure. I used it on MARS too on a wide range of frequencies. Is it as good as my full sized 80M dipole at 60' since I have more real estate, probably not, but sure better than trying to tune a coax fed 40M dipole anywhere other than 40M. I never needed to talk to anyone with the G5RV that I couldn't. In other words, if I could hear them, I could work them.

Also, I feed my 80M wire with 300 ohm line from the Wireman (actually his Coaxman component here in Oklahoma) and find it varies less in bad weather like rain, snow, etc. It also seems less susceptable to nearby objects interferring. Just my opinion though, other love their 450 ohm stuff too. I think height and proximity to the transmitter are a problem for a lot of the folks using rigs nowadays. I think the original poster here said 17' was the maximum he could get the center up. That makes it hard to get away from surrounding objects as you mentioned earlier.
As always, YMMV.
73,
Don, WB5HAK
On 10/3/2013 1:13 PM, Mike wrote:
> A good multi band antenna is the G5RV. I fed the G5RV with RG-8x and
> used a Drake MN-2000 tuner. The exciter was a Drake T4XC transmitter.
> I've used it with a Heathkit HW-101. Tuning the transmitter into a 50
> ohm dummy load first then switching to the tuner, not touching the
> transmitter controls but adjust only the tuner controls for lowest SWR.
> Works every time.
>
> There are various models of the G5RV, I used the 102 foot version.
> Tuning on 80 was a bit tight, less than 30Khz of bandwidth, and I could
> get the SWR to 1.2:1. On the higher bands it worked very well and tuning
> the tuner was much easier.
>
> The G5RV can be errected as a horizontal dipole or in an inverted vee
> fashion. I had mine in the horizontal fashion, I have the real estate
> needed for the 102 foot version. I do not recommend wrapping the 450 ohm
> line around a support object such as a tree if you don't have the real

> estate. The G5RV should put up as high as possible so the 450 ohm line
> is straight. If you do not have the real estate for 102 foot long
> version then there's a shorter version you might be able to use. Either
> way, the G5RV works very well as a multi band antenna.
>
> 73
> Mike W5RKL
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> Yahoo! Groups Links
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45026. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 19:40:37 UTC
From: Joe - W7RKN
Topic: 44440 Message: 45026

The biggest issue with a G5RV antenna is its inability to give good, low SWR on all bands... I **think** it's 17 that won't load correctly, a tuner is mandatory..I don't rightly remember, so don't want to have anyone chisel that in stone. I tried a G5RV at my house and couldn't get it to work across the street, so took it down and put up a coax fed Windom...works beautifully, and on all bands..6 to 160..highest SWR is 1.8 on 40. All other bands it is below 1.4...Even 60 meters is 1.3.3.

The old rule, "Whatever works, is good!"

Joe - W7RKN

----- Original Message -----
From: "Don Cunningham" <donc@...>
Subject: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

> Mike,
>
> I have to agree fully on the G5RV 102' version as a VERY good multiband
> antenna. I don't know why they get such a bad name, and for some, they
> are the only thing that comes close to fitting their lot. I don't know
> anything about the reduced sized version, but I used one of the 102'
> variety for MANY years on a city lot as my only way of getting on 8 megs
> down to the bottom of 80M.

45027. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 19:52:28 UTC
From: Mike
Topic: 44440 Message: 45027

My initial experience with a 102 foot long G5RV using a Drake MN-4 low power tuner didn't work very well. There wasn't an arcing, the tuner simply didn't work as well with the G5RV. However, when I switched to a Drake MN-2000 tuner the G5RV worked great.

As for WARC bands, I only used the G5RV and MN-2000 on 30 and 17 meters.

I won't comment on any other make and model tuner since I have no experience using any tuner except the Drake MN-4 and MN-2000.

I will not say you will have the same results as I did, it all depends the amount of space you have, how you erect the antenna, etc. I can only say what my experience has been, nothing more.

Have fun.

73
Mike W5RKL

On 10/3/2013 2:40 PM, Joe - W7RKN wrote:
> The biggest issue with a G5RV antenna is its inability to give good, low SWR
> on all bands... I **think** it's 17 that won't load correctly, a tuner is
> mandatory..I don't rightly remember, so don't want to have anyone chisel
> that in stone. I tried a G5RV at my house and couldn't get it to work
> across the street, so took it down and put up a coax fed Windom...works
> beautifully, and on all bands..6 to 160..highest SWR is 1.8 on 40. All
> other bands it is below 1.4...Even 60 meters is 1.3.3.
>
> The old rule, "Whatever works, is good!"
>
> Joe - W7RKN
>
> ----- Original Message -----
> From: "Don Cunningham" <donc@...>
> Subject: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues
>
>
>> Mike,
>>
>> I have to agree fully on the G5RV 102' version as a VERY good multiband
>> antenna. I don't know why they get such a bad name, and for some, they
>> are the only thing that comes close to fitting their lot. I don't know
>> anything about the reduced sized version, but I used one of the 102'
>> variety for MANY years on a city lot as my only way of getting on 8 megs
>> down to the bottom of 80M.
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> Yahoo! Groups Links
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45028. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 21:10:27 UTC
From: Michael Rolph
Topic: 44440 Message: 45028

I have a small garden and use an inverted l with a remote autotuner that has been 'learnt' on all bands used. Of course I tune the rig into a dummy load first then switch to the antenna, flick the send key on and off and bingo. This has got me from the east of the Uk to japan, south Africa, the states and many other places with 59 reports.
73 de Mike M0MCY

On 3 October 2013 20:52, Mike <w5rkl@...> wrote:

>
>
> My initial experience with a 102 foot long G5RV using a Drake MN-4 low
> power tuner didn't work very well. There wasn't an arcing, the tuner simply
> didn't work as well with the G5RV. However, when I switched to a Drake
> MN-2000 tuner the G5RV worked great.
>
> As for WARC bands, I only used the G5RV and MN-2000 on 30 and 17 meters.
>
> I won't comment on any other make and model tuner since I have no
> experience using any tuner except the Drake MN-4 and MN-2000.
>
> I will not say you will have the same results as I did, it all depends the
> amount of space you have, how you erect the antenna, etc. I can only say
> what my experience has been, nothing more.
>
> Have fun.
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 10/3/2013 2:40 PM, Joe - W7RKN wrote:
>
> The biggest issue with a G5RV antenna is its inability to give good, low SWR
> on all bands... I **think** it's 17 that won't load correctly, a tuner is
> mandatory..I don't rightly remember, so don't want to have anyone chisel
> that in stone. I tried a G5RV at my house and couldn't get it to work
> across the street, so took it down and put up a coax fed Windom...works
> beautifully, and on all bands..6 to 160..highest SWR is 1.8 on 40. All
> other bands it is below 1.4...Even 60 meters is 1.3.3.
>
> The old rule, "Whatever works, is good!"
>

> Joe - W7RKN
>
> ----- Original Message -----
> From: "Don Cunningham" <donc@...> <donc@...>
> Subject: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues
>
>
>
> Mike,
>
> I have to agree fully on the G5RV 102' version as a VERY good multiband
> antenna. I don't know why they get such a bad name, and for some, they
> are the only thing that comes close to fitting their lot. I don't know
> anything about the reduced sized version, but I used one of the 102'
> variety for MANY years on a city lot as my only way of getting on 8 megs
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45029. RE: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-03 22:16:32 UTC
From: fpath fpath
Topic: 44440 Message: 45029

Craig,

I have not seen any replies to your question. The 30 series hybird range has an issue with strong signals and the noise blanker, eg: If you have the noise blanker turned all the way clockwise you may have some distortion on received signals, try backing off NB and see how you go, should removed the distortion. As for to schottky or not, personal decision, but if it's not broken why risk the possibility of lifting a track or possibly introducing another problem.

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@...
Date: Tue, 1 Oct 2013 11:42:22 -0400
Subject: [TS-520_820_530_830] Schottky or not to Schottky?

Okay, I'm confused.

My TS-830S -- when compared with my super clean sounding TS-530S -- exhibits a slight amount of receiver distortion on strong signals. The 830's frequency response is also not quite as open and transparent as the 530's, though the 830's noise floor sounds lower. Both radios' audio outputs are connected to my SP-230, so speaker response is identical.

Would swapping the 830's 1N60 diodes with Schottky diodes make a positive difference? I have read scores of forum queries on this topic and the answers appear to be almost equally divided between "Wow! What a difference!" and "Don't bother. If it ain't broke...."

I can certainly live with the 830's received audio and am reluctant to mess with any more fragile circuit board traces if the results will be negligible. However, if I can make my 830 sound as smooth and bright as my 530, I'd take the chance.

So, what's your experience, please?

Thanks (again) and 73,

Craig
W3CRR

45030. 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 02:21:28 UTC
From: <yioutta_99@...>
Topic: 538 Message: 45030

HI group.

I am working on a 530s. I will be changing the band change coupler. It will need an alienment also, but finding the right tool to do it with has been a challenge. Anybody have source to share? i saw a kit on Amazon, but you cant really see what kind of tips you are getting. The 530s has very small rectangle type tuning slugs.

Also the noise blanker isnt working..any thoughts on that?

thanks

45031. Re: [TS-520_820_530_830] 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 03:41:12 UTC
From: Ron
Topic: 538 Message: 45031

K4EAA.com sells the tool I think u are seeking Ron KK4pwf

Sent from my iPhone

On Oct 3, 2013, at 9:21 PM, <yioutta_99@...> wrote:

>
>
> HI group.
>
> I am working on a 530s. I will be changing the band change coupler. It will need an alienment also, but finding the right tool to do it with has been a challenge. Anybody have source to share? i saw a kit on Amazon, but you cant really see what kind of tips you are getting. The 530s has very small rectangle type tuning slugs.
>
> Also the noise blanker isnt working..any thoughts on that?
>
> thanks
>
>
>

45032. RE: [TS-520_820_530_830] 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 06:10:33 UTC
From: fpath fpath
Topic: 538 Message: 45032

G'day,

Please leave your name and callsign at the end of your message, makes it easier to address you and your specific radio problem. Ken, K3EAA has a great alignment tools and Barb (XYL) is real quick in getting orders out! You can also make your own tools from large knitting needles that can be filed down to your requirement. Be careful when attempting to adjust the slugs as they tend to stick after many years not being move. The preferred method I use is to get a clean solder iron and gently heat the slug and then turn to prevent it re-sealing. There are other methods from using different solvents\lubricants.

As for your noise blank, first try cleaning the switch with a squirt of De-oxit, action the button a number of times then give a good blast of can air, same with the front panel NB adjustment pot. Report back on your findings in case we need to go further.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Thu, 3 Oct 2013 19:21:28 -0700
Subject: [TS-520_820_530_830] 530s

HI group.

I am working on a 530s. I will be changing the band change coupler. It will need an alienment also, but finding the right tool to do it with has been a challenge. Anybody have source to share? i saw a kit on Amazon, but you cant really see what kind of tips you are getting. The 530s has very small rectangle type tuning slugs.

Also the noise blanker isnt working..any thoughts on that?

thanks

45033. Re: 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 11:27:56 UTC
From: crgrbrts@...
Topic: 538 Message: 45033

The 530's noise blanker, unlike Digital Signal Processing, will only respond to ignition noise and the like.

73,
Craig
W3CRR

Sent via BlackBerry by AT&T

45034. Re: [TS-520_820_530_830] 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 11:30:05 UTC
From: Mike
Topic: 538 Message: 45034

You say the noise blanker isn't working. How do you know for sure it's not working? Have you tested it on pulse type noise such as a hair dryer? If not then try that.

The noise blanker in the hybrids will not eliminate all types of noise. The noise blanker is designed to eliminate arcing or pulse type noise only such as engine ignition noise (spark plugs) or power line arcing. Try the hair dryer test, turn the hair dryer ON and if it produces noise in the hybrid turn the noise blanker switch ON and the noise should be significantly reduced if not eliminated. If that happens then the noise blanker is working.

73
Mike W5RKL

On 10/3/2013 9:21 PM, yioutta_99@... wrote:
>
> HI group.
>
>
> I am working on a 530s. I will be changing the band change coupler.
> It will need an alienment also, but finding the right tool to do it
> with has been a challenge. Anybody have source to share? i saw a kit
> on Amazon, but you cant really see what kind of tips you are getting.
> The 530s has very small rectangle type tuning slugs.
>
> Also the noise blanker isnt working..any thoughts on that?
>
> thanks
>

45035. Re: [TS-520_820_530_830] 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 12:42:24 UTC
From: Mike
Topic: 538 Message: 45035

I forgot the mentioned an additional comment about the noise blanker.

First, I do not have a KW hybrid, sold my TS-520SE many years ago and sold my TS-820 a couple of years ago, but I do have a Heathkit SB-303 solid state ham band receiver that I installed a KW TS-520 Noise Blanker board in. That NB board in my SB-303 receiver is the exact same NB board in the KW TS-520/520S/520SE.

What you will find when the noise blanker is working to eliminate arcing/pulse type noise, the receive signal may appear to be slightly distorted in the speaker. I find this to be more evident on CW rather then sideband signals. I have, however, noticed on sideband if a strong distant station operating 5Khz or so away from my operating frequency, with the NB turned ON with pulse type noise present, the distant receive signal may appear as "splatter". What you are hearing, in most cases, is not "Splatter" at all.

The NB operates on pulse type noise and when pulse type noise is present in the receive signal (the receive signal path goes through the NB whether the NB is turned ON or not), the NB switching circuit switches the signal path OFF and ON very rapidly. The "instant" (a few milliseconds) the noise is detected by the NB, a very small amount of noise will accompany the signal and be heard as distortion in the speaker. This is normal for most all pulse type NBs. The 520 NB in my SB-303 (same NB board in your 520) as well as the NB in my Drake R4B and R4C receives exhibit the same very slight distortion heard in the speaker when pulse noise is present and the NB is turned ON.

If the NB is turned ON but there is no pulse type noise present then you will not hear any difference in the signal nor will you hear any distortion because the NB acts ONLY when pulse noise is present so the signal path remains switched ON by the NB switching circuit.

73
Mike W5RKL

On 10/4/2013 6:30 AM, Mike wrote:
>
> You say the noise blanker isn't working. How do you know for sure it's
> not working? Have you tested it on pulse type noise such as a hair
> dryer? If not then try that.
>
> The noise blanker in the hybrids will not eliminate all types of
> noise. The noise blanker is designed to eliminate arcing or pulse type
> noise only such as engine ignition noise (spark plugs) or power line
> arcing. Try the hair dryer test, turn the hair dryer ON and if it

> produces noise in the hybrid turn the noise blanker switch ON and the
> noise should be significantly reduced if not eliminated. If that
> happens then the noise blanker is working.
>
> 73
> Mike W5RKL
>
>
> On 10/3/2013 9:21 PM, yioutta_99@... wrote:
>>
>> HI group.
>>
>>
>> I am working on a 530s. I will be changing the band change coupler.
>> It will need an alienment also, but finding the right tool to do it
>> with has been a challenge. Anybody have source to share? i saw a
>> kit on Amazon, but you cant really see what kind of tips you are
>> getting. The 530s has very small rectangle type tuning slugs.
>>
>> Also the noise blanker isnt working..any thoughts on that?
>>
>> thanks
>
>

45036. A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 15:34:16 UTC
From: Chris Maness
Topic: 45036 Message: 45036

I was looking for miss titled adds on craigslist for Kenwood gear, and I was able to score a MC-50 with a TS-120S for $175. It has been up for two weeks. I love finding little nuggets like this. I tried it with my old TS-520S last night and received great audio reports.

The TS-120S is alright. It might need an alignment as the sensitivity seemed not to be consistent across the band. I noticed the static as I tuned across the band went up and down in a sinusoidal fashion. The static just seemed like local power line hash we get when there is fog or moist onshore flow. However, band conditions were really weird and noisy last night. Is there an alignment issue that can cause something like this? It is not the best receiver so far, but it is a real talker. I worked Pat, I5ZSS as my first contact on the radio from six land on 40m last night. I was thinking about using it as my field day rig, but I might just flip it and use the money to get an IC-730 for FD.

73 de KQ6UP
Chris

45037. Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 04:05:02 UTC
From: clifford wright
Topic: 44440 Message: 45037

We have heard a lot about G5RV antennas lately. I can claim over 45
years experience with them fortunately.
There is one BIG problem though, Hasn't anyone in the US or Canada ever
heard of a Z match coupler?
Look it up, if you are curious. That is what I have used for very many
years, both the 2 coil and single coil versions.
My G5RV is fed with ~450 Ohm home made ladder line. I Have had little
success with the old 300 Ohm ribbon
and the original idea of putting a 75 Ohm coax on the end always worried me.
Mine gives virtually unity SWR on all bands except 30 Metres. But even
there there is a cure, just make a heavy wire
self supporting coil of about 1.3 uH and put it in series with one
feeder. With that 10.1 Mhz is flat too.
IMO too many Hams are too fond of coax, it is fine in the shack and for
vertical and UHF/VHF antennas, but when trying to match a wire
antenna over the whole HF range it is more a hinderance than a help and
a big source of mismatch and losses.
My 2 Cents worth from over 50 years on the air.
Zl1BDA.

45038. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 16:56:50 UTC
From: W5RKL
Topic: 45036 Message: 45038

Did you use the calibrator as a signal source then connect the 120 to a 50 ohm dummy load, first before you considered the 120 receiver may need an alignment? The calibrator signal should be fairly constant, S meter indication, across the band selected. The calibrator signal strength, as shown on the S meter, may be 10 to 20 over 9 on 80 meters, S10 on 40 and S9 on 20, but drop to S7 or less on 15 and 10 meters. If this is how the receiver reacts to the calibrator signal then I would say the receiver alignment is fine. Having said that, the real test is to check the receiver alignment using the 120's service manual receiver alignment steps.

External power line arcing and/or atmospheric "static" noise and band conditions have nothing to do with receiver alignment.

73
Mike W5RKL

On 10/4/2013 10:34 AM, Chris Maness wrote:
> I was looking for miss titled adds on craigslist for Kenwood gear, and
> I was able to score a MC-50 with a TS-120S for $175. It has been up
> for two weeks. I love finding little nuggets like this. I tried it
> with my old TS-520S last night and received great audio reports.
>
> The TS-120S is alright. It might need an alignment as the sensitivity
> seemed not to be consistent across the band. I noticed the static as I
> tuned across the band went up and down in a sinusoidal fashion. The
> static just seemed like local power line hash we get when there is fog
> or moist onshore flow. However, band conditions were really weird and
> noisy last night. Is there an alignment issue that can cause
> something like this? It is not the best receiver so far, but it is a
> real talker. I worked Pat, I5ZSS as my first contact on the radio
> from six land on 40m last night. I was thinking about using it as my
> field day rig, but I might just flip it and use the money to get an
> IC-730 for FD.
>
> 73 de KQ6UP
> Chris
>

45039. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 17:56:56 UTC
From: Chris Maness
Topic: 45036 Message: 45039

On Fri, Oct 4, 2013 at 9:56 AM, W5RKL <w5rkl@...> wrote:

>
>
> Did you use the calibrator as a signal source then connect the 120 to a 50
> ohm dummy load, first before you considered the 120 receiver may need an
> alignment? The calibrator signal should be fairly constant, S meter
> indication, across the band selected. The calibrator signal strength, as
> shown on the S meter, may be 10 to 20 over 9 on 80 meters, S10 on 40 and S9
> on 20, but drop to S7 or less on 15 and 10 meters. If this is how the
> receiver reacts to the calibrator signal then I would say the receiver
> alignment is fine. Having said that, the real test is to check the receiver
> alignment using the 120's service manual receiver alignment steps.
>

I will give this a shot.

>
> External power line arcing and/or atmospheric "static" noise and band
> conditions have nothing to do with receiver alignment.
>

I have noticed that this same insulator arcing is VERY broad banded on my other receivers. However, I concur basing the receiver alignment on this is not very scientific. The problem wasn't very noticeable when I tried it really quickly this morning. The band was VERY noisy last night too. It was an S7 on my 520 sugar before I swapped in the 120 sugar.

What do you think about the possibility of using this rig for field day? I was holding out for an IC-730, but the price was a steal ESPECIALLY with a working MC-50.

> 73
> Mike W5RKL
>

Thanks,
Chris Maness KQ6UP

>
>
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>
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>
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>
>
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> and use the money to get an IC-730 for FD.
>
> 73 de KQ6UP
> Chris
>
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45040. Re: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 18:08:47 UTC
From: Craig Roberts
Topic: 44440 Message: 45040

Hi Dave,

The noise blanker's not the problem (though I did find it on and cranked up all the way when I first got the radio and discovered what THAT did to the audio). Nevertheless, the problem is so minor that I've decided to leave well enough alone.

As I may have mentioned, if I didn't have the super clean TS-530S audio to compare it with, I doubt that I'd even notice it. Balancing the 830's slight distortion on strong signal peaks is it full, rich frequency response otherwise --much more so that the 530.

Many thanks and 73,

Craig
W3CRR
>

45041. RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 18:09:44 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45041

The true Harvey Wells Z-Match is very hard to find here. I owned one years ago along with Johnson Matchbox and several homebrew balanced transmatches. Can copy the Z-match circuit, but parts hard to find and come at a premium.

Problem today is vast majority of newer hams are buying low cost T-match tuners like the MFJ some of which have a more or less adequate toroid transformer for balanced feeders. Cheaper to buy one of these off eBay than to build a balanced tuner.

These new T-match tuners promote or facilitate the use of coax to feed antennas either multiband or resonant dipoles. I think it is part of reason you see them used frequently to load a commercial triband yagi beam instead of just living with the SWR curves if fed directly by the coax. Very silly. Part of the "1:1-itis" that pervades the ranks.

Also, very few new or old hams are homebrewing tuners. Most do not understand what additional losses the coax presents in presence of the high SWR that multiband antennas exhibit. Also I think they favor coax for ease of entry and routing to the shack.

Not easy to home brew a balanced tuner today as air variables, roller inductors, bandswitches, Air dux coil stock etc are hard to find. Hamfest are not what they use to be. More of social events today.

I always used thermocouple RF amp meters in each leg of my feeders and tuned for maximum. Very easy way to adjust the tuner. Never had an SWR bridge for adjusting balanced tuners feeding multiband antennas back in early days. How often do you see an RF amp meter today?

Very different world today. Almost anything will work to some degree. Definition of work is different to different folks and if the Op is making contacts and is happy then I guess that is all that matters.

Perhaps with time some folks might progress to experimenting with multiband antennas fed with balanced feeders? Just about nothing more fun that experimenting with wire antennas especially if you have the room or trying to be innovative and maximize efficiency using the space limitations that you have.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

We have heard a lot about G5RV antennas lately. I can claim over 45
years experience with them fortunately.
There is one BIG problem though, Hasn't anyone in the US or Canada ever
heard of a Z match coupler?
Look it up, if you are curious. That is what I have used for very many
years, both the 2 coil and single coil versions.
My G5RV is fed with ~450 Ohm home made ladder line. I Have had little
success with the old 300 Ohm ribbon

and the original idea of putting a 75 Ohm coax on the end always worried me.
Mine gives virtually unity SWR on all bands except 30 Metres. But even
there there is a cure, just make a heavy wire
self supporting coil of about 1.3 uH and put it in series with one
feeder. With that 10.1 Mhz is flat too.
IMO too many Hams are too fond of coax, it is fine in the shack and for
vertical and UHF/VHF antennas, but when trying to match a wire
antenna over the whole HF range it is more a hinderance than a help and
a big source of mismatch and losses.
My 2 Cents worth from over 50 years on the air.
Zl1BDA.

45042. RE: RE: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 18:48:02 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45042

A few years ago it was all the rage to replace the 1N34 or 1N60 germanium signal diodes in the balanced modulator and the product detectors that were in ring diode configuration with Schottky or hot carrier diodes. It was topic here, Heathkit forums, QRZ, Eham and others. Common diodes included 1N5711, 1N4454, 1N6263 and others.

Many if not most of the reports were anecdotal or feel good engineering and not based on before and after measurements. There are back issues of QST that address this topic.

Have to be careful when you research this as some folks confuse and mix this diode change out with PIN diodes and two very different animals and subjects. Tom W8JI tried to discuss this and he was talking about PIN diodes and not Schottky.

I tried 1N5711s in couple of Hybrids. I dont have necessary test gear for measurements and perhaps I have a less than a discriminating ear. I did not see/hear dramatic improvements.

However, I am in favor of using matched sets of what ever ring diodes you use. Helps with carrier suppression. BFO or CIO leakage back to the IF stages can be a problem as the AGC detector diodes treat that leakage same as they would off air signal.

I think today if you bought a new receiver that uses ring diode product detector (not likely but lets just say if it did) it would be safe to say that it would have hot carrier diodes and not germanium signal diodes. The design engineers have to be specing these for a reason.

So given that it is relatively easy to pull the IF board then go ahead and install matched set of hot carrier diodes in your product detector (you can buy bulk match them and if need help I can give a method). This assumes you have the tools to safely unsolder the old and resolder the new. Not worth lifting a foil or pad.

At same time use this opportunity to carefully inspect all the Molex connector pins to ensure no bad solder connections. Need magnifier and good lite.

If you do try them I would be interested in your report (subjective or otherwise) on what improvement you notice.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Craig,

I have not seen any replies to your question. The 30 series hybird range has an issue with strong signals and the noise blanker, eg: If you have the noise blanker turned all the way clockwise you may have some distortion on received signals, try backing off NB and see how you go, should removed the distortion. As for to schottky or not, personal decision, but if it's not broken why risk the possibility of lifting a track or possibly introducing another problem.

73s
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@...
Date: Tue, 1 Oct 2013 11:42:22 -0400
Subject: [TS-520_820_530_830] Schottky or not to Schottky?

Okay, I'm confused.

My TS-830S -- when compared with my super clean sounding TS-530S -- exhibits a slight amount of receiver distortion on strong signals. The 830's frequency response is also not quite as open and transparent as the 530's, though the 830's noise floor sounds lower. Both radios' audio outputs are connected to my SP-230, so speaker response is identical.

Would swapping the 830's 1N60 diodes with Schottky diodes make a positive difference? I have read scores of forum queries on this topic and the answers appear to be almost equally divided between "Wow! What a difference!" and "Don't bother. If it ain't broke...."

I can certainly live with the 830's received audio and am reluctant to mess with any more fragile circuit board traces if the results will be negligible. However, if I can make my 830 sound as smooth and bright as my 530, I'd take the chance.

So, what's your experience, please?

Thanks (again) and 73,

Craig
W3CRR

45043. Re: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 18:58:15 UTC
From: Wes Will
Topic: 44440 Message: 45043

> and install matched set of hot carrier diodes in your product detector (
> you can bulk match them and if need help I can give a method).

If it is something you can link to or copy/paste into an email, I would be interested in your method for matching diodes. I'm not wishing to put you to a lot of typing, though, so don't go out of your way for this.

At the moment it's idle curiosity, too much else to do. Although the sheer amount of noise on the receiver of my 520SE (with a dummy-load for an "antenna") was a bit off-putting to me, and lower the noise figures would be a good thing.

I'm going to be using the antenna analyzer as a DSP (it has the daughter board for it) when it is all finished, but if there is a way to give the DSP less noise to work out to begin with, that would be a boon.

(Also I'm curious what sort of circuit you're going to use. I -know- you are not talking about just using an ohmmeter to check the junction voltage drop.)

--
wes will
N9KDY

45044. RE: Re: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 20:42:10 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45044

No I dont use ohm meter or diode test function on the DMM. Diode test function may not have sufficient current flow.

I build a simple series circuit and use a regulated DC supply to feed it and measure the voltage drop across the diode to 3 places with a DMM. Go thru the batch and select 4 that have very close to same voltage drop. Regulated supply is a must.

If you do not have a regulated low voltage DC supply then buy couple of fresh 6 volt lantern batteries.

Place approx 4.7k ohm resistor in series with your diode under test and connect the regulated DC supply across both. I use 12 vdc. Place your DMM on low dc voltage range and measure the voltage across the diode to 3 decimal places. The 4.7k resistor limits the current. 12/4700 = 2.5ma. You want some current flow to allow diode to temperature stabilize.

Wait about 10 seconds before recording the voltage drop so diode will temperature stabilize. You can connect meter right away or after warm up time. Connect your DMM across the diode and measure the voltage to 3 decimal points. Log this value for this diode.

Select the next diode and place in circuit and again wait a few seconds to allow diode to stabilize and measure the voltage drop across it to 3 places. Log this value.

Go thru your bulk batch of diodes and just select 4 diodes that have very close to the same voltage drop.

I generally would not use much more than 5 to 10 ma of current.

Perhaps other members have a better method?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

> and install matched set of hot carrier diodes in your product detector (
> you can bulk match them and if need help I can give a method).

If it is something you can link to or copy/paste into an email, I would
be interested in your method for matching diodes. I'm not wishing to
put you to a lot of typing, though, so don't go out of your way for this.

At the moment it's idle curiosity, too much else to do. Although the
sheer amount of noise on the receiver of my 520SE (with a dummy-load for
an "antenna") was a bit off-putting to me, and lower the noise figures
would be a good thing.

I'm going to be using the antenna analyzer as a DSP (it has the daughter
board for it) when it is all finished, but if there is a way to give the

DSP less noise to work out to begin with, that would be a boon.

(Also I'm curious what sort of circuit you're going to use. I -know-
you are not talking about just using an ohmmeter to check the junction
voltage drop.)

--
wes will
N9KDY

45045. TS520 Calibration and tuning strangeness

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 21:09:16 UTC
From: Gordon JC Pearce
Topic: 45045 Message: 45045

Hi folks,
I finally decided to take a look at how well tuned the calibrator is on my TS520, and correct the sub dial being about half a notch off when set to zero.

What I'm puzzled by is this - the manual suggests that on CW the RX offset should be about 700Hz to give a nice CW tone, and on TUN there should be no offset so the radio will transmit at the same frequency it receives - so when I zero-beat to a known 7.000MHz oscillator I am transmitting on 7.000MHz with the offset only coming in when I switch to CW.

So, this sounds like I should hear a shift of around 700Hz if I switch between CW and TUN, but I don't.

Looking at the voltages on the select pins on the carrier board, in both CW and TUN the CWR pin is at 9V and the CWT pin is at around -1.8V. These swap over when I switch to transmit. The position of the CAL switch makes no difference.

Looking at the circuit diagram I have (from KG6HAF's site) it looks like CWT should be fed off the regulated +9V rail in tune, no matter what. CWR looks like it might be fed from the RL1/4 contact, but I can't see what would cause it to turn off for tuning. It may be that the diagram isn't accurate.

Anyway, thoughts?

--
Gordonjcp MM0YEQ

45046. Re: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 22:09:18 UTC
From: Wes Will
Topic: 44440 Message: 45046

On 10/04/2013 03:42 PM, wagstw46@... wrote:
>
>
> No I dont use ohm meter or diode test function on the DMM. Diode test

Shucks. I thought maybe you had some sort of bridge in mind.

I have been matching diodes using voltage drop measurement since high school. (Of course, some of them were TUBE diodes back then, and the circuits were a bit messier, the drops were quite a bit more than .7V, but it's still mostly the same, no?)

45047. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 22:12:15 UTC
From: Mike
Topic: 45036 Message: 45047

I should have mentioned if the CW filter is installed, the TS-120 becomes a very simple and nice CW, as well as a sideband, transceiver. I spend most of my time on CW but ever once and awhile I do get on sideband. The only experience I have with a TS-120 is when I repaired one for an old ham friend of mine who is now a SK. I did enjoy how simple it is to use.

I do not have any experience operating an Icom 730 so I won't comment on that radio.

I will say I don't care for radios that have a lot of buttons that control features I most likely will never use. The same goes for radios that have all those menus that control features I also will not likely use. So, whether you select a TS-120 or the IC-730, is entirely up to you.

Most of my radios are vintage, Drake B and C Line, Heathkit SB-100/HW-101, DX-40 with HG-10B VFO and a Heathkit SB-303 solid state ham band only receiver. I really enjoy operating the DX-40 and HG-10B VFO combination, 45 watts output on CW and AM, is a challenge and a lot of fun. I've been told, "you can connect the DX-40 to your AL-811 and you will have a very nice CW and AM signal". Well that may be true but using the amplifier with the DX-40 defeats the purpose of operating low power now doesn't it?

Small knobs, a lot of menus, LED screens, and lots of buttons are what I don't like about modern day radios. Besides the high prices, the small knobs, lots of menus that control features I will never use, and all those buttons on the front panel is why I haven't and probably will not purchase a modern radio. I also will not pay more for a radio than what my monthly mortgage payment is (PITI). But, that's me.

73
Mike W5RKL

On 10/4/2013 12:56 PM, Chris Maness wrote:
>
>
>
> On Fri, Oct 4, 2013 at 9:56 AM, W5RKL <w5rkl@...
> <mailto:w5rkl@...>> wrote:
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> fairly constant, S meter indication, across the band selected. The
> calibrator signal strength, as shown on the S meter, may be 10 to
> 20 over 9 on 80 meters, S10 on 40 and S9 on 20, but drop to S7 or
> less on 15 and 10 meters. If this is how the receiver reacts to
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> fine. Having said that, the real test is to check the receiver
> alignment using the 120's service manual receiver alignment steps.
>
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> I will give this a shot.
>
>
> External power line arcing and/or atmospheric "static" noise and
> band conditions have nothing to do with receiver alignment.
>
>
> I have noticed that this same insulator arcing is VERY broad banded on
> my other receivers. However, I concur basing the receiver alignment
> on this is not very scientific. The problem wasn't very noticeable
> when I tried it really quickly this morning. The band was VERY noisy
> last night too. It was an S7 on my 520 sugar before I swapped in the
> 120 sugar.
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> What do you think about the possibility of using this rig for field
> day? I was holding out for an IC-730, but the price was a steal
> ESPECIALLY with a working MC-50.
>
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> 73
> Mike W5RKL
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>
> Thanks,
> Chris Maness KQ6UP
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> On 10/4/2013 10:34 AM, Chris Maness wrote:
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>> However, band conditions were really weird and noisy last night.
>> Is there an alignment issue that can cause something like this?
>> It is not the best receiver so far, but it is a real talker. I
>> worked Pat, I5ZSS as my first contact on the radio from six land
>> on 40m last night. I was thinking about using it as my field day
>> rig, but I might just flip it and use the money to get an IC-730
>> for FD.
>>
>> 73 de KQ6UP
>> Chris
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>

45048. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 22:54:53 UTC
From: Chris Maness
Topic: 45036 Message: 45048

I tested it with the CAL. All seems fine. S-9 +5 on all bands accept 10m.
That was S-7. The RIT switch is a little squirrely, but nothing a shot of
Deoxit can't fix. I also have a DX-40 that I got for free at a ham meeting
a while back. I haven't messed with it much. You inspired me to stick it
on the bench, and give 'er a go.

Chris KQ6UP

On Fri, Oct 4, 2013 at 3:12 PM, Mike <w5rkl@...> wrote:

>
>
> I should have mentioned if the CW filter is installed, the TS-120 becomes
> a very simple and nice CW, as well as a sideband, transceiver. I spend most
> of my time on CW but ever once and awhile I do get on sideband. The only
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> features I most likely will never use. The same goes for radios that have
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> 73
> Mike W5RKL
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> On 10/4/2013 12:56 PM, Chris Maness wrote:
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> On Fri, Oct 4, 2013 at 9:56 AM, W5RKL <w5rkl@...> wrote:
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45049. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 23:21:02 UTC
From: Chris Maness
Topic: 45036 Message: 45049

DX-40 running full power out without a key (40W). Something is a miss :D
It came with three x-tals. Now I am dying to get this old gal running.
It has a nice T/R relay in the back too. I am ready to rock. I just need
to trouble shoot why it is going full output without a key.

Regards,
Chris Maness KQ6UP

On Fri, Oct 4, 2013 at 3:54 PM, Chris Maness <chris@...> wrote:

> I tested it with the CAL. All seems fine. S-9 +5 on all bands accept 10m.
> That was S-7. The RIT switch is a little squirrely, but nothing a shot of
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>> friend of mine who is now a SK. I did enjoy how simple it is to use.
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>> I do not have any experience operating an Icom 730 so I won't comment on
>> that radio.
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>> I will say I don't care for radios that have a lot of buttons that
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>> that have all those menus that control features I also will not likely use.
>> So, whether you select a TS-120 or the IC-730, is entirely up to you.
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45050. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-04 23:50:41 UTC
From: K5MYJ
Topic: 45036 Message: 45050

There is a shorting contact in the key jack the completes the circuit when the key is removed.

There is nothing wrong with it. Just insert an unwired 1/4" phone plug.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Chris Maness
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 04, 2013 4:21 PM
Subject: Re: [TS-520_820_530_830] A New to me MC-50!

DX-40 running full power out without a key (40W). Something is a miss :D It came with three x-tals. Now I am dying to get this old gal running. It has a nice T/R relay in the back too. I am ready to rock. I just need to trouble shoot why it is going full output without a key.

Regards,
Chris Maness KQ6UP

On Fri, Oct 4, 2013 at 3:54 PM, Chris Maness <chris@...> wrote:

I tested it with the CAL. All seems fine. S-9 +5 on all bands accept 10m. That was S-7. The RIT switch is a little squirrely, but nothing a shot of Deoxit can't fix. I also have a DX-40 that I got for free at a ham meeting a while back. I haven't messed with it much. You inspired me to stick it on the bench, and give 'er a go.

Chris KQ6UP

On Fri, Oct 4, 2013 at 3:12 PM, Mike <w5rkl@...> wrote:

I should have mentioned if the CW filter is installed, the TS-120 becomes a very simple and nice CW, as well as a sideband, transceiver. I spend most of my time on CW but ever once and awhile I do get on sideband. The only experience I have with a TS-120 is when I repaired one for an old ham friend of mine who is now a SK. I did enjoy how simple it is to use.

I do not have any experience operating an Icom 730 so I won't comment on that radio.

I will say I don't care for radios that have a lot of buttons that control features I most likely will never use. The same goes for radios that have all those menus that control features I also will not likely use. So, whether you select a TS-120 or the IC-730, is entirely up to you.

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73
Mike W5RKL

On 10/4/2013 12:56 PM, Chris Maness wrote:

On Fri, Oct 4, 2013 at 9:56 AM, W5RKL <w5rkl@...> wrote:

Did you use the calibrator as a signal source then connect the 120 to a 50 ohm dummy load, first before you considered the 120 receiver may need an alignment? The calibrator signal should be fairly constant, S meter indication, across the band selected. The calibrator signal strength, as shown on the S meter, may be 10 to 20 over 9 on 80 meters, S10 on 40 and S9 on 20, but drop to S7 or less on 15 and 10 meters. If this is how the receiver reacts to the calibrator signal then I would say the receiver alignment is fine. Having said that, the real test is to check the receiver alignment using the 120's service manual receiver alignment steps.

I will give this a shot.

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I have noticed that this same insulator arcing is VERY broad banded on my other receivers. However, I concur basing the receiver alignment on this is not very scientific. The problem wasn't very noticeable when I tried it really quickly this morning. The band was VERY noisy last night too. It was an S7 on my 520 sugar before I swapped in the 120 sugar.

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Thanks,
Chris Maness KQ6UP

On 10/4/2013 10:34 AM, Chris Maness wrote:

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Chris

45051. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 00:02:13 UTC
From: Chris Maness
Topic: 45036 Message: 45051

Ahhh, it works 100%! 50W out and decent keying waveform.

Chris KQ6UP

On Fri, Oct 4, 2013 at 4:50 PM, K5MYJ <macklinbob@...> wrote:

> **
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>
> There is a shorting contact in the key jack the completes the circuit when
> the key is removed.
>
> There is nothing wrong with it. Just insert an unwired 1/4" phone plug.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
>
> ----- Original Message -----
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, October 04, 2013 4:21 PM
> *Subject:* Re: [TS-520_820_530_830] A New to me MC-50!
>
>
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45052. Re: Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 00:51:55 UTC
From: Larry Shorthill
Topic: 44440 Message: 45052

It is advantageous to test match diodes at more than one current level. For example, a batch should be measured at, say, 3 levels, <0.5 ma, ~2ma and ~5ma. Or, maybe 0.3ma, 1.5ma, and 7.5ma. Then choose the 4 that are closest to matching Vf at all 3 currents. A curve tracer would be best, but not many of them around anymore. A stable high voltage supply and a suitable series R will put you in the ball park on these current levels, just use a really good DVM to test forward voltage. The reason for 3 different test levels is to match the curve of the diode rather than a spot current. This will improve distortion.

Schottky diodes are used for lower noise and higher dynamic range in diode mixers. Germanium has some nice detector characteristics for low barrier voltage without much forward current, but they are not the best for mixer applications.

FWIW, Schottkys can be purchased in sets of 4 matched parts in a single package. HP, now Avago, sells these as part number HSMS-2829 for a crossover ring configuration or as HSMS-2827 for a classic ring. They are available in 4 lead SOT23 packages which, though small, are pretty manageable to handle and wire into circuit. Their data sheet says:

“These Schottky diodes are specifically designed for both analog and digital applications. This series offers a wide range of specifications and package configurations to give the designer wide flexibility. Typical applications of these Schottky diodes are mixing, detecting, switching, sampling, clamping, and wave shaping. The HSMS-282x series of diodes is the best all-around choice for most applications, featuring low series resistance, low forward voltage at all current levels and good RF characteristics.”

Digikey lists them but with 0 available. Prices are < $2.00 in low qty. Mouser has a few of the quad ring available and quite a few of another quad ring style package, the HSMS-282R, which will work as well, just a different small package. For the effort to match these and the cost of buying a reasonable quantity to test for match, these quad and crossover matched diodes are a bargain. They are specifically made for these applications and they are not expensive. You can’t match them for what these cost, but you will need a magnifier and a steady hand to wire them in—not that difficult.

73

Larry Shorthill, KS7J

45053. RE: Fw: [TS-520_820_530_830] RE: 520s send/rec switch not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 00:55:28 UTC
From: <yioutta_99@...>
Topic: 45002 Message: 45053

this posting system is a bit confusing But...glad to see I got some replies. The blanking out is not longer a problem. i took the CB mod out which was two wires on the board above the VFO that were cut and switched it and out or tied to together. i just cut out the switch and resoldered the wires back together...matching colors.
In the process, i also figured out the the WARC band have never been activated. I found the blue wire and snipped it...and now i have warc bands. The 30 meter band is very low. i think maybe an alinement is in order, but i need to find the right tool. Ken, K4EAA says he uses Popsicle sticks sometimes

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Greetings Group,

Seems that certain msg's are coming back without being posted, like the one below.
So, sorry for the re-post and extra bandwidth

73 Joe
WB7UQU
Group Co-owner

----- Forwarded Message -----
From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, September 30, 2013 11:04 AM
Subject: Re: [TS-520_820_530_830] RE: 520s send/rec switch not working

Steve,

Welcome to the phrase "CB HACK" or "FREE BANDING." Without going into detail..the "mod" allows the rig to receive and transmit
in the CB and other non-ham band areas Generally, from about the low 26Mhz area and up above 29Mhz. This mod is usually easy to remove, unless the
hacker has cut some diodes on the "digital readout" board...then it could become a problem re-doing the diode(s) leads. I have also seen
the PLL board hack...but I have not seen it as much as the above mentioned. Also, the famous "QRO" mode could have been done to get
every last milliwatt of power out of the finals...this is stupid and causes damage to numerous components. The most common QRO mod is moving
1 wire from the "210" post to the "300" post on the rectifier board. This raises the voltage to the final tubes screens...thus "more power." Also, changing
the value of the 470 ohm resistor..which I think is R-11 on the rectifier board. Compare the wires you SEE to the wiring schematic.

As far as the band "blanking out"...could be a couple of problems...MOST common is the "wiper" inside the VFO unit has gotten some gunk/corrosion
on it. The VFO is easy to remove..using the 4 screws on the front. Pull out slowly..as there are wires connected to it for the voltage/signals and for the

lights. I usually do this with the rigs top and bottom covers removed....rig UNPLUGGED from the power(my standard disclaimer). Remove the dial lamps and,
the connector on the rear of the VFO...it just un-plugs. Remove the screws holding the cover in place...the wiper is at the rear..use some contact cleaner...operate
the VFO through its travel several times...blow off with "canned air" and repeat once...you can reconnect the connector on the rear...turn rig back on and check for
proper operation before fully reinstalling it. Try this first and let us know

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 29, 2013 8:08 PM
Subject: [TS-520_820_530_830] RE: 520s send/rec switch not working

I hate to add to my last topic with a different topic. But I am having problems finding the post button. Is it me or is this new format a problem for everybody.

I just came into a 530s. there is a 28MHZ mod that i would like to rid myself of. looks obvious on the surface. a 2 position switch and 4 wires making and breaking some wires going to the VFO board. Anybody know if there are more mods to be on the look out for, maybe some that are not as obvious as a switch and bell wire being strung here and there. The digital display will also blank out from time to time, either when band switching or just tuning across the dial on some bands.

I am looking for info on the 530s including how to do an alignment, etc..the basic stuff. but like I said before I am having problems navigating this forum now.
So far it seems to tune up on 20m but not so much on 40m. made some contacts, VFO seems to be on target, audio is good. Anything to look for that 530s are known for? My Other rig is the 520s

again thanks for the input guys

steve

---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:

thats probably what fixed it. LOL.
Then I went to watch TV. Good show on Niagra falls was on, then all the water came through the screen.

I picked up a cheap 530 today. and I am hunting info on it now it has some problems..
the cheap part.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Glad that it "fixed itself." Just remember that usually when an "intermittent" problem starts...at the most
inopportune time...it will become "chronic."

Did you by chance give it an "eye poke" or a "head bonk?" sointenly....nyuk...nyuk

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, September 23, 2013 8:31 PM
Subject: RE: Re: [TS-520_820_530_830] 520s send/rec switch not working

Thanks Joe..and the rest of the thread.

Tonight the switched worked. overtime and on 80 meters as well as 20 meters. Either I have an intermindant or perhaps i didnt give the heater enough time to warm up. But now that its working, its hard to trouble shoot. If i have to go in for another reason, I'll check the relay and get it cleaned up..or replaced. The good news is I went and got some more canned air for the occasion and it was on sale for 10 bucks for 3 cans. so now i am well stocked.

Thanks everybody.

steve

--- In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I would suspect RL-2 first, it's under the metal shield by the final amp board. UNPLUG RIG!, let it sit, then check
to see if there's anymore high voltage lurking around. Remove shield...remove relay (it pulls out), you will need a fine
screwdriver or similar tool to remove the plastic cover from the relay. Use some card stock wetted with contact cleaner
and clean all the contacts...some canned air comes in handy here. Re-install relay and check for operation.
There's kinda of a clue here too: 80 meters has not been used in "a long time." The bandswitch wafer contacts
may have gotten some corrosion on them from no use, but worked correctly on 20 meters. Clean all the bandswitch wafer
contacts with contact cleaner/lube and blow off with canned air. I'll wager that all should be fine now

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, September 22, 2013 8:14 PM
Subject: [TS-520_820_530_830] 520s send/rec switch not working

Hi Group, sorry if this has been posted already, but i am having problems find things here with the new group look.

After many, many years my send/rec switch stopped operating.(TS-520S) It fires the relay occasionally. It started when i tried to tune on 80 meters for the first time in a long time. Click, and nothing. Switched back down to 20 and it worked intermediately. So from past experience, would this be the switch, the relay, or power to the relay? .....Possibly

the band switch??

I havent begun to even look at it yet tonight..too late to start. I will try keying the relay via the mic tomorrow, and a few other things. I wanted to get a post going so i'll have some input to think on while I look at the schematics.

Thanks

Steve

45054. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 00:58:15 UTC
From: Chris Maness
Topic: 45036 Message: 45054

Down to try a DX-40 to DX-40 CW QSO?

Regards,
Chris Maness

On Fri, Oct 4, 2013 at 5:02 PM, Chris Maness <chris@...> wrote:

> Ahhh, it works 100%! 50W out and decent keying waveform.
>
> Chris KQ6UP
>
>
> On Fri, Oct 4, 2013 at 4:50 PM, K5MYJ <macklinbob@...> wrote:
>
>> **
>>
>>
>> There is a shorting contact in the key jack the completes the circuit
>> when the key is removed.
>>
>> There is nothing wrong with it. Just insert an unwired 1/4" phone plug.
>>
>> Bob Macklin
>> K5MYJ
>> Seattle, Wa.
>> "Real Radios Glow In The Dark"
>>
>> ----- Original Message -----
>> *From:* Chris Maness <chris@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> *Sent:* Friday, October 04, 2013 4:21 PM
>> *Subject:* Re: [TS-520_820_530_830] A New to me MC-50!
>>
>>
>>
>> DX-40 running full power out without a key (40W). Something is a miss :D
>> It came with three x-tals. Now I am dying to get this old gal running.
>> It has a nice T/R relay in the back too. I am ready to rock. I just need
>> to trouble shoot why it is going full output without a key.
>>
>> Regards,
>> Chris Maness KQ6UP
>>
>>
>> On Fri, Oct 4, 2013 at 3:54 PM, Chris Maness <chris@...>wrote:
>>

>>> I tested it with the CAL. All seems fine. S-9 +5 on all bands accept
>>> 10m. That was S-7. The RIT switch is a little squirrely, but nothing a
>>> shot of Deoxit can't fix. I also have a DX-40 that I got for free at a ham
>>> meeting a while back. I haven't messed with it much. You inspired me to
>>> stick it on the bench, and give 'er a go.
>>>
>>> Chris KQ6UP
>>>
>>>
>>> On Fri, Oct 4, 2013 at 3:12 PM, Mike <w5rkl@...> wrote:
>>>
>>>>
>>>>
>>>> I should have mentioned if the CW filter is installed, the TS-120
>>>> becomes a very simple and nice CW, as well as a sideband, transceiver. I
>>>> spend most of my time on CW but ever once and awhile I do get on sideband.
>>>> The only experience I have with a TS-120 is when I repaired one for an old
>>>> ham friend of mine who is now a SK. I did enjoy how simple it is to use.
>>>>
>>>> I do not have any experience operating an Icom 730 so I won't comment
>>>> on that radio.
>>>>
>>>> I will say I don't care for radios that have a lot of buttons that
>>>> control features I most likely will never use. The same goes for radios
>>>> that have all those menus that control features I also will not likely use.
>>>> So, whether you select a TS-120 or the IC-730, is entirely up to you.
>>>>
>>>> Most of my radios are vintage, Drake B and C Line, Heathkit
>>>> SB-100/HW-101, DX-40 with HG-10B VFO and a Heathkit SB-303 solid state ham
>>>> band only receiver. I really enjoy operating the DX-40 and HG-10B VFO
>>>> combination, 45 watts output on CW and AM, is a challenge and a lot of fun.
>>>> I've been told, "you can connect the DX-40 to your AL-811 and you will have
>>>> a very nice CW and AM signal". Well that may be true but using the
>>>> amplifier with the DX-40 defeats the purpose of operating low power now
>>>> doesn't it?
>>>>
>>>> Small knobs, a lot of menus, LED screens, and lots of buttons are what
>>>> I don't like about modern day radios. Besides the high prices, the small
>>>> knobs, lots of menus that control features I will never use, and all those
>>>> buttons on the front panel is why I haven't and probably will not purchase
>>>> a modern radio. I also will not pay more for a radio than what my monthly
>>>> mortgage payment is (PITI). But, that's me.
>>>>
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>>>> 73
>>>> Mike W5RKL
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>>>> On 10/4/2013 12:56 PM, Chris Maness wrote:

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>>>> On Fri, Oct 4, 2013 at 9:56 AM, W5RKL <w5rkl@...> wrote:
>>>>
>>>>>
>>>>>
>>>>> Did you use the calibrator as a signal source then connect the 120 to
>>>>> a 50 ohm dummy load, first before you considered the 120 receiver may need
>>>>> an alignment? The calibrator signal should be fairly constant, S meter
>>>>> indication, across the band selected. The calibrator signal strength, as
>>>>> shown on the S meter, may be 10 to 20 over 9 on 80 meters, S10 on 40 and S9
>>>>> on 20, but drop to S7 or less on 15 and 10 meters. If this is how the
>>>>> receiver reacts to the calibrator signal then I would say the receiver
>>>>> alignment is fine. Having said that, the real test is to check the receiver
>>>>> alignment using the 120's service manual receiver alignment steps.
>>>>>
>>>>
>>>> I will give this a shot.
>>>>
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>>>>>
>>>>> External power line arcing and/or atmospheric "static" noise and band
>>>>> conditions have nothing to do with receiver alignment.
>>>>>
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>>>> I have noticed that this same insulator arcing is VERY broad banded on
>>>> my other receivers. However, I concur basing the receiver alignment on
>>>> this is not very scientific. The problem wasn't very noticeable when I
>>>> tried it really quickly this morning. The band was VERY noisy last night
>>>> too. It was an S7 on my 520 sugar before I swapped in the 120 sugar.
>>>>
>>>> What do you think about the possibility of using this rig for field
>>>> day? I was holding out for an IC-730, but the price was a steal ESPECIALLY
>>>> with a working MC-50.
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>>>>> Mike W5RKL
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>>>> Thanks,
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>>>>> On 10/4/2013 10:34 AM, Chris Maness wrote:
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>>>>> I was looking for miss titled adds on craigslist for Kenwood gear, and
>>>>> I was able to score a MC-50 with a TS-120S for $175. It has been up for
>>>>> two weeks. I love finding little nuggets like this. I tried it with my
>>>>> old TS-520S last night and received great audio reports.
>>>>>
>>>>> The TS-120S is alright. It might need an alignment as the sensitivity
>>>>> seemed not to be consistent across the band. I noticed the static as I
>>>>> tuned across the band went up and down in a sinusoidal fashion. The static
>>>>> just seemed like local power line hash we get when there is fog or moist
>>>>> onshore flow. However, band conditions were really weird and noisy last
>>>>> night. Is there an alignment issue that can cause something like this? It
>>>>> is not the best receiver so far, but it is a real talker. I worked Pat,
>>>>> I5ZSS as my first contact on the radio from six land on 40m last night. I
>>>>> was thinking about using it as my field day rig, but I might just flip it
>>>>> and use the money to get an IC-730 for FD.
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45055. 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 00:58:50 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45055

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45056. RE: Re: Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 01:31:05 UTC
From: <wagstw46@...>
Topic: 44440 Message: 45056

Larry:

Thanks for sharing.

I thought about mentioning the Octopus Curve Tracer adapter that can be used with O-scope XY, but have no experience with it and suspect it would not be adequate.

At one time I looked for Tektronix 576 units and find them, but not usually less than $1000.00.

W2AEW has a video on You Tube that demonstrates the Octopus adapter.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

It is advantageous to test match diodes at more than one current level. For example, a batch should be measured at, say, 3 levels, <0.5 ma, ~2ma and ~5ma. Or, maybe 0.3ma, 1.5ma, and 7.5ma. Then choose the 4 that are closest to matching Vf at all 3 currents. A curve tracer would be best, but not many of them around anymore. A stable high voltage supply and a suitable series R will put you in the ball park on these current levels, just use a really good DVM to test forward voltage. The reason for 3 different test levels is to match the curve of the diode rather than a spot current. This will improve distortion.

Schottky diodes are used for lower noise and higher dynamic range in diode mixers. Germanium has some nice detector characteristics for low barrier voltage without much forward current, but they are not the best for mixer applications.
FWIW, Schottkys can be purchased in sets of 4 matched parts in a single package. HP, now Avago, sells these as part number HSMS-2829 for a crossover ring configuration or as HSMS-2827 for a classic ring. They are available in 4 lead SOT23 packages which, though small, are pretty manageable to handle and wire into circuit. Their data sheet says: “These Schottky diodes are specifically designed for both analog and digital applications. This series offers a wide range of specifications and package configurations to give the designer wide flexibility. Typical applications of these Schottky diodes are mixing, detecting, switching, sampling, clamping, and wave shaping. The HSMS-282x series of diodes is the best all-around choice for most applications, featuring low series resistance, low forward voltage at all current levels and good RF characteristics.”
Digikey lists them but with 0 available. Prices are < $2.00 in low qty. Mouser has a few of the quad ring available and quite a few of another quad ring style package, the HSMS-282R, which will work as well, just a different small package. For the effort to match these and the cost of buying a reasonable quantity to test for match, these quad and crossover matched diodes are a bargain. They are specifically made for these applications and they are not expensive. You can’t match them for what these cost, but you will need a magnifier and a steady hand to wire them in—not that difficult.
73
Larry Shorthill, KS7J

45057. Re: [TS-520_820_530_830] A New to me MC-50!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 02:29:15 UTC
From: Mike
Topic: 45036 Message: 45057

The CW key socket in the DX-40 is a "N.C." socket. This means if a 1/4" mono plug is not inserted in the CW key socket the transmitter will be keyed IF the Function switch is placed in "PHONE" or "CW". Do not key the DX-40 without a crystal or a proper VFO signal applied. There isn't any protective bias or Clamp tube circuit in the final amplifier that cuts the final tube OFF when loss of RF drive to the final tube occurs and the CW keying circuit is shorted to ground. Loss of RF drive will result in full scale, well over 150ma, plate current to flow in the final tube if you key the DX-40 without a crystal or a proper VFO signal applied to the rear VFO socket. The DX-40 uses "Cathode keying", a DC voltage of approximately 130VDC is present on the CW key socket and CW key terminals regardless of PHONE or CW modes. Also, do not key any VFO that's providing a signal to the DX-40. The chances of chirp are rather high. I do not key the HG-10B VFO I use with the DX-40 which results in no chirp in my transmit signal. I control the VFO "Key" socket through a relay terminal. Let me know off group if you would like to see how I do this, it's real simple. I have a few more things I did to my DX-40 so if you want to discuss this further, let me know off group through private email.

I apologize to the group for taking up time on the group with non-Kenwood discussion(s).

73
Mike W5RKL

On 10/4/2013 6:21 PM, Chris Maness wrote:
> DX-40 running full power out without a key (40W). Something is a miss
> :D It came with three x-tals. Now I am dying to get this old gal
> running. It has a nice T/R relay in the back too. I am ready to
> rock. I just need to trouble shoot why it is going full output
> without a key.
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> Regards,
> Chris Maness KQ6UP
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> On Fri, Oct 4, 2013 at 3:54 PM, Chris Maness <chris@...
> <mailto:chris@...>> wrote:
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> but nothing a shot of Deoxit can't fix. I also have a DX-40 that
> I got for free at a ham meeting a while back. I haven't messed
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>> indication, across the band selected. The calibrator
>> signal strength, as shown on the S meter, may be 10 to 20
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>>>
>>> 73 de KQ6UP
>>> Chris
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45058. (no subject)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 03:04:02 UTC
From: Ronald Robinson
Topic: 45058 Message: 45058

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start
? thanks Ron KK4PWF

45059. RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning is

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 01:00:37 UTC
From: clifford wright
Topic: 45059 Message: 45059

Oh dear! Please don't depress me more than I am already!
Do you mean to say that the average Ham these days can't even build themselves a simple transmatch.
The Z match needs 1 coil (with a couple of taps) 1 link coil and 2 tuning capacitors.
Over the years I have been VERY unimpressed with the commercial Transmatches that I have come across
they tend to use highly stressed components and have a lot of hot toroids in some also.
Unless you are using over 200 watts or so even the larger air spaced tuning caps from valve radios will do.
BTW there are dozens of designs, with pictures on line also, for all power levels.

Of course I have been doing electronics for well over 60 years. But even at 9 years old I was able to build and
adjust a Crystal set and by the time I got my licence in 1958 I was using a mixture of war surplus and home brew
gear.
In other words, it really isn't that hard to get a basic technical knowledge of electronics if a 9 or 10 year old can
do it.
So what is the point of becoming a Ham these days if you aren't interested in the subject?
After all we didn't have the Internet so pure communication was a big thrill back then.
As usual I must really be getting old!!!
Zl1BDA.

45060. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:04:32 UTC
From: Joseph Stiles
Topic: 45055 Message: 45060

Steve,

  I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short
to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece
of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

 I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
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Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45061. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:15:46 UTC
From: n6wk@...
Topic: 45055 Message: 45061

Joe,
On some of the slugs, it is hard to get a tool that actually fits
correctly.
I have learned if I heat the end of an old tool with my hot *air
*soldering iron until it is soft,
then push it down against the slug and let it cool in that position,
After it fully cools, I now have a tool that now fits the slot perfectly!!
I do this with old tools that the end has worn down on so It makes them
useable for something without throwing them away.

73,
Gordon
N6WK

On 10/4/2013 9:04 PM, Joseph Stiles wrote:
> Steve,
>
> I have used the "alignment tool set" from "Amazon" that your were
> talking about in your original post. The thing that you
> will have to do is take a very sharp knife...say an exacto...and trim
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> WB7UQU
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> ---
> *From:* "yioutta_99@..." <yioutta_99@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, October 4, 2013 5:58 PM
> *Subject:* [TS-520_820_530_830] 530s repost
>
> Hi guys,,,I dont know where my post went, maybe into the land of rare
> DX . Strange thing is I saw a reply last night, where someone

> suggested K4EAAs site..oh well....but I was wondering if anybody has
> seen where to get alignment tools for the 530s. Ken sells them for
> the 520, but not the 530.
> Also the noise blanker isnt working. Any ideas.
>
> Also 30 meters is very low on recieve, all other bands okay.
> anything there besides an alignment?
>
> steve
>
>
>

--

45062. RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:35:54 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45062

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short
to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece
of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

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Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45063. RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:36:54 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45063

thats a coll idea. I will try it when i have tried other means. i dont have an old tool to melt ...yet...or a hot air soldering iron.

speaking of solder...any problems using lead free in the old units?

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Joe,
On some of the slugs, it is hard to get a tool that actually fits correctly.
I have learned if I heat the end of an old tool with my hot air soldering iron until it is soft,
then push it down against the slug and let it cool in that position, After it fully cools, I now have a tool that now fits the slot perfectly!!
I do this with old tools that the end has worn down on so It makes them useable for something without throwing them away.

73,
Gordon
N6WK

On 10/4/2013 9:04 PM, Joseph Stiles wrote:

Steve,

I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
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To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

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Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

--

45064. RE:

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:38:48 UTC
From: <yioutta_99@...>
Topic: 45058 Message: 45064

heater switch not on? I had that same sounding problem last week with my 520s. the heater switch wasnt on long enough.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF

45065. RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:40:45 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45065

I have new cathode, screen resistors coming from Ken. What should I be measuring across the resistors in circuit? 10 ohms on the cathods? I measure 8 ohms

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Joe,
On some of the slugs, it is hard to get a tool that actually fits correctly.
I have learned if I heat the end of an old tool with my hot air soldering iron until it is soft,
then push it down against the slug and let it cool in that position, After it fully cools, I now have a tool that now fits the slot perfectly!!
I do this with old tools that the end has worn down on so It makes them useable for something without throwing them away.

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Gordon
N6WK

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of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
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As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

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To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

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the 520, but not the 530.

Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

--

45066. Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:41:21 UTC
From: John
Topic: 45055 Message: 45066

On Sat, 05 Oct 2013 17:36:54 +1300, <yioutta_99@...> wrote:
Granny's plastic knitting needles make great adjustment tools, just trim
with a hobby knife and "hey, presto", instant helping hand!
John
ZL1DT

>
> thats a coll idea. I will try it when i have tried other means. i dont
> have an old tool to melt ...yet...or a hot air soldering >iron.
>
>
>
> speaking of solder...any problems using lead free in the old units?
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
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>
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>>> Steve,
>>>
>>> I have used the "alignment tool set" from "Amazon" that your were
>>> talking about in your >>>original post. The thing that you
>>> will have to do is take a very sharp knife...say an exacto...and trim
>>> back some of the plastic as >>>the end is at times too shortto get to
>>> the slug, as the shoulder of the tool can hit on the top of the "can."
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>>> As far as 30m goes...check for proper adjustment of the associated
>>> coils first. Can you get a >>>good "cal signal?"
>>>
>>>
>>>>>>
>>> 73 Joe
>>> WB7UQU
>>>
>>> From: "yioutta_99@..." <yioutta_99@...>
>>> To: TS-520_820_530_830@yahoogroups.comSent: Friday, October 4, 2013
>>> 5:58 PM
>>> Subject: [TS-520_820_530_830] 530s repost
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>>> anything there besides an alignment?
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>>> steve
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Using Opera's mail client: http://www.opera.com/mail/

45067. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 04:51:44 UTC
From: n6wk@...
Topic: 45055 Message: 45067

Great Idea until Granny goes looking for that needle she needed... LOL
Then the adjustment slug is the least of your worries... <Grin>

73,
Gordon
N6WK

On 10/4/2013 9:41 PM, John wrote:
> On Sat, 05 Oct 2013 17:36:54 +1300, <yioutta_99@...> wrote:
> Granny's plastic knitting needles make great adjustment tools, just
> trim with a hobby knife and "hey, presto", instant helping hand!
> John
> ZL1DT
>
> thats a coll idea. I will try it when i have tried other means.
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> speaking of solder...any problems using lead free in the old units?
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> Joe,
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> position, After it fully cools, I now have a tool that now fits
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>>
>> 73 Joe
>> WB7UQU
>>
>> ---
>> *From:* "yioutta_99@..." <mailto:yioutta_99@...>
>> <yioutta_99@...> <mailto:yioutta_99@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Friday, October 4, 2013 5:58 PM
>> *Subject:* [TS-520_820_530_830] 530s repost
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> Using Opera's mail client: http://www.opera.com/mail/

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45068. Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 07:09:34 UTC
From: Wes Will
Topic: 45059 Message: 45068

New subject, same topic. Z-matches, lack of electronic gadgeteering on the part of the new meat, and co-axial abundance.

One of the reasons coax is so prevalent is that it is easy and fairly cheaply come by. Ladder line you never see any more, but I can get miles of coax at the local radio hack store. (Another lament there, the downfall of R.S. and I really miss the Lafayette store...)

Anyone got a good source for 450 ohm ladder line? Cheap? Or a better tip than anything I know for sourcing or making a few hundred insulator spacers to make my own? I'm not that good at whittling, so that's out. I'd much rather make ladder line, but it has been a long time. Guess it is time to dig out the 1966 ARRL handbook and see if there is any magic to be found inside on this topic.

As for the fresh cheese knowing nothing about electronics, it's probably our generation's fault, or at least we're partly to blame. It's my generation that made everything so small and user-un-friendly on the inside. Not like when I was a kid and could scavenge literal barrels-full of tubes and transformers and such from junked, point-to-point-wired TVs and radios and such.

Now, all the hardware that is available is miniaturized, surface-mounted, and epoxy-potted to keep prying fingers out. It's a bit harder to open up stuff out of curiosity and try to figure out how it works. (And safer, since everything seems to be 5VDC or so, instead of B+ and flyback voltages in the kilovolt or higher range, so there are some gains here. Fewer fried offspring.....)

And Z-matches, yes, they're easy to make, but without that tinkering background as a starting point, quite frankly they're not exactly intuitive when a non-electronic neophyte looks at them or the circuit. -I- get it, -you- get it, but young Joe TechPlus over there, with his solid-state everything hasn't a clue.

Rather than bemoan it, my take is to try and catch 'em as young as possible and give them stuff to take apart and put together again. Even put together broken will help kids get some feel for the insides of gear. AND gives me an opening to show them how to unscrew the inscrutable and make the whatever-it-was work again. When it does, they get a bit of an epiphany a lot of times, and the next step is easier.

It's why I go to my wife's little back-woods-village school***, and do all kinds of "science stuff" with the kids, starting in third grade and going to the high school as often as I can. Everything and anything from cheesy Estes model rockets to raising frog spawn to kitchen chemistry to ham radio and electronics. I try to go at least one or two

times a week, to one or another classroom, since I'm medically retired there's not a lot for me to do except keep the dogs company at home. I try to do something useful, and this is what I've chosen.

And every now and then you see the lights go on in some kid's eyes. Makes it all worth it.

I'm NOT trying to tell anyone what they should be doing. But perhaps if you look around, and if this lack of clued-in-ness in the younger generation really bothers you, maybe you can figure out something similar that makes a difference? Doesn't have to be with kids at a school, doesn't have to be anything at all, if that's what you decide. But I suspect that all of us "Aulde Phartes" can make a difference if we ganged up on the problem. (And frankly, it's a hoot. More fun than watching the dogs sleep, that's for certain.)

(*** "Cobden, Illinois, Home of the Appleknockers" and I kid you not. An "appleknocker" used to be a worker in the orchards with a pole, whose job it was to whack apple trees and peach trees which had too many fruits per branch on them, and remove the excess so the ones that were left could grow properly and mature, rather than just breaking the branch off from being overloaded.)

--
Wes Will
N9KDY

45069. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 07:41:45 UTC
From: William Houghton
Topic: 45059 Message: 45069

JSC makes ladder line and you can get it at HRO and other places.

The plastic epoxy encapsulation on semiconductors is not really to keep your prying fingers out but to protect the bond wires (smaller than a human hair in diameter) and to protect the die from contaminants.

73,

Bill

From: Wes Will <wwill@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 12:09 AM
Subject: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

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--
Wes Will
N9KDY

45070. RE: [TS-520_820_530_830] Schottky or not to Schottky?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 08:17:50 UTC
From: fpath fpath
Topic: 44440 Message: 45070

Hi Craig,

I managed to buy a 530s and 830s from a SK, had my work cut out on both of them, both had weird faults, hence why I have hands on experience with the PA padder issue. Anyway, I put both of these radios against my originals and they are extremely sensitive, some of the caps on the AF boards have been changed out to tandelums, but saying all this only about 1dB different and the NBs are as different as chalk and cheese.

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@verizon.net
Date: Fri, 4 Oct 2013 14:08:47 -0400
Subject: Re: [TS-520_820_530_830] Schottky or not to Schottky?

Hi Dave,

The noise blanker's not the problem (though I did find it on and cranked up all the way when I first got the radio and discovered what THAT did to the audio). Nevertheless, the problem is so minor that I've decided to leave well enough alone.

As I may have mentioned, if I didn't have the super clean TS-530S audio to compare it with, I doubt that I'd even notice it. Balancing the 830's slight distortion on strong signal peaks is it full, rich frequency response otherwise --much more so that the 530.

Many thanks and 73,

Craig
W3CRR

45071. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 08:18:09 UTC
From: Wes Will
Topic: 45059 Message: 45071

On 10/05/2013 02:41 AM, William Houghton wrote:

> The plastic epoxy encapsulation on semiconductors is not really to keep
> your prying fingers out but to protect the bond wires (smaller than a
> human hair in diameter) and to protect the die from contaminants.

Not talking about any single semiconductor. Heck, the glass or metal envelope keeps you from getting to the anode and grid of a tube as well.

I'm talking about potting the whole device. Dog tracking collars, for one, my brother works for one of the manufacturers and they pot it for shock resistance, water resistance, and to keep end-user fingers out. Good idea in the case of the collars, but there are other things, like video game gadgets for instance, which could be fun for someone say, 12 or 13 years old, who got curious and wanted to see what was inside a broken one.

Maybe to scavenge the r.f. modulator section or other parts out of it, or maybe fix it and get some more use from the thing. Open the box and there is a big blob of epoxy. No access whatsoever.

Not wanting to get inside a 555 timer chip. Want to see what the rest of the device the 555 is -part of- does.

Does that get the idea across better?

--
Wes Will
N9KDY

45072. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 09:44:27 UTC
From: Mike
Topic: 45058 Message: 45072

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.

The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:
> new to me ---a ts 820s recieve works, ok but no send recieve ,no
> hv on meter ,no ip on meter, no alc ,i've checked the voltages they
> are ok , relay is not working when switch is flipped , hv board
> checked out good any ideas anyone or where to start
> ? thanks Ron KK4PWF
>

45073. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 11:32:20 UTC
From: Mike
Topic: 45055 Message: 45073

It appears you may not understand parallel resistor circuits. Therefore,
if I may suggest you take some time and watch my Ohms Law covering
parallel resistor circuit, see the following link:

http://www.n6wk.com/w5rkl/Basic%20Ohms%20Law/

and watch my video on the TS-520 and TS-820 cathode and IP metering circuit

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20series%20Cathode%20and%20IP%20metering%20circuit/

If the total resistance of your final tube cathode reresistors in
parallel is 8 ohms then one or more of the cathode resistors has
increased in value.

73
Mike W5RKL

On 10/4/2013 11:40 PM, yioutta_99@... wrote:
>
> I have new cathode, screen resistors coming from Ken. What should I
> be measuring across the resistors in circuit? 10 ohms on the cathods?
> I measure 8 ohms
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
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> Joe,
> On some of the slugs, it is hard to get a tool that actually fits
> correctly.
> I have learned if I heat the end of an old tool with my hot *air
> *soldering iron until it is soft,
> then push it down against the slug and let it cool in that position,
> After it fully cools, I now have a tool that now fits the slot perfectly!!
> I do this with old tools that the end has worn down on so It makes
> them useable for something without throwing them away.
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> 73,
> Gordon
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> On 10/4/2013 9:04 PM, Joseph Stiles wrote:
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>> Steve,
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>> I have used the "alignment tool set" from "Amazon" that your
>> were talking about in your original post. The thing that you
>> will have to do is take a very sharp knife...say an exacto...and
>> trim back some of the plastic as the end is at times too short
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>> top of the "can." Or, go to a hobby or craft store and look for a
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>> piece of dowel stock.
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>> I do not know enough about the noise blanker circuit to offer a
>> logical/correct answer. I think that Terry-k9tw, just answered
>> something about a noise blanker a few posts ago.
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>> As far as 30m goes...check for proper adjustment of the
>> associated coils first. Can you get a good "cal signal?"
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>> 73 Joe
>> WB7UQU
>>
>> ---
>> *From:* "yioutta_99@..." <mailto:yioutta_99@...> <yioutta_99@...>
>> <mailto:yioutta_99@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Friday, October 4, 2013 5:58 PM
>> *Subject:* [TS-520_820_530_830] 530s repost
>>
>> Hi guys,,,I dont know where my post went, maybe into the land of
>> rare DX . Strange thing is I saw a reply last night, where
>> someone suggested K4EAAs site..oh well....but I was wondering if
>> anybody has seen where to get alignment tools for the 530s. Ken
>> sells them for the 520, but not the 530.
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>> Also 30 meters is very low on recieve, all other bands okay.
>> anything there besides an alignment?
>>
>> steve
>>
>>
>
> --
>
>
>
>

45074. RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 14:44:12 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45074

thanks for the video links. ill have to check them later as they dont want to play on the ipad.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

It appears you may not understand parallel resistor circuits. Therefore, if I may suggest you take some time and watch my Ohms Law covering parallel resistor circuit, see the following link:

http://www.n6wk.com/w5rkl/Basic%20Ohms%20Law/

and watch my video on the TS-520 and TS-820 cathode and IP metering circuit

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20series%20Cathode%20and%20IP%20metering%20circuit/

If the total resistance of your final tube cathode reresistors in parallel is 8 ohms then one or more of the cathode resistors has increased in value.

73
Mike W5RKL

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Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

--

45075. RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 14:50:45 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45075

i like the knitting needle idea. ill have to look for some at the yard sales today. no way am i touching my wifes set

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Sat, 05 Oct 2013 17:36:54 +1300, <yioutta_99@...> wrote:
Granny's plastic knitting needles make great adjustment tools, just trim with a hobby knife and "hey, presto", instant helping hand!
John
ZL1DT

thats a coll idea. I will try it when i have tried other means. i dont have an old tool to melt ...yet...or a hot air soldering iron.

speaking of solder...any problems using lead free in the old units?

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Using Opera's mail client: http://www.opera.com/mail/

45076. RE: RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 15:47:31 UTC
From: <wagstw46@...>
Topic: 45055 Message: 45076

If you are measuring the combination of the parallel cathode resistors at 8 ohms instead of 5 ohms, that is not uncommon as the individual resistors do tend to drift high in value with years of service. Pretty common to measure the parallel combination and find 7 ohms to 8 ohms instead of 5 ohms.

You may also be seeing some resistance due to problems with your meter test leads so short them and see what meter reads and then subtract that value from you reading. Meter leads should be very low resistance probably never more than 0.05 ohms. If that is range you find then no need to consider meter leads with any resistance measurements. If using alligator or mini-grabber test leads measure them as they can be bad. Low cost mini-grabbers are notorious for having high resistance connections.

If 8 ohms is accurate it is not any thing that precludes operation of the rig as it places rig in conservative position as it displays plate current (Ip) falsely high. So you are not loading as high as you think you are.

However, I would change them when time permits. Wont hurt to change the 100 ohm grid stoppers and the 470 ohm SG supply series resistor that comes in Kens kit. Typically no need to change resistors that have not changed value beyond tolerance, but these like the cathode resistors have seen a lot of hours. Of course if these show any sign of overheating and discoloration then need to change them.

Terry K9TW.

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45077. RE: RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: New Ham, Tuning is

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 16:40:56 UTC
From: <glene77is@...>
Topic: 45059 Message: 45077

Guys,
Heard no mention of "Window Line" which is 450 Ohm.
Granted it is not the "Original" ladder-line,
but I have used it to feed my Vertical , and Long-Wire,
pulling the wires directly into the Antenna Tuner as if
they were Coax Feeds.
SWR was adjusted directly on the Antenna this way,
without any interference from the Coax.
SWR was 1.1 : 1 .

MFJ and others have some.

Running my Kenwood, at 3 watts, QRP / CW, on 20M , now.
Good receiver.

---In ts-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 10/05/2013 02:41 AM, William Houghton wrote:

> The plastic epoxy encapsulation on semiconductors is not really to keep
> your prying fingers out but to protect the bond wires (smaller than a
> human hair in diameter) and to protect the die from contaminants.

Not talking about any single semiconductor. Heck, the glass or metal
envelope keeps you from getting to the anode and grid of a tube as well.

I'm talking about potting the whole device. Dog tracking collars, for
one, my brother works for one of the manufacturers and they pot it for
shock resistance, water resistance, and to keep end-user fingers out.
Good idea in the case of the collars, but there are other things, like
video game gadgets for instance, which could be fun for someone say, 12
or 13 years old, who got curious and wanted to see what was inside a
broken one.

Maybe to scavenge the r.f. modulator section or other parts out of it,
or maybe fix it and get some more use from the thing. Open the box and
there is a big blob of epoxy. No access whatsoever.

Not wanting to get inside a 555 timer chip. Want to see what the rest
of the device the 555 is -part of- does.

Does that get the idea across better?

--
Wes Will
N9KDY

45078. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 17:59:23 UTC
From: Ronald Robinson
Topic: 45058 Message: 45078

also Mike after it sets on for about 10 min the final tubes glow red and it blows the fuse

---
From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the
relays energize? Pin 2 on the MIC socket is in parallel with the
SEND switch.

The meter switch settings are not enabled in receive. The 820 has
to switch to transmit (relay on the RELAY Unit) must energize for
the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

>new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF
>

45079. Can someone point me to a webpage that explains the differences between the models that are in the title of this group?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 18:39:47 UTC
From: Bryandibble
Topic: 45079 Message: 45079

Sent from my Samsung Galaxy Note™, an AT&T LTE smartphone

45080. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 17:49:08 UTC
From: Ronald Robinson
Topic: 45058 Message: 45080

hey Mike, i changed the relay board with a know working one an still no results, also I did short the 2 pin on mic and no results thanks

---
From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the
relays energize? Pin 2 on the MIC socket is in parallel with the
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45081. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 19:44:45 UTC
From: William Houghton
Topic: 45059 Message: 45081

Understood. I remember in my youth that Radio Shack and Lafayette sold some electronic modules for things like audio amps, FM wireless transmitters, code oscillators, etc. They looked like large black epoxy ice cubes. I sure wanted to know what was inside of those modules. So yes, I know what you mean.

From: Wes Will <wwill@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 1:18 AM
Subject: Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

On 10/05/2013 02:41 AM, William Houghton wrote:

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Does that get the idea across better?

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N9KDY

45082. RE: RE: RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 20:28:27 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45082

that seems to be the case, they even look a bit toasty. I have Kens kit ordered and it was shipped same day! so I should be having thise in be this time next week.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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45083. RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 20:32:15 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45083

i just did a visual on one of 30m cans, that slug is way down there. That might be way I am not receiving much on that band. i am going to need one really skinny knitting needle for that.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Great Idea until Granny goes looking for that needle she needed... LOL
Then the adjustment slug is the least of your worries... <Grin>

73,
Gordon
N6WK

On 10/4/2013 9:41 PM, John wrote:

On Sat, 05 Oct 2013 17:36:54 +1300, <yioutta_99@...> wrote:

Granny's plastic knitting needles make great adjustment tools, just trim with a hobby knife and "hey, presto", instant helping hand!

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thats a coll idea. I will try it when i have tried other means. i dont have an old tool to melt ...yet...or a hot air soldering iron.

speaking of solder...any problems using lead free in the old units?

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45084. RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 20:35:13 UTC
From: <wagstw46@...>
Topic: 45058 Message: 45084

I am sorry Mike:

TURN THE HEATER SWITCH OFF MAN!

Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.

If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.

Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.

Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.

Just do not put heaters back on while working on the relay keying problem.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

also Mike after it sets on for about 10 min the final tubes glow red and it blows the fuse

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.

The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF

45085. Re: Can someone point me to a webpage that explains the differences between the models that are in the title of this group?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 20:49:18 UTC
From: M. J. Synowiec
Topic: 45079 Message: 45085

Hi Bryan,

Go to www.K4EAA.com for a brief explanation of the various hybrids. This site also contains much useful information on care & feeding of the rigs. There are also other good sites such as Gordon's N6WK.com site. Google is your friend.

73,
mjsyn
k8SYN

45086. Difference in these rigs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 20:37:58 UTC
From: Bryandibble
Topic: 45086 Message: 45086

I just purchased an untested 520 and am wondering what the difference in the models listed for this group. I will soon be asking many questions Im sure as I began looking into the interior.. Thanks men as Im a new member and look forward to future conversations.

Sent from my Samsung Galaxy Note™, an AT&T LTE smartphone

45087. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 21:16:44 UTC
From: Ken Burchfield
Topic: 45059 Message: 45087

Making Ladder line
Here is a Link to info:files section of ham-antenna group.

http://groups.yahoo.com/neo/groups/ham-antennas/files/LADDER%20LINE

73 Ken

Anyone got a good source for 450 ohm ladder line???Cheap???Or a better tip than anything I know for sourcing or making a few hundred insulator spacers to make my own???I'm not that good at whittling, so that's out. I9;d much rather make ladder line, but it has been a long time.??Guess it is time to dig out the 1966 ARRL handbook and see if there is any magic to be found inside on this topic.

?PacketRadio is Still Alive.......Mississippi.......145.010.......Simplex.......1200 baud Baud

---

From: Wes Will
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 2:09 AM
Subject: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

New subject, same topic.??Z-matches, lack of electronic gadgeteering on the part of the new people, and co-axial abundance.

One of the reasons coax is so prevalent is that it is easy and fairly cheaply come by.??Ladder line you never see any more, but I can get miles of coax at the local radio hack store.??(Another lament there, the downfall of R.S. and I really miss the Lafayette store...)

Anyone got a good source for 450 ohm ladder line???Cheap???Or a better tip than anything I know for sourcing or making a few hundred insulator spacers to make my own???I'm not that good at whittling, so that's out. I'd much rather make ladder line, but it has been a long time.??Guess it is time to dig out the 1966 ARRL handbook and see if there is any magic to be found inside on this topic.

[Non-text portions of this message have been removed]

45088. Re: Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 21:40:55 UTC
From: clifford wright
Topic: 45059 Message: 45088

Some good points there OM. As it happens I give the occasional science lessons at our local schools
and as an amateur astronomer I take my 8" portable scope around the schools for daytime events like
the recent Transits of Mercury and Venus and a partial eclipse of the Sun. I also do historical reenactment.
I get involved with holiday projects at our local library and even the Kindergarten as well.
BUT you have a very good point about modern "hands off" electronics. I was fortunate in that when I was
about 13 my Uncle gave me a whole lot of 1920's and 30's components (unused) from a local radio shop.
These were the ones with terminals, so I could build up a lot of basic sets like a Meccano (Erector) set.
Perhaps that's where I really got started!
When you get into modern TV etc you realise that there is almost nothing that can be used elsewhere.
In fact the speakers are about IT these days.
Perhaps it is not surprising that I have always been a "young" Ham. Even at 73, many of my fellow ZL's are in their
80's or even like an OT I met the other day who was 96 and still on the air.
Maybe we are getting like those guys who still drive horse drawn carriages as a hobby, though I often wonder what
drastic effect a collapse of our technical base could have as things are now.

But for all that it still seems to me that something as "easy" as a Z match (no more complex than a crystal set)
should not be beyond the skills of someone with a genuine interest in electronics. Don't you have "Junk Sales"
and swap meets any more in North America to find some suitable parts?
ZL1BDA

45089. RE: Difference in these rigs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 21:58:59 UTC
From: <wagstw46@...>
Topic: 45086 Message: 45089

I wouldnt concern myself too much about differences in the KW Hybrids unless you are still shopping. Time to do that was prior to shopping and buying.

Assuming you plan to keep and operate this rig you need to gather the documentation for the TS-520 with the Operating Instruction Manual and Service Manual the primary documents that you will need for starters. Start reading and familiarizing yourself with the controls beginning with the setting and operation of the receiver controls.

You will be anxious to try the radio when it arrives. I advise not to be in too big a hurry. Do not turn the Heater switch on. Make sure the Send switch is not flipped to Send. Read section on how to pre-set the controls for receive mode. I would flip the SG switch on rear panel to OFF until ready to think about loading the rig.

Question you should be asking is.....What visual inspections and testing is recommended before plugging in this radio and powering it on? Can I just plug it in and turn it on? There will be varying opinions on this. At minimum I would do a good visual inspection.

Also what auxiliary equipment do I need (dummy load is a must) and what test equipment will I need?

Might help if you have some rig history to provide if you know. Is it a eBay purchase?

What is your back ground and experience level?

These are things that will help people here help you. Lot of TS-520 knowledge and experience here.

Should be a fun experience for you, but can be a frustrating and painful experience.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I just purchased an untested 520 and am wondering what the difference in the models listed for this group. I will soon be asking many questions Im sure as I began looking into the interior.. Thanks men as Im a new member and look forward to future conversations.

Sent from my Samsung Galaxy Note™, an AT&T LTE smartphone

45090. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 21:53:33 UTC
From: clifford wright
Topic: 45059 Message: 45090

Good day all!
Stone Me! Whatever happened to "Do it Yourself"?
Buying ladder line!!!!
I have used 2 things as insulators. One is of all things artificial insemination polystyrene tubes
(for cows) which are freely available and very cheap (preferably unused!!!), this cut into about
60 mm lengths can be melted on to the multi strand copper wire used for the feeder with a soldering iron and lasts
for quite a few years. Just stretch the wire for the feeder out in parallel and melt the polystyrene on every 300mm
or so. If you don't live in an agricultural area like me, or want an alternative you can use the plastic slides which support circuit boards in racks. There is a lot of this around from older computer gear and this works just as well. The only thing is to put the slot at the bottom so rain, snow etc doesn't short out the signal.
BTW be careful not to burn yourself, hot or molten plastic can give a nasty burn.
It took me about 40 minutes, tops to make 20 metres of ladder line and cost just a few dollars.
Surely that's not too much to ask for one's hobby?
ZL1BDA

45091. RE: RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 22:17:59 UTC
From: <wagstw46@...>
Topic: 45058 Message: 45091

When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.

I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.

I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?

And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.

I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.

I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am sorry Mike:

TURN THE HEATER SWITCH OFF MAN!

Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.

If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.

Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.

Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.

Just do not put heaters back on while working on the relay keying problem.

Terry K9TW

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From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.

The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF

45092. Re: [TS-520_820_530_830] Difference in these rigs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 22:45:54 UTC
From: Joseph Stiles
Topic: 45086 Message: 45092

Welcome aboard,

Terry-k9tw gives good council....BEFORE you plug it in and turn it on...take the covers off...and give it a good "eyeball"
inspection. Obtain an "operators manual," and a "service manual." Both can be found at Gordon's-n6wk web site: n6wk.com.
Become familiar with the controls and tune up procedure(s). Buy or better yet...build a dummy load..you're going to need
one.

  Ken Kemski-k4eaa has a very good web site: k4eaa.com   LOTS of good stuff there.

If in doubt on your inspection results...feel free to ask...it's better that "letting the smoke out!"
Radio smoke is expensive.

  Also, it is customary here to sign your post(s) with at least your first name, and your call(if any).

73 Joe
WB7UQU
Group Co-owner

From: Bryandibble <bryandibble@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 1:37 PM
Subject: [TS-520_820_530_830] Difference in these rigs

I just purchased an untested 520 and am wondering what the difference in the models listed for this group. I will soon be asking many questions Im sure as I began looking into the interior.. Thanks men as Im a new member and look forward to future conversations.

Sent from my Samsung Galaxy Note™, an AT&T LTE smartphone

45093. RE: Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 22:53:08 UTC
From: <wagstw46@...>
Topic: 45059 Message: 45093

OK so the new person builds a classic center fed Zepp. Now how does he get the tuned feeders in the shack whether he uses open wire or window line? It aint easy.

Old QST articles and ARRL handbooks show the tuned feeders terminate on large porcelain standoffs on the house under the eaves and then nice drip loops and then thru porcelain feed thru tubes thru the wall and the Balanced Tuner is mounted right there on the inside surface of the wall and the Transmitter is sitting on a table directly below the Tuner. So you have less than a foot of tuned feeder to the Tuner and two or three feet of coax run to the transmitter. Maybe in the 1950s unfinished attic shack? My first one in late 50s was exactly this. Many blissful hours spent in that attic with homebrew and converted WW2 army surplus and heathkit and knight kit gear. .

So the QST/ARRL depiction is an ideal installation, but very few shacks like that today. Just isnt the real world.

Often 25 to 50 feet or more after penetrating outside wall to get to the shack in the basement, den, bedroom with all finished walls and ceilings and no access to space between the floor joist etc. Large ,modern homes with finished walls and ceilings are pretty common state side.

Window line could be used in lieu of open wire feeders and routed to the shack as not as difficult to stand off along the route to the shack, but again almost impossible to snake and pull any distance.

So what do they really do today? They mount a 4:1 balun on outside wall in weather proof housing and end the tuned feeders (open wire or window type) at the exterior wall of the house. They now transition to coax and lots of variation here as to the type including some who parallel coaxes. Paralleling two runs of RG-8 or LMR-400 and using just the center conductors presents a balanced transition with less loss. Wont be 50 ohms but it does work.

Now most of these coax runs present a dilema. They will use relatively long runs of coax from the balun to the Tuner remotely located at the shack operating position. Now you have the high losses to content with that the high SWR on this coax presents. Can be as much as 10 dB loss in 25 to 30 feet of coax. Probably parallel coax is the best solution, but not everyone understands and uses this method of transition.

An option for all of this is a remote controlled Tuner at the exterior wall entry point, but these units dont come cheap and if you cant homebrew a Z match try building gear trains and position sensors and limit switches. I am not talking an auto tuner just a remote controlled balanced tuner.

So I suspect that Coax fed multiband antennas will continue to be the norm and the G5RV and OCF dipoles handle this much better than trying to feed a center fed Zepp with coax or to multiband a coax fed resonant dipole with a T-match Tuner.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Good day all!
Stone Me! Whatever happened to "Do it Yourself"?
Buying ladder line!!!!
I have used 2 things as insulators. One is of all things artificial insemination polystyrene tubes
(for cows) which are freely available and very cheap (preferably unused!!!), this cut into about
60 mm lengths can be melted on to the multi strand copper wire used for the feeder with a soldering iron and lasts
for quite a few years. Just stretch the wire for the feeder out in parallel and melt the polystyrene on every 300mm
or so. If you don't live in an agricultural area like me, or want an alternative you can use the plastic slides which support circuit boards in racks. There is a lot of this around from older computer gear and this works just as well. The only thing is to put the slot at the bottom so rain, snow etc doesn't short out the signal.
BTW be careful not to burn yourself, hot or molten plastic can give a nasty burn.
It took me about 40 minutes, tops to make 20 metres of ladder line and cost just a few dollars.
Surely that's not too much to ask for one's hobby?
ZL1BDA

45094. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 00:18:04 UTC
From: Jim S
Topic: 45059 Message: 45094

The "RF Connection" in Gaithersburg, MD has it by the roll, or in short lengths . They do have a web site.

http://www.therfc.com

Jim AG3Y

On 10/5/2013 3:41 AM, William Houghton wrote:
> JSC makes ladder line and you can get it at HRO and other places.
>
> The plastic epoxy encapsulation on semiconductors is not really to
> keep your prying fingers out but to protect the bond wires (smaller
> than a human hair in diameter) and to protect the die from contaminants.
>
> 73,
>
> Bill
>
> ---
> *From:* Wes Will <wwill@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Saturday, October 5, 2013 12:09 AM
> *Subject:* [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?
>
> New subject, same topic. Z-matches, lack of electronic gadgeteering on
> the part of the new meat, and co-axial abundance.
>
> One of the reasons coax is so prevalent is that it is easy and fairly
> cheaply come by. Ladder line you never see any more, but I can get
> miles of coax at the local radio hack store. (Another lament there, the
> downfall of R.S. and I really miss the Lafayette store...)
>
> Anyone got a good source for 450 ohm ladder line? Cheap? Or a better
> tip than anything I know for sourcing or making a few hundred insulator
> spacers to make my own? I'm not that good at whittling, so that's out.
> I'd much rather make ladder line, but it has been a long time. Guess
> it is time to dig out the 1966 ARRL handbook and see if there is any
> magic to be found inside on this topic.
>
> As for the fresh cheese knowing nothing about electronics, it's probably
> our generation's fault, or at least we're partly to blame. It's my
> generation that made everything so small and user-un-friendly on the
> inside. Not like when I was a kid and could scavenge literal
> barrels-full of tubes and transformers and such from junked,
> point-to-point-wired TVs and radios and such.
>

> Now, all the hardware that is available is miniaturized,
> surface-mounted, and epoxy-potted to keep prying fingers out. It's a
> bit harder to open up stuff out of curiosity and try to figure out how
> it works. (And safer, since everything seems to be 5VDC or so, instead
> of B+ and flyback voltages in the kilovolt or higher range, so there are
> some gains here. Fewer fried offspring.....)
>
> And Z-matches, yes, they're easy to make, but without that tinkering
> background as a starting point, quite frankly they're not exactly
> intuitive when a non-electronic neophyte looks at them or the circuit.
> -I- get it, -you- get it, but young Joe TechPlus over there, with his
> solid-state everything hasn't a clue.
>
> Rather than bemoan it, my take is to try and catch 'em as young as
> possible and give them stuff to take apart and put together again. Even
> put together broken will help kids get some feel for the insides of
> gear. AND gives me an opening to show them how to unscrew the
> inscrutable and make the whatever-it-was work again. When it does, they
> get a bit of an epiphany a lot of times, and the next step is easier.
>
> It's why I go to my wife's little back-woods-village school***, and do
> all kinds of "science stuff" with the kids, starting in third grade and
> going to the high school as often as I can. Everything and anything
> from cheesy Estes model rockets to raising frog spawn to kitchen
> chemistry to ham radio and electronics. I try to go at least one or two
> times a week, to one or another classroom, since I'm medically retired
> there's not a lot for me to do except keep the dogs company at home. I
> try to do something useful, and this is what I've chosen.
>
> And every now and then you see the lights go on in some kid's eyes.
> Makes it all worth it.
>
> I'm NOT trying to tell anyone what they should be doing. But perhaps if
> you look around, and if this lack of clued-in-ness in the younger
> generation really bothers you, maybe you can figure out something
> similar that makes a difference? Doesn't have to be with kids at a
> school, doesn't have to be anything at all, if that's what you decide.
> But I suspect that all of us "Aulde Phartes" can make a difference if we
> ganged up on the problem. (And frankly, it's a hoot. More fun than
> watching the dogs sleep, that's for certain.)
>
> (*** "Cobden, Illinois, Home of the Appleknockers" and I kid you not.
> An "appleknocker" used to be a worker in the orchards with a pole, whose
> job it was to whack apple trees and peach trees which had too many
> fruits per branch on them, and remove the excess so the ones that were
> left could grow properly and mature, rather than just breaking the
> branch off from being overloaded.)
>
> --
> Wes Will

> N9KDY
>
>
>

45095. Re: RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 01:55:26 UTC
From: Ronald Robinson
Topic: 45058 Message: 45095

thanks for the heads up Terry ,as u know i'm still green !!!!!

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 5:17 PM
Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)

When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.

I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.

I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?

And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.

I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.

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Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am sorry Mike:

TURN THE HEATER SWITCH OFF MAN!

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Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.

Just do not put heaters back on while working on the relay keying problem.

Terry K9TW

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Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the
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to switch to transmit (relay on the RELAY Unit) must energize for
the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

>>>new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF
>>>
>>
>>
>>

45096. Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-05 17:40:41 UTC
From: Joseph Stiles
Topic: 45055 Message: 45096

Steve,

  I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need,
especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible.
It was actually rather cheap...$30.00.

  Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at
this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune"
my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember...
use "decaf" coffee...those damn blades are sharp!

  I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe
some "crud" on the associated band switch contact points...as the "cal signal" I believe is inserted after L-41..(antenna step xfmr)
so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease
as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M

  I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
my recommendation to what my limited knowledge allows me to do

   hey Mo.....

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short
to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece
of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45097. RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 04:11:21 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45097

I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need,
especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible.
It was actually rather cheap...$30.00.

Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at
this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune"
my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember...
use "decaf" coffee...those damn blades are sharp!

I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe
some "crud" on the associated band switch contact points...as the "cal signal" I believe is inserted after L-41..(antenna step xfmr)
so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease
as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M

I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
my recommendation to what my limited knowledge allows me to do

hey Mo.....

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

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Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45098. Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 05:28:40 UTC
From: Wes Will
Topic: 45059 Message: 45098

> large porcelain standoffs on the house under the eaves and then nice
> drip loops and then thru porcelain feed thru tubes thru the wall and the

I'm planning on coming through a window, actually. Basically a small, insulated box the width of the window, with storm seal top, bottom, and sides to catch the draft. Thin plywood over a block of 6-inch styrofoam, with a couple of pieces of 1" PVC pipe and a couple of flanges for a pass-through.

Fill the pipes with silicone, the non-setting kind, to keep out water and cut the breeze into the house, A couple of pieces of rubber sheet to cover the ends of the holes and to keep the silicone inside. Snip a slit in the rubber (scavenged from an old tractor inner tube, that's thick and should provide material for about five hundred of these...) to shove the wires through.

The spacing between the two pieces of pipe will be the same as the separation of the ladder line. Then in to the balanced line connectors on the antenna tuner, and out via a pigtail to the rig. I'll keep the tuner on bypass most of the time, I suspect. Shouldn't need much to load the Kenwood into an inverted V or whatever.

I plan on having several sorts of antenna, since that's the thing I -can- do to make the biggest difference in the performance of the whole rig anyway. Besides, it's the most fun part, tinkering. Can't do much with the insides of the radio, so I like to mess about with he antenna.

> 25 to 30 feet of coax. Probably parallel coax is the best solution, but

I've been considering this exact thing, actually. I've a BUNCH of old 75 ohm television coax, and yes it is full braid shield stuff, not just a few wraps. I was wondering if there was any information about how that would behave, electrically, if the center conductors were used in a parallel balanced-line configuration. What would be the best thing to do with the braid? Ground it at the rig end? Ground it at the -antenna- end? Leave it unconnected at both ends? Grounded at both ends? (NOT! Ground loops are such a bugger.) Can't seem to find any information on this, but it sounds intriguing.

Might be something to sic the antenna analyzer on, when it's done. I'm expecting the last chip (from China) to arrive this week, and then I can finish the thing. Anybody here got data about this? I'd love to see it.

I am ecstatic about a cheap acquisition I made, an 1970's era PACE soldering/desoldering station. It came with the pumps working properly, good heating elements and tips in both irons - a nice fine-gauge one for the soldering station, and a desoldering tip in almost-new shape. Even

had the clean-out wire for it. Anyway, it has made SMD soldering almost a pleasure. The antenna analyzer is the first fully-SMD project I've attempted, and with the new iron to help I suspect that it will be followed by other goodies of a similar sort.

--
Wes Will
N9KDY

45099. Heil headset question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 07:29:57 UTC
From: km5wx@bellsouth.net
Topic: 45099 Message: 45099

Hi, Anyone use a Heil headset with boom mic on their hybrid? I have a 530 and 820 and I'd like to use a boomset. Does anyone know the best element to use and which model headset do they use? I don't want to ruin that great hybrid audio! Thanks in advance Richard KM5WX

45100. Re: [TS-520_820_530_830] Heil headset question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 11:37:42 UTC
From: Mike
Topic: 45099 Message: 45100

First, you need to know the microphone and audio impedance values/ranges
for both transceivers. You will find them listed on the specification
page in each transceiver's operator manual.

Next, you should go to the Heil website to compare their specifications
to the microphone/headphone specifications in the hybrid manual's spec
sheet. Consulting with Heil, the manufacturer, is the best route you
should take.

73
Mike W5RKL

On 10/6/2013 2:29 AM, km5wx@... wrote:
>
> Hi, Anyone use a Heil headset with boom mic on their hybrid? I have a
> 530 and 820 and I'd like to use a boomset. Does anyone know the best
> element to use and which model headset do they use? I don't want to
> ruin that great hybrid audio! Thanks in advance Richard KM5WX
>
>

45101. RE: Re: RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 11:52:10 UTC
From: <wagstw46@...>
Topic: 45058 Message: 45101

I think you are Red and perhaps now Black and Blue!

Your rig and you can chose to run with heaters on at all times if you want. Folks do but I would not. Lots of rigs with no heater switch. KW provided it to facilitate mobile operation to lessen drain on battery.

How did you see the plates glowing red? Were you looking inside PA cage for source of relay keying issue?

Was the radio working in receive mode during this 10 minute period before they turned red?

If no receive are you sure the relays are not keyed and rig is in standing TX mode?

If good receive then relays not keyed and about only way for finals to take off in receive mode is a problem with cut off bias.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

thanks for the heads up Terry ,as u know i'm still green !!!!!

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 5:17 PM
Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)

When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.

I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.

I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?

And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.

I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.

I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am sorry Mike:

TURN THE HEATER SWITCH OFF MAN!

Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.

If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.

Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.

Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.

Just do not put heaters back on while working on the relay keying problem.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

also Mike after it sets on for about 10 min the final tubes glow red and it blows the fuse

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.

The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF

45102. RE: Re: [TS-520_820_530_830] Ladder line vs, coax. Scarcity perhaps?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 11:59:29 UTC
From: <wagstw46@...>
Topic: 45059 Message: 45102

75 ohm will work just fine.

Here is what you need to help decide about grounding just one end of your transition coax. Also take a look at the losses. Not a perfect solution but much better than just transitioning to a long single coax run to the Tuner in the shack.

http://vk1od.net/transmissionline/stcm/

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

> large porcelain standoffs on the house under the eaves and then nice
> drip loops and then thru porcelain feed thru tubes thru the wall and the

I'm planning on coming through a window, actually. Basically a small, insulated box the width of the window, with storm seal top, bottom, and sides to catch the draft. Thin plywood over a block of 6-inch styrofoam, with a couple of pieces of 1" PVC pipe and a couple of flanges for a pass-through.

Fill the pipes with silicone, the non-setting kind, to keep out water and cut the breeze into the house, A couple of pieces of rubber sheet to cover the ends of the holes and to keep the silicone inside. Snip a slit in the rubber (scavenged from an old tractor inner tube, that's thick and should provide material for about five hundred of these...) to shove the wires through.

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--
Wes Will
N9KDY

45103. Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 14:24:55 UTC
From: Mike
Topic: 45103 Message: 45103

I don't mean any disrespect to anyone with what I am going to say.

I see a lot of senseless confusion that occurs because members asking for help don't seem to use common sense and follow simple instructions.

Quite often members don't seem to take the time to read/study the operator's manual before they attempt to operate their hybrid. A lot of operator error problem can be solved it the member read/studied the operator's manual. If the manual was not included in the sale, download it from Gordon's website

www.n6wk.com/kenwood/

and read/study it.

I also see where a lot of members who want to fix their hybrid but quite often do not have or even have access to basic test equipment. You can't fix your hybrid without some basic test equipment. I made a video showing some basic test equipment (see the following link):

http://www.n6wk.com/w5rkl/Test%20Equipment/

You also need to know how to properly and "safely" use the test equipment which includes having a thorough understanding of the proper safety precautions you MUST follow when working around HV. Many times we have stated, "There are voltages in the KW hybrid that can KILL YOU!" so don't ignore the importance of safety!! YOUR LIFE depends on it!!

Quite often members asking for help seem to leave out a lot of important information in their request for help. Here are a few examples of important information left out of a member's post asking for help:

1. Do you have and have you read the operator AND service manuals?
2. What level of electronic knowledge along with any troubleshooting and repair skills do you have?
3. What test equipment do you have and do you know how to properly and safely use the test equipment?
4. Do you have a dummy load?
5. Have you properly set the controls according to the operator's manual?
6. What components have you replaced, if any, before you asked for help?
7. Have you explained, in detail, everything about the problem you are experiencing? We can't read your mind.

If you are given instructions to follow, FOLLOW them, don't do anything else! Quite often I've seen members create more problems by doing something they were not instructed to do. Here's an example of not following instructions:

"I read where I should also do ..... so in addition to your instructions I also did that. Now the transmitter no longer keys. What's wrong now?"

What's wrong NOW? It's simple, you have now created more problems or made the problem worse because you did something you were not instructed to do!

I, as well as others who are providing help, understand the hybrid you have is yours to do with what ever and how ever you please. However, when you ask us for help and are given instructions to follow, don't blame us when we point out things you should not have done that have made the problem worse!

73
Mike W5RKL

45104. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 14:56:33 UTC
From: Chris Maness
Topic: 45103 Message: 45104

I would agree with this mostly. However I don't advise someone to blindly follow advise that doesn't make sense to them. Make sure you understand the reasoning behind the expert's advise. If it does not make sense to you, you should have the elmer explain there reasoning. Elmer's should also be patient with this process. It is a part of the learning process -- the most important one. I have had elmer's loose their cool more than once.

This also clears miscommunication, and prevents one from being led down a rabbit hole.

Terry did a great job in this respect -- Kudos :D

My $.02,
Chris KQ6UP

On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@...> wrote:
>
>
>
> I don't mean any disrespect to anyone with what I am going to say.
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> "I read where I should also do ..... so in addition to your instructions I also did that. Now the transmitter no longer keys. What's wrong now?"
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> What's wrong NOW? It's simple, you have now created more problems or made the problem worse because you did something you were not instructed to do!
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> I, as well as others who are providing help, understand the hybrid you have is yours to do with what ever and how ever you please. However, when you ask us for help and are given instructions to follow, don't blame us when we point out things you should not have done that have made the problem worse!
>
> 73
> Mike W5RKL
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45105. What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 15:02:26 UTC
From: <wagstw46@...>
Topic: 45105 Message: 45105

We have covered this before on this forum so here goes for last time from me. Got an email that went like this:

I have a 1/2 wavelength 80 meter dipole that I feed with approx 100 feet of good RG8X and use my MFJ tuner on all bands. It loads great on 80 meters and I can load it on 20 meters and make contacts all the time including DX. What is the big deal about using coax instead of ladder line as this ongoing thread keeps harping about. If you old timers think it is so bad why are so many new hams doing this when it works just fine for them?

Here is the "Big Deal" from old timers perspective:

Yes you can use Coax feed and multiband your resonant dipole. Yes your antenna better work well on 80 meters. Yes you can load on 20 meters with your MFJ T-match tuner. However, here is what you are doing for sake of convenience that coax feed allows:.

Using a 1/2 wave 80 meter dipole (or 40 meter) results in a wide range of impedance at the center feed point. This results in a mismatch between the coax and antenna and your tuner cannot change that. Depending on the band can range from 100 ohms to thousands of ohms and it isnt pure R. It will have a reactive component as well. So you will have a mismatch from your 50 ohm coax to this impedance that results in very high SWR (not the loathsome 2:1). On 20 meters it could be as high a 4000 ohms. If you have a antenna analyzer can measure it. If 4000 ohms then 4000/50 = 80:1 SWR. This high SWR is a problem because of the additional loss per foot with coax feed line.

Lets assume on 20 meters the antenna feedpoint of your 80 meter dipole looks like 1200 ohms.1200/50 = 24:1 SWR.

What will be the losses be at 14.2mhz with 100 watts from your KW hybrid?

1. 100 ft of RG8X has approx 1.0 db matched loss at 14.2mhz (this is the attenuation per foot for given frequency).1.0 dB loss is not detectable on receiving end. No Big Deal.

2. 24:1 SWR results in additional loss of 5.0 dB.

3. 5 dB + 1 dB = 6.0 dB loss. Total loss is approx 6.0 dB.

4. A 6 dB loss with 100 watts output from your Hybrid results in 24 watts at the antenna. This is the Big Deal.

5. You are making contacts on 20 meters with 24 watts. If you are having fun with 24 watts then there is no Big Deal. That is for you to decide. I suspect you are not aware you are operating with "accidental" qrp power? Ok not true QRP but you get the point.

Here is comparison with Balanced Feeders;

1. 450 ohm ladder line matched loss will be approx 0.12 dB and not 1.0 dB.

2. 24:1 SWR loss will be 1.0 dB for a total loss of approx 1.12 dB and not 6.0 dB.

3. Power available now with a 1.12 dB loss is approx 78 watts to the antenna.

4. For 600 ohm line power will be approx 83 watts and for 300 line ohm it will be approx 64 watts.

5. Summary.... 50 ohm coax = 24 watts and 450 ladder line = 78 watts on 20 meters. I think that is a Big Deal or at least significant.

Again no one said what you and other new and old hams alike are doing wont work. The question is what is the definition of Work as it relates to efficiency..

The point of the long ongoing thread about balanced feeders and balanced tuners like the Z-match was to ensure that you understand this and if you are making contacts on all the bands you like to operate on and dont want the hassle of using balanced feeders and figuring out how to get them to your operating position in the house then there is no Big Deal.

ARRL and others have charts and on line calculators you can use to determine line and SWR losses of various feed lines.

Terry K9TW .

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45106. RE: Re: RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 15:18:07 UTC
From: Chris Maness
Topic: 45058 Message: 45106

Mike, I have been leaving my heating filaments on per the admonition of several old timers in order too avoid thermal stress that can cause the heater to fail before emisivity falls off. I tried to start a thread along these lines, but I don't recall you weighing in.

Just curious as to your pro/con reasoning here.

Chris KQ6UP
On Oct 6, 2013 4:52 AM, <wagstw46@...> wrote:

>
>
> I think you are Red and perhaps now Black and Blue!
>
>
> Your rig and you can chose to run with heaters on at all times if you
> want. Folks do but I would not. Lots of rigs with no heater switch. KW
> provided it to facilitate mobile operation to lessen drain on battery.
>
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> How did you see the plates glowing red? Were you looking inside PA cage
> for source of relay keying issue?
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> Was the radio working in receive mode during this 10 minute period before
> they turned red?
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> If no receive are you sure the relays are not keyed and rig is in standing
> TX mode?
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> If good receive then relays not keyed and about only way for finals to
> take! off in receive mode is a problem with cut off bias.
>
>
> Terry
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> thanks for the heads up Terry ,as u know i'm still green !!!!!
>
> ------------------------------
> *From:* "wagstw46@..." <wagstw46@...>

> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Saturday, October 5, 2013 5:17 PM
> *Subject:* RE: RE: Re: [TS-520_820_530_830] (unknown)
>
>
>
> When I said "Sorry Mike" I was apologizing to Mike for butting in on his
> thread.
>
> I was not Chastising Mike in any way. His advice to try keying the rig by
> grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key
> rig Mikes direction is the next logical step.
>
> I was trying to very quickly get Rons attention to get the damn Heater
> switch turned off. Why would anyone troubleshooting a rig keying problem
> have the heater switch on?
>
> And sure didnt want Ron to re-fuse the rig and try burning up the Plate
> choke or the HV rectifier board, or the Power transformer.
>
> I am sorry and should have let it go. No way for me to know if Mike or
> anyone else was monitoring and could stop Ron from further damaging his
> rig. Felt like could not just sit on sideline and watch him do this.
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> I apologize to Mike if it looked like to one or more of our members that I
> was chastising Mike. We can all have professional differences but none
> exist related to this thread.
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> Terry K9TW
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> ---In TS-520_820_530_830@yahoogroups.com, <
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>
> I am sorry Mike:
>
> TURN THE HEATER SWITCH OFF MAN!
>
> Why would you have the filaments on when troubleshooting a relay keying
> problem? There is no reason to have the heaters on until a few minutes
> before ready to load and transmit. Tubes only have so much life and running
> heaters all the time is not necessary.
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> If heaters are off then can be no cathode emission and if you lose cut-off
> or operating bias there will be no Plate current.
>
> Likely you have lost the final tubes. They do not like thermal run away.
> How did you see the plate glow? Do you have the PA cage cover off? If so
> why? Have to be very careful with 900vdc present here.
>

> Will let Mike help you trouble shoot this problem as well as the relay
> keying issues. Not likely related.
>
> Just do not put heaters back on while working on the relay keying problem.
>
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> Terry K9TW
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> also Mike after it sets on for about 10 min the final tubes glow red an! d
> it blows the fuse
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>
> ------------------------------
> *From:* Mike <w5rkl@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Saturday, October 5, 2013 4:44 AM
> *Subject:* Re: [TS-520_820_530_830] (unknown)
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>
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> Hi Ron,
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> Have you tried grounding pin 2 on the MIC socket to see if the relays
> energize? Pin 2 on the MIC socket is in parallel with the SEND switch.
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> The meter switch settings are not enabled in receive. The 820 has to
> switch to transmit (relay on the RELAY Unit) must energize for the meter
> switch settings to work.
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> On 10/4/2013 10:04 PM, Ronald Robinson wrote:
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> new to me ---a ts 820s recieve works, ok but no send recieve ,no hv
> on meter ,no ip on meter, no alc ,i've checked the voltages they are ok ,
> relay is not working when switch is flipped , hv board checked out good
> any ideas anyone or where to start ?
> thanks Ron KK4PWF
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45107. RE: RE: Re: RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 16:38:29 UTC
From: <wagstw46@...>
Topic: 45058 Message: 45107

My admonishment to Ron about heaters off was more related to how to configure the rig for troubleshooting on the bench and not so much about tube life which can argue either way. I will let Mike address that.

I have a lot of experience, but I always put a rig on the service bench in a position that ensures the least amount of damage on initial power on. Things like:

1. Heater off
2. Car Level pot full CCW
3. Mic gain pot full CCW
4. Send switch to Receive
5. Dummy load connected to SO-239
6. Remote speaker connected (I dont like the audio output amp to be open ended)

I dont want any inadvertent transmit to occur on initial power on.

If I am in the PA cage I mesh the air variable cap plates to avoid accidental damage..

Just little precautions. Maybe anal, but I try to minimize surprises.

I look at every Ebay picture of KW hybrids listed and most make me sick.
1. Power and heaters switch on
2. Send switch flipped to Send
3. In CW or Tune mode
4. CAR pot advanced.
5. Meter in ALC or RF so no idea where IP is at
6. No evidence of dummy load connected.
7. How long powered on like this?

The ad states " Radio powers on but unable to test further"

I dont want any of those radios!

Just me.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Just curious as to your pro/con reasoning here.

Chris KQ6UP

On Oct 6, 2013 4:52 AM, <wagstw46@...> wrote:

I think you are Red and perhaps now Black and Blue!

Your rig and you can chose to run with heaters on at all times if you want. Folks do but I would not. Lots of rigs with no heater switch. KW provided it to facilitate mobile operation to lessen drain on battery.

How did you see the plates glowing red? Were you looking inside PA cage for source of relay keying issue?

Was the radio working in receive mode during this 10 minute period before they turned red?

If no receive are you sure the relays are not keyed and rig is in standing TX mode?

If good receive then relays not keyed and about only way for finals to take! off in receive mode is a problem with cut off bias.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 5:17 PM
Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)

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And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.

I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.

I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.

Terry K9TW

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I am sorry Mike:

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Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit.

Tubes only have so much life and running heaters all the time is not necessary.

If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.

Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.

Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.

Just do not put heaters back on while working on the relay keying problem.

Terry K9TW

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From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.

The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF

45108. Re: Re: RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 16:42:41 UTC
From: Gordon JC Pearce
Topic: 45058 Message: 45108

On Sun, Oct 06, 2013 at 08:18:07AM -0700, Chris Maness wrote:
> Mike, I have been leaving my heating filaments on per the admonition of
> several old timers in order too avoid thermal stress that can cause the
> heater to fail before emisivity falls off. I tried to start a thread along
> these lines, but I don't recall you weighing in.
>
> Just curious as to your pro/con reasoning here.

As someone told me over 30 years ago when I was getting into this radio lark, if you turn the heaters on all the time you'll eventually burn off the cathode coating.

But, if you switch them off and only switch them on when you want to transmit, the thermal cycling will eventually cause the heater to fail.

And in either case, you *will* shorten the life of the valve by possibly as much as a couple of hours for every ten years of operation :-D

--
Gordonjcp MM0YEQ

45109. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 12:04:22 UTC
From: Ron
Topic: 45058 Message: 45109

I had changed the final tubes that's why I saw the red glow and the heater switch was off so I guess the rig has more problems , I changed the board we talked about an the relays started working but now the red glow

Sent from my iPhone

On Oct 6, 2013, at 6:52 AM, <wagstw46@...> wrote:

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> To: TS-520_820_530_830@...m
> Sent: Saturday, October 5, 2013 5:17 PM
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> To: TS-520_820_530_830@yahoogroups.com
> Sent: Saturday, October 5, 2013 4:44 AM
> Subject: Re: [TS-520_820_530_830] (unknown)
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45110. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 18:22:51 UTC
From: W5RKL
Topic: 45103 Message: 45110

Yes, I could have included a statement that said, "follow instructions that are backed up with actual facts and explanations why you should perform the instructions". I did not include that statement or something similar because more often than not, instructions provided to member on this group, more often that not, include facts and supporting statements why the instructions should be followed. Yes, I know there are some suggestions that are pure non-sense and out right wrong but when those appear, the factual statement/instructions point those out and why they should not be followed.

Something I have a difficult time understanding is a ham who has no basic knowledge of electronics, can't read a schematic, has never performed any troubleshooting, and doesn't have nor has ever used test equipment, believes they can repair their sophisticated KW hybrid by asking a few questions. While they may be "trolling" for answers so they can the answers to someone else who is experienced, I suspect most of the time that is not the case. There has been many times where I have seen members say, "I don't have the experienced/knowledge but I want to learn". That's a great idea but unless that member(s) actually spend time reading and studying and asking questions about topics they are having troubles understanding, the statement is nothing more than words on a computer screen. Learning electronics not something you learn overnight, over a weekend, or even within 6 moths. It takes time to study and that means reading reference material that has been provided many times on this group. I don't know how one is going to learn if they are not interested in reading/studying? Maybe because, as many thing are today, "There's not an ap for that!!".

I'm no expert, I have never said I was. However, I didn't learn what I know by sitting on my butt and having someone else do the work. I still read/study/review the basic subjects such as resistors, capacitors, inductors, power supplies, receivers, transmitters, and other electronic subjects. Again, a person will not learn it overnight, over a weekend, or even after 6 months. It takes time to study and ask questions.

Again, I mean no disrespect towards anyone.

73
Mike W5RKL

On 10/6/2013 9:56 AM, Chris Maness wrote:
>
> I would agree with this mostly. However I don't advise someone to
> blindly follow advise that doesn't make sense to them. Make sure you
> understand the reasoning behind the expert's advise. If it does not
> make sense to you, you should have the elmer explain there reasoning.

> Elmer's should also be patient with this process. It is a part of the
> learning process -- the most important one. I have had elmer's loose
> their cool more than once.
>
> This also clears miscommunication, and prevents one from being led
> down a rabbit hole.
>
> Terry did a great job in this respect -- Kudos :D
>
> My $.02,
> Chris KQ6UP
>
> On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@...
> <mailto:w5rkl@...>> wrote:
> >
> >
> >
> > I don't mean any disrespect to anyone with what I am going to say.
> >
> > I see a lot of senseless confusion that occurs because members
> asking for help don't seem to use common sense and follow simple
> instructions.
> >
> > Quite often members don't seem to take the time to read/study the
> operator's manual before they attempt to operate their hybrid. A lot
> of operator error problem can be solved it the member read/studied the
> operator's manual. If the manual was not included in the sale,
> download it from Gordon's website
> >
> > www.n6wk.com/kenwood/ <http://www.n6wk.com/kenwood/>
> >
> > and read/study it.
> >
> > I also see where a lot of members who want to fix their hybrid but
> quite often do not have or even have access to basic test equipment.
> You can't fix your hybrid without some basic test equipment. I made a
> video showing some basic test equipment (see the following link):
> >
> > http://www.n6wk.com/w5rkl/Test%20Equipment/
> >
> > You also need to know how to properly and "safely" use the test
> equipment which includes having a thorough understanding of the proper
> safety precautions you MUST follow when working around HV. Many times
> we have stated, "There are voltages in the KW hybrid that can KILL
> YOU!" so don't ignore the importance of safety!! YOUR LIFE depends on it!!
> >
> > Quite often members asking for help seem to leave out a lot of
> important information in their request for help. Here are a few
> examples of important information left out of a member's post asking
> for help:

> >
> > 1. Do you have and have you read the operator AND service manuals?
> > 2. What level of electronic knowledge along with any troubleshooting
> and repair skills do you have?
> > 3. What test equipment do you have and do you know how to properly
> and safely use the test equipment?
> > 4. Do you have a dummy load?
> > 5. Have you properly set the controls according to the operator's
> manual?
> > 6. What components have you replaced, if any, before you asked for help?
> > 7. Have you explained, in detail, everything about the problem you
> are experiencing? We can't read your mind.
> >
> >
> > If you are given instructions to follow, FOLLOW them, don't do
> anything else! Quite often I've seen members create more problems by
> doing something they were not instructed to do. Here's an example of
> not following instructions:
> >
> > "I read where I should also do .... so in addition to your
> instructions I also did that. Now the transmitter no longer keys.
> What's wrong now?"
> >
> > What's wrong NOW? It's simple, you have now created more problems or
> made the problem worse because you did something you were not
> instructed to do!
> >
> > I, as well as others who are providing help, understand the hybrid
> you have is yours to do with what ever and how ever you please.
> However, when you ask us for help and are given instructions to
> follow, don't blame us when we point out things you should not have
> done that have made the problem worse!
> >
> > 73
> > Mike W5RKL
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45111. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 18:31:14 UTC
From: W5RKL
Topic: 45058 Message: 45111

The heater switch was OFF yet the final tube plates glowed RED? Are you sure the HEATER switch was OFF?.

Have you checked the HEATER switch to see if it actually opens the circuit when pressed to the OFF position? If the switch is good the filaments will be dark in the OFF position but glow in the ON position. The tubes cannot conduct if the filaments are turned OFF.

Also, have you verified the presents of bias voltage at the output of the -C supply and at the grids of each final tube? As Terry said, and I agree, the only way the final tubes will conduct to saturation levels in receive is if the bias supply has failed, which removes cut off bias from the bias circuit and ultimately from the final tube grids.

I may have missed it but why did you change the final tubes? What troubleshooting results indicated the final tubes needed to be replaced?

73
Mike W5RKL

On 10/6/2013 7:04 AM, Ron wrote:
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> heater switch was off so I guess the rig has more problems , I changed
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>>
>> Why would you have the filaments on when troubleshooting a relay
>> keying problem? There is no reason to have the heaters on until a few
>> minutes before ready to load and transmit. Tubes only have so much
>> life and running heaters all the time is not necessary.
>>
>> If heaters are off then can be no cathode emission and if you lose
>> cut-off or operating bias there will be no Plate current.
>>
>> Likely you have lost the final tubes. They do not like thermal run
>> away. How did you see the plate glow? Do you have the PA cage cover
>> off? If so why? Have to be very careful with 900vdc present here.
>>
>> Will let Mike help you trouble shoot this problem as well as the
>> relay keying issues. Not likely related.
>>
>> Just do not put heaters back on while working on the relay keying
>> problem.
>>
>> Terry K9TW
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com
>> <mailto:ts-520_820_530_830@yahoogroups.com>> wrote:
>>
>> also Mike after it sets on for about 10 min the final tubes glow red
>> and it blows the fuse
>>
>>
>> ---
>> *From:* Mike <w5rkl@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Saturday, October 5, 2013 4:44 AM

>> *Subject:* Re: [TS-520_820_530_830] (unknown)
>>
>>
>>
>> Hi Ron,
>>
>> Have you tried grounding pin 2 on the MIC socket to see if the relays
>> energize? Pin 2 on the MIC socket is in parallel with the SEND switch.
>>
>> The meter switch settings are not enabled in receive. The 820 has to
>> switch to transmit (relay on the RELAY Unit) must energize for the
>> meter switch settings to work.
>>
>> 73
>> Mike W5RKL
>>
>> On 10/4/2013 10:04 PM, Ronald Robinson wrote:
>>
>>> new to me ---a ts 820s recieve works, ok but no send
>>> recieve ,no hv on meter ,no ip on meter, no alc ,i've
>>> checked the voltages they are ok , relay is not working
>>> when switch is flipped , hv board checked out good
>>> any ideas anyone or where to start ? thanks Ron KK4PWF
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45112. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 18:31:32 UTC
From: K5MYJ
Topic: 45103 Message: 45112

I have made these same observations. If newbies don't want to follow the instructions they should not be messing with these radios.

If you don't want buy the necessary test equipment this is not a hobby for you!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: W5RKL
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 06, 2013 11:22 AM
Subject: Re: [TS-520_820_530_830] Following instructions

Yes, I could have included a statement that said, "follow instructions that are backed up with actual facts and explanations why you should perform the instructions". I did not include that statement or something similar because more often than not, instructions provided to member on this group, more often that not, include facts and supporting statements why the instructions should be followed. Yes, I know there are some suggestions that are pure non-sense and out right wrong but when those appear, the factual statement/instructions point those out and why they should not be followed.

Something I have a difficult time understanding is a ham who has no basic knowledge of electronics, can't read a schematic, has never performed any troubleshooting, and doesn't have nor has ever used test equipment, believes they can repair their sophisticated KW hybrid by asking a few questions. While they may be "trolling" for answers so they can the answers to someone else who is experienced, I suspect most of the time that is not the case. There has been many times where I have seen members say, "I don't have the experienced/knowledge but I want to learn". That's a great idea but unless that member(s) actually spend time reading and studying and asking questions about topics they are having troubles understanding, the statement is nothing more than words on a computer screen. Learning electronics not something you learn overnight, over a weekend, or even within 6 moths. It takes time to study and that means reading reference material that has been provided many times on this group. I don't know how one is going to learn if they are not interested in reading/studying? Maybe because, as many thing are today, "There's not an ap for that!!".

I'm no expert, I have never said I was. However, I didn't learn what I know by sitting on my butt and having someone else do the work. I still read/study/review the basic subjects such as resistors, capacitors, inductors, power supplies, receivers, transmitters, and other electronic subjects. Again, a person will not learn it overnight, over a weekend, or even after 6 months. It takes time to study and ask questions.

Again, I mean no disrespect towards anyone.

73
Mike W5RKL

On 10/6/2013 9:56 AM, Chris Maness wrote:

I would agree with this mostly. However I don't advise someone to blindly follow advise that doesn't make sense to them. Make sure you understand the reasoning behind the expert's advise. If it does not make sense to you, you should have the elmer explain there reasoning. Elmer's should also be patient with this process. It is a part of the learning process -- the most important one. I have had elmer's loose their cool more than once.

This also clears miscommunication, and prevents one from being led down a rabbit hole.

Terry did a great job in this respect -- Kudos :D

My $.02,
Chris KQ6UP

On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@...> wrote:
>
>
>
> I don't mean any disrespect to anyone with what I am going to say.
>
> I see a lot of senseless confusion that occurs because members asking for help don't seem to use common sense and follow simple instructions.
>
> Quite often members don't seem to take the time to read/study the operator's manual before they attempt to operate their hybrid. A lot of operator error problem can be solved it the member read/studied the operator's manual. If the manual was not included in the sale, download it from Gordon's website
>
> www.n6wk.com/kenwood/
>
> and read/study it.
>
> I also see where a lot of members who want to fix their hybrid but quite often do not have or even have access to basic test equipment. You can't fix your hybrid without some basic test equipment. I made a video showing some basic test equipment (see the following link):
>
> http://www.n6wk.com/w5rkl/Test%20Equipment/
>
> You also need to know how to properly and "safely" use the test equipment which includes having a thorough understanding of the proper safety precautions you MUST follow when working around HV. Many times we have stated, "There are voltages in the KW hybrid that can KILL YOU!" so don't ignore the importance of safety!! YOUR LIFE depends on it!!
>
> Quite often members asking for help seem to leave out a lot of important information in their request for help. Here are a few examples of important information left out of a member's post asking for help:
>
> 1. Do you have and have you read the operator AND service manuals?

> 2. What level of electronic knowledge along with any troubleshooting and repair skills do you have?
> 3. What test equipment do you have and do you know how to properly and safely use the test equipment?
> 4. Do you have a dummy load?
> 5. Have you properly set the controls according to the operator's manual?
> 6. What components have you replaced, if any, before you asked for help?
> 7. Have you explained, in detail, everything about the problem you are experiencing? We can't read your mind.
>
>
> If you are given instructions to follow, FOLLOW them, don't do anything else! Quite often I've seen members create more problems by doing something they were not instructed to do. Here's an example of not following instructions:
>
> "I read where I should also do ..... so in addition to your instructions I also did that. Now the transmitter no longer keys. What's wrong now?"
>
> What's wrong NOW? It's simple, you have now created more problems or made the problem worse because you did something you were not instructed to do!
>
> I, as well as others who are providing help, understand the hybrid you have is yours to do with what ever and how ever you please. However, when you ask us for help and are given instructions to follow, don't blame us when we point out things you should not have done that have made the problem worse!
>
> 73
> Mike W5RKL
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45113. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 18:41:46 UTC
From: Greg
Topic: 45105 Message: 45113

Terry
What would you use for lightning protection when using 450 ohm ladder line. Sorry for the hijack.
Greg
KC9VVU

Sent from my Virgin Mobile Android-Powered Device

wagstw46@yahoo.com wrote:

45114. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 19:25:29 UTC
From: Wes Will
Topic: 45105 Message: 45114

On 10/06/2013 01:41 PM, Greg wrote:
>
>
> Terry
> What would you use for lightning protection when using 450 ohm ladder
> line. Sorry for the hijack.
> Greg
> KC9VVU

Spark gap.

Make some pointy copper/brass spikes (should look like a copper nail)m
or you can use some copper-clad carbon arc light or welding rod. One
goes on the ladder line wire, the other gets tied to a solid ground with
about an eighth of an inch between the points. Of course you need one
pair for each leg of the ladder.

Or you can use some non-resistor spark plugs (check tractor supply
places if your local auto parts store doesn't have any non-resistor
types, or maybe chainsaw/lawnmower repair shops), one per leg, leading
to ground on one side of the gap.

Either way, the idea is to give the bolt an easier path to ground than
the one presented by your radio and its ground.

--
Wes Will
N9KDY

45115. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 19:35:16 UTC
From: Don Cunningham
Topic: 45105 Message: 45115

Greg,

I'm definitely not as experienced as Terry, but I would suggest that you also check out Array Solutions AS-305H Arrestor. It also drains static which can also be very harmful (even with coax feeds here in SW Oklahoma!!) to solid state rigs. Not so much the hybrids, but could damage the front end, I guess. My coaxes will draw an arc every once in a while (as does the 300 ohm window line) if I don't have these in line.
73,
Don, WB5HAK
On 10/6/2013 1:41 PM, Greg wrote:
>
> Terry
> What would you use for lightning protection when using 450 ohm ladder
> line. Sorry for the hijack.
> Greg
> KC9VVU
>
> Sent from my Virgin Mobile Android-Powered Device
>
> wagstw46@... wrote:
>
>

45116. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 19:33:07 UTC
From: Ron
Topic: 45058 Message: 45116

Mike the heater switch was backwards !!!! Got it to keying the relays now this bias is unstable

Sent from my iPhone

On Oct 6, 2013, at 1:31 PM, W5RKL <w5rkl@...> wrote:

>
>
> The heater switch was OFF yet the final tube plates glowed RED? Are you sure the HEATER switch was OFF?.
>
> Have you checked the HEATER switch to see if it actually opens the circuit when pressed to the OFF position? If the switch is good the filaments will be dark in the OFF position but glow in the ON position. The tubes cannot conduct if the filaments are turned OFF.
>
> Also, have you verified the presents of bias voltage at the output of the -C supply and at the grids of each final tube? As Terry said, and I agree, the only way the final tubes will conduct to saturation levels in receive is if the bias supply has failed, which removes cut off bias from the bias circuit and ultimately from the final tube grids.
>
> I may have missed it but why did you change the final tubes? What troubleshooting results indicated the final tubes needed to be replaced?
>
> 73
> Mike W5RKL
>
>
>
> On 10/6/2013 7:04 AM, Ron wrote:
>> I had changed the final tubes that's why I saw the red glow and the heater switch was off so I guess the rig has more problems , I changed the board we talked about an the relays started working but now the red glow
>>
>> Sent from my iPhone
>>
>> On Oct 6, 2013, at 6:52 AM, <wagstw46@...> wrote:
>>
>>> I think you are Red and perhaps now Black and Blue!
>>>
>>>
>>> Your rig and you can chose to run with heaters on at all times if you want. Folks do but I would not. Lots of rigs with no heater switch. KW provided it to facilitate mobile operation to lessen drain on battery.
>>>
>>>

>>> How did you see the plates glowing red? Were you looking inside PA cage for source of relay keying issue?
>>>
>>>
>>> Was the radio working in receive mode during this 10 minute period before they turned red?
>>>
>>>
>>> If no receive are you sure the relays are not keyed and rig is in standing TX mode?
>>>
>>>
>>> If good receive then relays not keyed and about only way for finals to take off in receive mode is a problem with cut off bias.
>>>
>>>
>>> Terry
>>>
>>>
>>>
>>> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>> thanks for the heads up Terry ,as u know i'm still green !!!!!
>>>
>>> From: "wagstw46@..." <wagstw46@...>
>>> To: TS-520_820_530_830@yahoogroups.com
>>> Sent: Saturday, October 5, 2013 5:17 PM
>>> Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)
>>>
>>>
>>>
>>> When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.
>>>
>>> I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.
>>>
>>> I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?
>>>
>>> And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.
>>>
>>> I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.
>>>
>>> I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.
>>>

>>> Terry K9TW
>>>
>>>
>>> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>> I am sorry Mike:
>>>
>>> TURN THE HEATER SWITCH OFF MAN!
>>>
>>> Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.
>>>
>>> If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.
>>>
>>> Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.
>>>
>>> Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.
>>>
>>> Just do not put heaters back on while working on the relay keying problem.
>>>
>>> Terry K9TW
>>>
>>>
>>> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>> also Mike after it sets on for about 10 min the final tubes glow red and it blows the fuse
>>>
>>>
>>> From: Mike <w5rkl@...>
>>> To: TS-520_820_530_830@yahoogroups.com
>>> Sent: Saturday, October 5, 2013 4:44 AM
>>> Subject: Re: [TS-520_820_530_830] (unknown)
>>>
>>>
>>>
>>> Hi Ron,
>>>
>>> Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.
>>>
>>> The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.
>>>
>>> 73

>>> Mike W5RKL
>>>
>>> On 10/4/2013 10:04 PM, Ronald Robinson wrote:
>>>>
>>>> new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF
>
>
>
>

45117. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:09:05 UTC
From: K5MYJ
Topic: 45105 Message: 45117

The only positive solution for lightning protection is to disconnect the feed line from the shack where it enters the building. And move the feedline as far from the building as possible.

I spent 4 years doing lightning protection on telescopes on top of mountains in Arizona. Look at the photos of lightning at Kitt Peak (KPNO).

There are areas of the US that are lightning prone. And lightning is completely unpredictable.

Don't say that disconnection the feedline is too inconvenient. It's the cheapest and most positive solution.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Wes Will
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 06, 2013 12:25 PM
Subject: Re: [TS-520_820_530_830] What is the Big Deal?

On 10/06/2013 01:41 PM, Greg wrote:
>
>
> Terry
> What would you use for lightning protection when using 450 ohm ladder
> line. Sorry for the hijack.
> Greg
> KC9VVU

Spark gap.

Make some pointy copper/brass spikes (should look like a copper nail)m
or you can use some copper-clad carbon arc light or welding rod. One
goes on the ladder line wire, the other gets tied to a solid ground with
about an eighth of an inch between the points. Of course you need one
pair for each leg of the ladder.

Or you can use some non-resistor spark plugs (check tractor supply
places if your local auto parts store doesn't have any non-resistor
types, or maybe chainsaw/lawnmower repair shops), one per leg, leading
to ground on one side of the gap.

Either way, the idea is to give the bolt an easier path to ground than
the one presented by your radio and its ground.

--
Wes Will
N9KDY

45118. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:16:05 UTC
From: Mike
Topic: 45058 Message: 45118

When I owned my TS-820S, I left the HEATER switch set to ON all the time. The TS-520SE I use to own many years ago, did not have a HEATER switch since the 520SE is designed to operate from 120/240VAC ONLY. Kenwood put the HEATER switch in the TS-530 and TS-830.The reference to the HEATER switch in the manual simply states in the manuals that the HEATER switch turns all 3 transmitting tube filaments ON, nothing more.

Heathkit's Apache TX-1 and Heathkit's Marauder HX-10 transmitters both had a separate filament transformers that provided a constant 6.3VAC to the VFO's filaments as long as the main power plug was plugged into the wall outlet. I have both transmitters and ran them for years and never experienced a filament failure or reduced emission due to constant filament power.

Most of my ham gear consist of all vacuum tubes with only 2 all solid state transceivers (Yaesu FT-757GX and FT-857D) and two all solid state receivers (Heathkit SB-303 and a Kenwood R-599D). The tube filaments in the vacuum tube gear are all powered ON the moment the main power switch it turned ON. I have never experienced any problems with power supplies or with filament failure or thermionic emission failure in any vacuum tube used in my gear. I have experienced failures in vacuum tubes but not due to filament issues but rather due to excessive gas collecting in a 6146 because it sat for "20 years" in my HW-101 (the original owner let it sit in his garage for 20 years with no power applied). The failure occurred after 3 days of testing. Surprisingly the 6146As produced full output but after 3 days one 6146A arced when keyed, drive set to minimum. The arcing blew the supply's breaker (HP-23A), no damage to any component in the supply or the HW-101. Replaced both 6146As, problem solved.

Whether you set the KW hybrid's HEATER switch to ON or OFF is entirely up to you. I doubt you will experience filament failure due to stressing the filament by powering the filaments ON and OFF each time you power up your KW hybrid or if you leave the HEATER switch set to ON while you are using your hybrid.

73
Mike W5RKL

On 10/6/2013 10:18 AM, Chris Maness wrote:
>
> Mike, I have been leaving my heating filaments on per the admonition
> of several old timers in order too avoid thermal stress that can cause
> the heater to fail before emisivity falls off. I tried to start a
> thread along these lines, but I don't recall you weighing in.
>

> Just curious as to your pro/con reasoning here.
>
> Chris KQ6UP
>
> On Oct 6, 2013 4:52 AM, <wagstw46@...
> <mailto:wagstw46@...>> wrote:
>
>
>
> I think you are Red and perhaps now Black and Blue!
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> Your rig and you can chose to run with heaters on at all times if
> you want. Folks do but I would not. Lots of rigs with no heater
> switch. KW provided it to facilitate mobile operation to lessen
> drain on battery.
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> How did you see the plates glowing red? Were you looking inside
> PA cage for source of relay keying issue?
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> before they turned red?
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> *From:* "wagstw46@..." <wagstw46@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Saturday, October 5, 2013 5:17 PM

> *Subject:* RE: RE: Re: [TS-520_820_530_830] (unknown)
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> Heater switch turned off. Why would anyone troubleshooting a rig
> keying problem have the heater switch on?
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> And sure didnt want Ron to re-fuse the rig and try burning up the
> Plate choke or the HV rectifier board, or the Power transformer.
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> I am sorry and should have let it go. No way for me to know if
> Mike or anyone else was monitoring and could stop Ron from further
> damaging his rig. Felt like could not just sit on sideline and
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> <mailto:ts-520_820_530_830@yahoogroups.com>> wrote:
>
> I am sorry Mike:
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> TURN THE HEATER SWITCH OFF MAN!
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> Why would you have the filaments on when troubleshooting a relay
> keying problem? There is no reason to have the heaters on until a
> few minutes before ready to load and transmit. Tubes only have so
> much life and running heaters all the time is not necessary.
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> cut-off or operating bias there will be no Plate current.
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> cover off? If so why? Have to be very careful with 900vdc present

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> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Saturday, October 5, 2013 4:44 AM
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> Hi Ron,
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> SEND switch.
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> to switch to transmit (relay on the RELAY Unit) must energize for
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> Mike W5RKL
>
> On 10/4/2013 10:04 PM, Ronald Robinson wrote:
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>> new to me ---a ts 820s recieve works, ok but no
>> send recieve ,no hv on meter ,no ip on meter, no alc
>> ,i've checked the voltages they are ok , relay is
>> not working when switch is flipped , hv board
>> checked out good any ideas anyone or where to
>> start ? thanks Ron KK4PWF

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45119. RE: Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:17:49 UTC
From: <wagstw46@...>
Topic: 45105 Message: 45119

In the old days the Handbooks all showed a design that used a non-resistor spark connected from each feeder leg to ground and the gap set close. Hard to find a non-resistor spark plug today.

We also installed 100k ohm 2 watt resistors from each feeder leg to ground and sometimes a 2.5 mhy rf choke in parallel with each resistor. These served as static bleeds.

I suppose a larger wire wound resistor would work if not self resonant on bands you operate on. Would combine the resistance and inductance in one device.

Today ICE and others sell open wire protective devices. Never seen a schematic for them, but likely have resistors and/or chokes for static bleed and then modern vacuum arc gaps for nearby lightning.

I dont run tuned feeders today. Have Mosley CL-33 triband beam coax fed and a 10 to 80 meter OCF dipole coax fed with 4:1 current balun and choke balun at the offset feed point. I like the fast QSY capability so no Tuners for me anymore.
I protect my coax feed lines with Alpha Delta arrestors mounted on a copper plate in a distribution panel on wall outside the house tied to 3 driven grounds and the utility neutral. Inside the house at operating position I have Alpha Delta antenna switches that have arc gaps and a ground position. So far no problems with nearby lightning.

If I am home I unscrew coax off the rigs SO-239. Just did so last night as nasty storm came thru. I dont care if I lose the big screen plasma, but dont hurt my TS-830s!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 10/06/2013 01:41 PM, Greg wrote:

>
>
> Terry
> What would you use for lightning protection when using 450 ohm ladder
> line. Sorry for the hijack.
> Greg
> KC9VVU

Spark gap.

Make some pointy copper/brass spikes (should look like a copper nail)m
or you can use some copper-clad carbon arc light or welding rod. One
goes on the ladder line wire, the other gets tied to a solid ground with
about an eighth of an inch between the points. Of course you need one
pair for each leg of the ladder.

Or you can use some non-resistor spark plugs (check tractor supply places if your local auto parts store doesn't have any non-resistor types, or maybe chainsaw/lawnmower repair shops), one per leg, leading to ground on one side of the gap.

Either way, the idea is to give the bolt an easier path to ground than the one presented by your radio and its ground.

--
Wes Will
N9KDY

45120. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:29:15 UTC
From: Mike
Topic: 45105 Message: 45120

That's what I do. I have only one antenna, a 40 meter inverted vee, hanging from a pine tree limb. I disconnect if thunderstorms are forecast in our area. Lightning struck the pine tree last year. The blot flowed down the back side of the tree, crossed over "through" the tree to the front then continued down the front side the changed directions and ran up the limb and jumped 4 feet to the 1:1 balun's ground strap. The bolt discharged down the braid and dissipated into the ground through the PL-259. The coax was not damaged. The only damage was the point where the center conductor was soldered to the PL-259. I removed the cable from the PL-259, cut off the bad area, cleaned up the connector, and put the coax cable back in and soldered it to the PL-259. It's been in use ever since. There are black carbon tracks on the balun's SO-239 but the balun itself was not damaged.

I agree, lighting is unpredictable. It is important to drain the charge build up which helps reduce the chances of a strike. If you are interested in reading about grounding and lightning protection, Tom W8JI, has a nice webpage that discusses with picture on this subject:

www.w8ji.com

73
Mike W5RKL

On 10/6/2013 3:09 PM, K5MYJ wrote:
>
> □
>
> The only positive solution for lightning protection is to disconnect
> the feed line from the shack where it enters the building. And move
> the feedline as far from the building as possible.
> I spent 4 years doing lightning protection on telescopes on top of
> mountains in Arizona. Look at the photos of lightning at Kitt Peak
> (KPNO).
> There are areas of the US that are lightning prone. And lightning is
> completely unpredictable.
> Don't say that disconnection the feedline is too inconvenient. It's
> the cheapest and most positive solution.
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
>
> ----- Original Message -----
> *From:* Wes Will <mailto:wwill@...>

> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Sunday, October 06, 2013 12:25 PM
> *Subject:* Re: [TS-520_820_530_830] What is the Big Deal?
>
> On 10/06/2013 01:41 PM, Greg wrote:
> >
> >
> > Terry
> > What would you use for lightning protection when using 450 ohm
> ladder
> > line. Sorry for the hijack.
> > Greg
> > KC9VVU
>
> Spark gap.
>
> Make some pointy copper/brass spikes (should look like a copper nail)m
> or you can use some copper-clad carbon arc light or welding rod. One
> goes on the ladder line wire, the other gets tied to a solid
> ground with
> about an eighth of an inch between the points. Of course you need one
> pair for each leg of the ladder.
>
> Or you can use some non-resistor spark plugs (check tractor supply
> places if your local auto parts store doesn't have any non-resistor
> types, or maybe chainsaw/lawnmower repair shops), one per leg, leading
> to ground on one side of the gap.
>
> Either way, the idea is to give the bolt an easier path to ground than
> the one presented by your radio and its ground.
>
> --
> Wes Will
> N9KDY
>
>

45121. RE: Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:30:38 UTC
From: <hardedge@...>
Topic: 45103 Message: 45121

You might find that the problem there is that the "necessary test equipment" is 2x - 3x the cost of the rig and not a viable option at that point for many --whether for monetary reasons or because of physical ability. We are, IMO, destined to become a dwindling elitist organization if we don't become major proponents of a larger and more cost effect group of repair facilities.

-O'B.
ex-KA2MKI

---In ts-520_820_530_830@yahoogroups.com, <macklinbob@...> wrote:

I have made these same observations. If newbies don't want to follow the instructions they should not be messing with these radios.

If you don't want buy the necessary test equipment this is not a hobby for you!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----

From: W5RKL

To: TS-520_820_530_830@yahoogroups.com

Sent: Sunday, October 06, 2013 11:22 AM

Subject: Re: [TS-520_820_530_830] Following instructions

Yes, I could have included a statement that said, "follow instructions that are backed up with actual facts and explanations why you should perform the instructions". I did not include that statement or something similar because more often than not, instructions provided to member on this group, more often that not, include facts and supporting statements why the instructions should be followed. Yes, I know there are some suggestions that are pure non-sense and out right wrong but when those appear, the factual statement/instructions point those out and why they should not be followed.

Something I have a difficult time understanding is a ham who has no basic knowledge of electronics, can't read a schematic, has never performed any troubleshooting, and doesn't have nor has ever used test equipment, believes they can repair their sophisticated KW hybrid by asking a few questions. While they may be "trolling" for answers so they can the answers to someone else who is experienced, I suspect most of the time that is not the case. There has been many times where I have seen members say, "I don't have the experienced/knowledge but I want to learn". That's a great idea but unless that member(s) actually spend time reading and studying and asking questions about topics they are having troubles understanding, the statement is nothing more than words on a computer screen.

Learning electronics not something you learn overnight, over a weekend, or even within 6 moths. It takes time to study and that means reading reference material that has been provided many times on this group. I don't know how one is going to learn if they are not interested in reading/studying? Maybe because, as many thing are today, "There's not an ap for that!!".

I'm no expert, I have never said I was. However, I didn't learn what I know by sitting on my butt and having someone else do the work. I still read/study/review the basic subjects such as resistors, capacitors, inductors, power supplies, receivers, transmitters, and other electronic subjects. Again, a person will not learn it overnight, over a weekend, or even after 6 months. It takes time to study and ask questions.

Again, I mean no disrespect towards anyone.

73
Mike W5RKL

On 10/6/2013 9:56 AM, Chris Maness wrote:

I would agree with this mostly. However I don't advise someone to blindly follow advise that doesn't make sense to them. Make sure you understand the reasoning behind the expert's advise. If it does not make sense to you, you should have the elmer explain there reasoning. Elmer's should also be patient with this process. It is a part of the learning process -- the most important one. I have had elmer's loose their cool more than once.

This also clears miscommunication, and prevents one from being led down a rabbit hole.

Terry did a great job in this respect -- Kudos :D

My $.02,
Chris KQ6UP

On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@...> wrote:
>
>
>
> I don't mean any disrespect to anyone with what I am going to say.
>
> I see a lot of senseless confusion that occurs because members asking for help don't seem to use common sense and follow simple instructions.
>
> Quite often members don't seem to take the time to read/study the operator's manual before they attempt to operate their hybrid. A lot of operator error problem can be solved it the member read/studied the operator's manual. If the manual was not included in the sale, download it from Gordon's website
>
> www.n6wk.com/kenwood/ (http://www.n6wk.com/kenwood/)
>
> and read/study it.
>
> I also see where a lot of members who want to fix their hybrid but quite often do not have or even have access to basic test equipment. You can't fix your hybrid without some basic test equipment. I made a video showing some basic test equipment (see the following

link):
>
> http://www.n6wk.com/w5rkl/Test%20Equipment/
>
> You also need to know how to properly and "safely" use the test equipment which includes having a thorough understanding of the proper safety precautions you MUST follow when working around HV. Many times we have stated, "There are voltages in the KW hybrid that can KILL YOU!" so don't ignore the importance of safety!! YOUR LIFE depends on it!!
>
> Quite often members asking for help seem to leave out a lot of important information in their request for help. Here are a few examples of important information left out of a member's post asking for help:
>
> 1. Do you have and have you read the operator AND service manuals?
> 2. What level of electronic knowledge along with any troubleshooting and repair skills do you have?
> 3. What test equipment do you have and do you know how to properly and safely use the test equipment?
> 4. Do you have a dummy load?
> 5. Have you properly set the controls according to the operator's manual?
> 6. What components have you replaced, if any, before you asked for help?
> 7. Have you explained, in detail, everything about the problem you are experiencing? We can't read your mind.
>
>
> If you are given instructions to follow, FOLLOW them, don't do anything else! Quite often I've seen members create more problems by doing something they were not instructed to do. Here's an example of not following instructions:
>
> "I read where I should also do ..... so in addition to your instructions I also did that. Now the transmitter no longer keys. What's wrong now?"
>
> What's wrong NOW? It's simple, you have now created more problems or made the problem worse because you did something you were not instructed to do!
>
> I, as well as others who are providing help, understand the hybrid you have is yours to do with what ever and how ever you please. However, when you ask us for help and are given instructions to follow, don't blame us when we point out things you should not have done that have made the problem worse!
>
> 73
> Mike W5RKL
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45122. RE: Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:37:30 UTC
From: <wagstw46@...>
Topic: 45058 Message: 45122

I am in Mikes camp and the fellow who said might save 5 hours in 10 years by not cycling the filaments. I doubt any real measurable difference in life expectancy. I think vibration would be more likely to hurt filaments than cycling on off. Reason why the military went to 6146W tubes. Of course not too many folks running mobile hybrids these days.

I have a old RCA tube manual and the tube data sheet for the 6146 describes filament testing. It goes like this.

A quantity of 6146 tubes are pulled from each production run and subjected to following filament testing.

1. With 8 volts applied the tubes are run for 1000 hours continuously

2. With 11 volts applied the tubes are run 1 minute on and 4 minutes off for 48 hours.

At the end of both test periods tubes are tested for filament minimum leakage current and filament maximum leakage resistance criteria (100ua and 10 meg).

I think the 1 min on and 4 min off test sounds like feeding a rat 20 gallons of aspartame (artificial sweetner) a day to see if it gets cancer! I guess it was RCAs version of accelerated wear testing?

There will be lots of anecdotal opinions about whether to run continuous or to cycle filaments on and off. I wonder how often you hear about open filaments versus how often you hear about soft finals?

In commercial broadcasting they use to leave the filaments on all times but they vary the filament voltage.

I should not have mentioned to Ron about final tube emission loss. My real admonishment is why run heaters on the service bench when you are troubleshooting a relay keying issue? If you have a habit of automatically flipping on the line switch and heater switch this is where you will be at on the bench. Unlike many other transmitters and transceivers you do not have to be in that space with a KW hybrid. It is ok if you have rig controls configured so you dont have un-intentional TX that goes unnoticed.

Just the way I do business on my bench with customer rigs and with my KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

When I owned my TS-820S, I left the HEATER switch set to ON all the time. The TS-520SE I use to own many years ago, did not have a HEATER switch since the 520SE is designed to operate from 120/240VAC ONLY. Kenwood put the HEATER switch in the TS-530 and TS-830. The reference to the HEATER switch in the manual simply states in the manuals that the HEATER switch turns all 3 transmitting tube filaments ON, nothing more.

Heathkit's Apache TX-1 and Heathkit's Marauder HX-10 transmitters both had a separate filament transformers that provided a constant 6.3VAC to the VFO's filaments as long as the main power plug was plugged into the wall outlet. I have both transmitters and ran them for years and never experienced a filament failure or reduced emission due to constant filament power.

Most of my ham gear consist of all vacuum tubes with only 2 all solid state transceivers (Yaesu FT-757GX and FT-857D) and two all solid state receivers (Heathkit SB-303 and a Kenwood R-599D). The tube filaments in the vacuum tube gear are all powered ON the moment the main power switch it turned ON. I have never experienced any problems with power supplies or with filament failure or thermionic emission failure in any vacuum tube used in my gear. I have experienced failures in vacuum tubes but not due to filament issues but rather due to excessive gas collecting in a 6146 because it sat for "20 years" in my HW-101 (the original owner let it sit in his garage for 20 years with no power applied). The failure occurred after 3 days of testing. Surprisingly the 6146As produced full output but after 3 days one 6146A arced when keyed, drive set to minimum. The arcing blew the supply's breaker (HP-23A), no damage to any component in the supply or the HW-101. Replaced both 6146As, problem solved.

Whether you set the KW hybrid's HEATER switch to ON or OFF is entirely up to you. I doubt you will experience filament failure due to stressing the filament by powering the filaments ON and OFF each time you power up your KW hybrid or if you leave the HEATER switch set to ON while you are using your hybrid.

73
Mike W5RKL

On 10/6/2013 10:18 AM, Chris Maness wrote:

Mike, I have been leaving my heating filaments on per the admonition of several old timers in order too avoid thermal stress that can cause the heater to fail before emisivity falls off. I tried to start a thread along these lines, but I don't recall you weighing in.

Just curious as to your pro/con reasoning here.

Chris KQ6UP

On Oct 6, 2013 4:52 AM, <wagstw46@...> wrote:

I think you are Red and perhaps now Black and Blue!

Your rig and you can chose to run with heaters on at all times if you want. Folks do but I would not. Lots of rigs with no heater switch. KW provided it to facilitate mobile operation to lessen drain on battery.

How did you see the plates glowing red? Were you looking inside PA cage for source of relay keying issue?

Was the radio working in receive mode during this 10 minute period before they turned red?

If no receive are you sure the relays are not keyed and rig is in standing TX mode?

If good receive then relays not keyed and about only way for finals to take! off in receive mode is a problem with cut off bias.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

thanks for the heads up Terry ,as u know i'm still green !!!!!

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 5:17 PM
Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)

When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.

I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.

I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?

And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.

I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.

I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am sorry Mike:

TURN THE HEATER SWITCH OFF MAN!

Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.

If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.

Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.

Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.

Just do not put heaters back on while working on the relay keying problem.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

also Mike after it sets on for about 10 min the final tubes glow red an! d it blows the fuse

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 4:44 AM
Subject: Re: [TS-520_820_530_830] (unknown)

Hi Ron,

Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.

The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.

73
Mike W5RKL

On 10/4/2013 10:04 PM, Ronald Robinson wrote:

new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF

45123. Re: [TS-520_820_530_830] RE: Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:45:45 UTC
From: Mike
Topic: 45103 Message: 45123

I agree if the repairs required very stable oscillators, more sophisticated o'scopes, digital test gear, and sensitive volt meters which is typical of the more advanced modern day ham gear. However, for most vintage ham gear problems, troubleshooting and repairs can be accomplished using simple basic test equipment. I've repaired Kenwood, Collins, Heathkit, Drake, Knightkit, and Allied vintage ham gear using nothing more than the test equipment shown in my video.

73
Mike W5RKL

On 10/6/2013 3:30 PM, hardedge@... wrote:
>
> You might find that the problem there is that the "necessary test
> equipment" is 2x - 3x the cost of the rig and not a viable option at
> that point for many --whether for monetary reasons or because of
> physical ability. We are, IMO, destined to become a dwindling elitist
> organization if we don't become major proponents of a larger and more
> cost effect group of repair facilities.
>
>
> -O'B.
>
> ex-KA2MKI
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <macklinbob@...> wrote:
>
> I have made these same observations. If newbies don't want to follow
> the instructions they should not be messing with these radios.
> If you don't want buy the necessary test equipment this is not a hobby
> for you!
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
>
> ----- Original Message -----
> *From:* W5RKL <mailto:w5rkl@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Sunday, October 06, 2013 11:22 AM
> *Subject:* Re: [TS-520_820_530_830] Following instructions
>

> Yes, I could have included a statement that said, "follow
> instructions that are backed up with actual facts and
> explanations why you should perform the instructions". I did
> not include that statement or something similar because more
> often than not, instructions provided to member on this group,
> more often that not, include facts and supporting statements
> why the instructions should be followed. Yes, I know there are
> some suggestions that are pure non-sense and out right wrong
> but when those appear, the factual statement/instructions
> point those out and why they should not be followed.
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> Something I have a difficult time understanding is a ham who
> has no basic knowledge of electronics, can't read a schematic,
> has never performed any troubleshooting, and doesn't have nor
> has ever used test equipment, believes they can repair their
> sophisticated KW hybrid by asking a few questions. While they
> may be "trolling" for answers so they can the answers to
> someone else who is experienced, I suspect most of the time
> that is not the case. There has been many times where I have
> seen members say, "I don't have the experienced/knowledge but
> I want to learn". That's a great idea but unless that
> member(s) actually spend time reading and studying and asking
> questions about topics they are having troubles understanding,
> the statement is nothing more than words on a computer screen.
> Learning electronics not something you learn overnight, over a
> weekend, or even within 6 moths. It takes time to study and
> that means reading reference material that has been provided
> many times on this group. I don't know how one is going to
> learn if they are not interested in reading/studying? Maybe
> because, as many thing are today, "There's not an ap for that!!".
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> I'm no expert, I have never said I was. However, I didn't
> learn what I know by sitting on my butt and having someone
> else do the work. I still read/study/review the basic subjects
> such as resistors, capacitors, inductors, power supplies,
> receivers, transmitters, and other electronic subjects. Again,
> a person will not learn it overnight, over a weekend, or even
> after 6 months. It takes time to study and ask questions.
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> Again, I mean no disrespect towards anyone.
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> Mike W5RKL
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> On 10/6/2013 9:56 AM, Chris Maness wrote:
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>> I would agree with this mostly. However I don't advise

>> someone to blindly follow advise that doesn't make sense to
>> them. Make sure you understand the reasoning behind the
>> expert's advise. If it does not make sense to you, you should
>> have the elmer explain there reasoning. Elmer's should also
>> be patient with this process. It is a part of the learning
>> process -- the most important one. I have had elmer's loose
>> their cool more than once.
>>
>> This also clears miscommunication, and prevents one from
>> being led down a rabbit hole.
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>> Terry did a great job in this respect -- Kudos :D
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>> My $.02,
>> Chris KQ6UP
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>> On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@... <mailto:w5rkl@...>>
>> wrote:
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>> > I don't mean any disrespect to anyone with what I am going
>> to say.
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>> > I see a lot of senseless confusion that occurs because
>> members asking for help don't seem to use common sense and
>> follow simple instructions.
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>> > Quite often members don't seem to take the time to
>> read/study the operator's manual before they attempt to
>> operate their hybrid. A lot of operator error problem can be
>> solved it the member read/studied the operator's manual. If
>> the manual was not included in the sale, download it from
>> Gordon's website
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>> > www.n6wk.com/kenwood/ <http://www.n6wk.com/kenwood/>
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>> >
>> > I also see where a lot of members who want to fix their
>> hybrid but quite often do not have or even have access to
>> basic test equipment. You can't fix your hybrid without some
>> basic test equipment. I made a video showing some basic test
>> equipment (see the following link):
>> >
>> > http://www.n6wk.com/w5rkl/Test%20Equipment/
>> >
>> > You also need to know how to properly and "safely" use the
>> test equipment which includes having a thorough understanding
>> of the proper safety precautions you MUST follow when working

>> around HV. Many times we have stated, "There are voltages in
>> the KW hybrid that can KILL YOU!" so don't ignore the
>> importance of safety!! YOUR LIFE depends on it!!
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>> > Quite often members asking for help seem to leave out a lot
>> of important information in their request for help. Here are
>> a few examples of important information left out of a
>> member's post asking for help:
>> >
>> > 1. Do you have and have you read the operator AND service
>> manuals?
>> > 2. What level of electronic knowledge along with any
>> troubleshooting and repair skills do you have?
>> > 3. What test equipment do you have and do you know how to
>> properly and safely use the test equipment?
>> > 4. Do you have a dummy load?
>> > 5. Have you properly set the controls according to the
>> operator's manual?
>> > 6. What components have you replaced, if any, before you
>> asked for help?
>> > 7. Have you explained, in detail, everything about the
>> problem you are experiencing? We can't read your mind.
>> >
>> >
>> > If you are given instructions to follow, FOLLOW them, don't
>> do anything else! Quite often I've seen members create more
>> problems by doing something they were not instructed to do.
>> Here's an example of not following instructions:
>> >
>> > "I read where I should also do .... so in addition to
>> your instructions I also did that. Now the transmitter no
>> longer keys. What's wrong now?"
>> >
>> > What's wrong NOW? It's simple, you have now created more
>> problems or made the problem worse because you did something
>> you were not instructed to do!
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>> > I, as well as others who are providing help, understand the
>> hybrid you have is yours to do with what ever and how ever
>> you please. However, when you ask us for help and are given
>> instructions to follow, don't blame us when we point out
>> things you should not have done that have made the problem worse!
>> >
>> > 73
>> > Mike W5RKL
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45124. Kenwood Net Update 10/6/13

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 20:49:58 UTC
From: Mark Gilger
Topic: 45124 Message: 45124

The Saturday□s net on 40 meter had 25 stations
checking in under Excellent band
conditions. There were 8 new check-ins, W1RF,
WA2RVJ, W3TLB, WB2PAY, KD8GYS, N2RRR, KZ3AB,WX1MAN. Out of those, there was:

```
3 running TS-520(x)
1 running TS-530(x)
4 running TS-820(x)
3 running TS-830S
2 running 599 Twins

Jimmy, WB2KNR ran the net today with his TS-520.
The rest were running non hybrids of one model or another.
```

The Sunday□s 20 meter net had 13 stations
checking in under poor band conditions. Out of those, there was:

```
3 running TS-520(x)
0 running TS-530(x)
3 running TS-820(x)
2 running TS-830S

I was running my TS-940. Seems everyone today was
running a solid state radio of one type or another.
```

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

```
If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.
```

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54
October 2013, Saturday☐s net total = 25, Sunday☐s total = 10 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

45125. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 21:05:23 UTC
From: Mike
Topic: 45058 Message: 45125

The Heater switch was "backwards"?? Do you mean it was "Mounted"
backwards or what?

You got the relays to key now? What did you do to get the relays to
energize?

The bias is unstable? How did you determine the bias is unstable? Is the
60ma idling current fluctuation/unstable in USB or LSB transmit or what?

Mike W5RKL

On 10/6/2013 2:33 PM, Ron wrote:
> Mike the heater switch was backwards !!!! Got it to keying the relays
> now this bias is unstable
>
> Sent from my iPhone
>
> On Oct 6, 2013, at 1:31 PM, W5RKL <w5rkl@...
> <mailto:w5rkl@...>> wrote:
>
>> The heater switch was OFF yet the final tube plates glowed RED? Are
>> you sure the HEATER switch was OFF?.
>>
>> Have you checked the HEATER switch to see if it actually opens the
>> circuit when pressed to the OFF position? If the switch is good the
>> filaments will be dark in the OFF position but glow in the ON
>> position. The tubes cannot conduct if the filaments are turned OFF.
>>
>> Also, have you verified the presents of bias voltage at the output of
>> the -C supply and at the grids of each final tube? As Terry said, and
>> I agree, the only way the final tubes will conduct to saturation
>> levels in receive is if the bias supply has failed, which removes cut
>> off bias from the bias circuit and ultimately from the final tube grids.
>>
>> I may have missed it but why did you change the final tubes? What
>> troubleshooting results indicated the final tubes needed to be replaced?
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>> On 10/6/2013 7:04 AM, Ron wrote:
>>> I had changed the final tubes that's why I saw the red glow and the
>>> heater switch was off so I guess the rig has more problems , I
>>> changed the board we talked about an the relays started working but

>>> now the red glow
>>>
>>> Sent from my iPhone
>>>
>>> On Oct 6, 2013, at 6:52 AM, <wagstw46@...
>>> <mailto:wagstw46@...>> wrote:
>>>
>>>> I think you are Red and perhaps now Black and Blue!
>>>>
>>>>
>>>> Your rig and you can chose to run with heaters on at all times if
>>>> you want. Folks do but I would not. Lots of rigs with no heater
>>>> switch. KW provided it to facilitate mobile operation to lessen
>>>> drain on battery.
>>>>
>>>>
>>>> How did you see the plates glowing red? Were you looking inside PA
>>>> cage for source of relay keying issue?
>>>>
>>>>
>>>> Was the radio working in receive mode during this 10 minute period
>>>> before they turned red?
>>>>
>>>>
>>>> If no receive are you sure the relays are not keyed and rig is in
>>>> standing TX mode?
>>>>
>>>>
>>>> If good receive then relays not keyed and about only way for finals
>>>> to take off in receive mode is a problem with cut off bias.
>>>>
>>>>
>>>> Terry
>>>>
>>>>
>>>>
>>>> ---In TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>>>> <ts-520_820_530_830@yahoogroups.com
>>>> <mailto:ts-520_820_530_830@yahoogroups.com>> wrote:
>>>>
>>>> thanks for the heads up Terry ,as u know i'm still green !!!!!
>>>>
>>>> ---
>>>> *From:* "wagstw46@..." <wagstw46@...>
>>>> *To:* TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>>> *Sent:* Saturday, October 5, 2013 5:17 PM
>>>> *Subject:* RE: RE: Re: [TS-520_820_530_830] (unknown)
>>>>

>>>>
>>>>
>>>> When I said "Sorry Mike" I was apologizing to Mike for butting in
>>>> on his thread.
>>>>
>>>> I was not Chastising Mike in any way. His advice to try keying the
>>>> rig by grounding mic jack Pin 2 was spot on. If Send switch and mic
>>>> PTT wont key rig Mikes direction is the next logical step.
>>>>
>>>> I was trying to very quickly get Rons attention to get the damn
>>>> Heater switch turned off. Why would anyone troubleshooting a rig
>>>> keying problem have the heater switch on?
>>>>
>>>> And sure didnt want Ron to re-fuse the rig and try burning up the
>>>> Plate choke or the HV rectifier board, or the Power transformer.
>>>>
>>>> I am sorry and should have let it go. No way for me to know if Mike
>>>> or anyone else was monitoring and could stop Ron from further
>>>> damaging his rig. Felt like could not just sit on sideline and
>>>> watch him do this.
>>>>
>>>> I apologize to Mike if it looked like to one or more of our members
>>>> that I was chastising Mike. We can all have professional
>>>> differences but none exist related to this thread.
>>>>
>>>> Terry K9TW
>>>>
>>>>
>>>> ---In TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>>>> <ts-520_820_530_830@yahoogroups.com
>>>> <mailto:ts-520_820_530_830@yahoogroups.com>> wrote:
>>>>
>>>> I am sorry Mike:
>>>>
>>>> TURN THE HEATER SWITCH OFF MAN!
>>>>
>>>> Why would you have the filaments on when troubleshooting a relay
>>>> keying problem? There is no reason to have the heaters on until a
>>>> few minutes before ready to load and transmit. Tubes only have so
>>>> much life and running heaters all the time is not necessary.
>>>>
>>>> If heaters are off then can be no cathode emission and if you lose
>>>> cut-off or operating bias there will be no Plate current.
>>>>
>>>> Likely you have lost the final tubes. They do not like thermal run
>>>> away. How did you see the plate glow? Do you have the PA cage cover
>>>> off? If so why? Have to be very careful with 900vdc present here.
>>>>
>>>> Will let Mike help you trouble shoot this problem as well as the

>>>> relay keying issues. Not likely related.
>>>>
>>>> Just do not put heaters back on while working on the relay keying
>>>> problem.
>>>>
>>>> Terry K9TW
>>>>
>>>>
>>>> ---In TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>>>> <ts-520_820_530_830@yahoogroups.com
>>>> <mailto:ts-520_820_530_830@yahoogroups.com>> wrote:
>>>>
>>>> also Mike after it sets on for about 10 min the final tubes glow
>>>> red and it blows the fuse
>>>>
>>>>
>>>> ---
>>>> *From:* Mike <w5rkl@...>
>>>> *To:* TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>>> *Sent:* Saturday, October 5, 2013 4:44 AM
>>>> *Subject:* Re: [TS-520_820_530_830] (unknown)
>>>>
>>>>
>>>>
>>>> Hi Ron,
>>>>
>>>> Have you tried grounding pin 2 on the MIC socket to see if the
>>>> relays energize? Pin 2 on the MIC socket is in parallel with the
>>>> SEND switch.
>>>>
>>>> The meter switch settings are not enabled in receive. The 820 has
>>>> to switch to transmit (relay on the RELAY Unit) must energize for
>>>> the meter switch settings to work.
>>>>
>>>> 73
>>>> Mike W5RKL
>>>>
>>>> On 10/4/2013 10:04 PM, Ronald Robinson wrote:
>>>>
>>>>> new to me ---a ts 820s recieve works, ok but no send
>>>>> recieve ,no hv on meter ,no ip on meter, no alc ,i've
>>>>> checked the voltages they are ok , relay is not
>>>>> working when switch is flipped , hv board checked out
>>>>> good any ideas anyone or where to start ? thanks
>>>>> Ron KK4PWF
>>>>
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45126. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 22:15:23 UTC
From: Jim S
Topic: 45103 Message: 45126

Mike and Bob, being an "Old Timer", I can understand your frustration. Back in our day, we grew up on vacuum tube equipment. First, we might have replaced tubes in our parents B/W TV sets, by taking every one of them down to the corner drugstore, testing them in the "match the number of the socket" tube testers, and then using the tube placement chart inside the cabinet of the TV to (hopefully !) get every tube back in the right place inside that TV.

If we passed that test, and the TV worked again, we might graduate to one of those simple kits manufactured by most notably Heathkit, Knight-Kit, or one of the other rather numerous kits at the time. Tube testers, VTVMs and VOMs, simple SW/Ham radios, etc. were all fodder for our young minds to grow on.

Today's "newbies" don't generally have that background to draw on when they jump headlong into amateur radio. Also consider that they (and we) are living in an "instant gradification" world. If they choose to operate a Vacuum Tube Hybrid, they are going to want it to work RIGHT NOW and might even be impatient because it takes 10 or 15 seconds or longer for the tubes to come to life !

On 10/6/2013 2:31 PM, K5MYJ wrote:
>
> I have made these same observations. If newbies don't want to follow
> the instructions they should not be messing with these radios.
> If you don't want buy the necessary test equipment this is not a hobby
> for you!
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
>
> ----- Original Message -----
> *From:* W5RKL <mailto:w5rkl@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Sunday, October 06, 2013 11:22 AM
> *Subject:* Re: [TS-520_820_530_830] Following instructions
>
> Yes, I could have included a statement that said, "follow
> instructions that are backed up with actual facts and explanations
> why you should perform the instructions". I did not include that
> statement or something similar because more often than not,
> instructions provided to member on this group, more often that
> not, include facts and supporting statements why the instructions
> should be followed. Yes, I know there are some suggestions that

> are pure non-sense and out right wrong but when those appear, the
> factual statement/instructions point those out and why they should
> not be followed.
>
> Something I have a difficult time understanding is a ham who has
> no basic knowledge of electronics, can't read a schematic, has
> never performed any troubleshooting, and doesn't have nor has ever
> used test equipment, believes they can repair their sophisticated
> KW hybrid by asking a few questions. While they may be "trolling"
> for answers so they can the answers to someone else who is
> experienced, I suspect most of the time that is not the case.
> There has been many times where I have seen members say, "I don't
> have the experienced/knowledge but I want to learn". That's a
> great idea but unless that member(s) actually spend time reading
> and studying and asking questions about topics they are having
> troubles understanding, the statement is nothing more than words
> on a computer screen. Learning electronics not something you learn
> overnight, over a weekend, or even within 6 moths. It takes time
> to study and that means reading reference material that has been
> provided many times on this group. I don't know how one is going
> to learn if they are not interested in reading/studying? Maybe
> because, as many thing are today, "There's not an ap for that!!".
>
> I'm no expert, I have never said I was. However, I didn't learn
> what I know by sitting on my butt and having someone else do the
> work. I still read/study/review the basic subjects such as
> resistors, capacitors, inductors, power supplies, receivers,
> transmitters, and other electronic subjects. Again, a person will
> not learn it overnight, over a weekend, or even after 6 months. It
> takes time to study and ask questions.
>
> Again, I mean no disrespect towards anyone.
>
> 73
> Mike W5RKL
>
>
>
>
> On 10/6/2013 9:56 AM, Chris Maness wrote:
>>
>> I would agree with this mostly. However I don't advise someone to
>> blindly follow advise that doesn't make sense to them. Make sure
>> you understand the reasoning behind the expert's advise. If it
>> does not make sense to you, you should have the elmer explain
>> there reasoning. Elmer's should also be patient with this
>> process. It is a part of the learning process -- the most
>> important one. I have had elmer's loose their cool more than once.
>>
>> This also clears miscommunication, and prevents one from being

>> led down a rabbit hole.
>>
>> Terry did a great job in this respect -- Kudos :D
>>
>> My $.02,
>> Chris KQ6UP
>>
>> On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@...
>> <mailto:w5rkl@...>> wrote:
>> >
>> >
>> >
>> > I don't mean any disrespect to anyone with what I am going to say.
>> >
>> > I see a lot of senseless confusion that occurs because members
>> asking for help don't seem to use common sense and follow simple
>> instructions.
>> >
>> > Quite often members don't seem to take the time to read/study
>> the operator's manual before they attempt to operate their
>> hybrid. A lot of operator error problem can be solved it the
>> member read/studied the operator's manual. If the manual was not
>> included in the sale, download it from Gordon's website
>> >
>> > www.n6wk.com/kenwood/ <http://www.n6wk.com/kenwood/>
>> >
>> > and read/study it.
>> >
>> > I also see where a lot of members who want to fix their hybrid
>> but quite often do not have or even have access to basic test
>> equipment. You can't fix your hybrid without some basic test
>> equipment. I made a video showing some basic test equipment (see
>> the following link):
>> >
>> > http://www.n6wk.com/w5rkl/Test%20Equipment/
>> >
>> > You also need to know how to properly and "safely" use the test
>> equipment which includes having a thorough understanding of the
>> proper safety precautions you MUST follow when working around HV.
>> Many times we have stated, "There are voltages in the KW hybrid
>> that can KILL YOU!" so don't ignore the importance of safety!!
>> YOUR LIFE depends on it!!
>> >
>> > Quite often members asking for help seem to leave out a lot of
>> important information in their request for help. Here are a few
>> examples of important information left out of a member's post
>> asking for help:
>> >
>> > 1. Do you have and have you read the operator AND service manuals?
>> > 2. What level of electronic knowledge along with any

>> troubleshooting and repair skills do you have?
>> > 3. What test equipment do you have and do you know how to
>> properly and safely use the test equipment?
>> > 4. Do you have a dummy load?
>> > 5. Have you properly set the controls according to the
>> operator's manual?
>> > 6. What components have you replaced, if any, before you asked
>> for help?
>> > 7. Have you explained, in detail, everything about the problem
>> you are experiencing? We can't read your mind.
>> >
>> >
>> > If you are given instructions to follow, FOLLOW them, don't do
>> anything else! Quite often I've seen members create more problems
>> by doing something they were not instructed to do. Here's an
>> example of not following instructions:
>> >
>> > "I read where I should also do .... so in addition to your
>> instructions I also did that. Now the transmitter no longer keys.
>> What's wrong now?"
>> >
>> > What's wrong NOW? It's simple, you have now created more
>> problems or made the problem worse because you did something you
>> were not instructed to do!
>> >
>> > I, as well as others who are providing help, understand the
>> hybrid you have is yours to do with what ever and how ever you
>> please. However, when you ask us for help and are given
>> instructions to follow, don't blame us when we point out things
>> you should not have done that have made the problem worse!
>> >
>> > 73
>> > Mike W5RKL
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45127. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 21:20:14 UTC
From: Ronald Robinson
Topic: 45058 Message: 45127

switch was wired backwards Mike , i changed out the x50-1350-00 board

to get the thing keying the relays ,i'm going to order parts and repair
the old one,idleing current is fluctuating full scale thanks Ron
KK4PWF

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:05 PM
Subject: Re: [TS-520_820_530_830] (unknown)

The Heater switch was "backwards"?? Do you mean it was "Mounted" backwards or what?

You got the relays to key now? What did you do to get the relays
to energize?

The bias is unstable? How did you determine the bias is unstable?
Is the 60ma idling current fluctuation/unstable in USB or LSB
transmit or what?

Mike W5RKL

On 10/6/2013 2:33 PM, Ron wrote:

>Mike the heater switch was backwards !!!! Got it to keying the relays now this bias is
unstable
>
>Sent from my iPhone
>
>On Oct 6, 2013, at 1:31 PM, W5RKL <w5rkl@...> wrote:
>
>
>The heater switch was OFF yet the final tube plates glowed RED? Are you sure the HEATER
switch was OFF?.
>>
>>Have you checked the HEATER switch to see if it actually
opens the circuit when pressed to the OFF position? If
the switch is good the filaments will be dark in the OFF
position but glow in the ON position. The tubes cannot
conduct if the filaments are turned OFF.
>>
>>Also, have you verified the presents of bias voltage at
the output of the -C supply and at the grids of each
final tube? As Terry said, and I agree, the only way the
final tubes will conduct to saturation levels in receive
is if the bias supply has failed, which removes cut off

bias from the bias circuit and ultimately from the final
tube grids.
>>
>>I may have missed it but why did you change the final
tubes? What troubleshooting results indicated the final
tubes needed to be replaced?
>>
>>73
>>Mike W5RKL
>>
>>
>>
>>
>>On 10/6/2013 7:04 AM, Ron wrote:
>>
>>
>>>I had changed the final tubes that's why I saw the red glow and the heater switch was
off so I guess the rig has more problems , I changed the board we talked about an the
relays started working but now the red glow
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>>>Sent from my iPhone
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>>>On Oct 6, 2013, at 6:52 AM, <wagstw46@...> wrote:
>>>
>>>
>>>I think you are Red and perhaps now Black and Blue!
>>>>
>>>>
>>>>Your rig and you can chose to run with heaters on at all times if you want. Folks do
but I would not. Lots of rigs with no heater switch. KW provided it to facilitate mobile
operation to lessen drain on battery.
>>>>
>>>>
>>>>How did you see the plates glowing red? Were you looking inside PA cage for source of
relay keying issue?
>>>>
>>>>
>>>>Was the radio working in receive mode during this 10 minute period before they turned
red?
>>>>
>>>>
>>>>If no receive are you sure the relays are not keyed and rig is in standing TX mode?
>>>>
>>>>
>>>>If good receive then relays not keyed and about only way for finals to take off in
receive mode is a problem with cut off bias.
>>>>
>>>>
>>>>Terry
>>>>

>>>>
>>>>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>
>>>>
>>>>thanks for the heads up Terry ,as u know i'm still green !!!!!
>>>>
>>>>
>>>>
>>>>

>>>>_____
>>>> From: "wagstw46@..." <wagstw46@...>
>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>Sent: Saturday, October 5, 2013 5:17 PM
>>>>Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)
>>>>
>>>>
>>>>
>>>>
>>>>
>>>>
>>>>When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.
>>>>
>>>>
>>>>I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.
>>>>
>>>>
>>>>I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?
>>>>
>>>>

>>>>And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.
>>>>
>>>>
>>>>I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.
>>>>
>>>>
>>>>I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.
>>>>
>>>>
>>>>Terry K9TW
>>>>
>>>>

>>>>
>>>>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>
>>>>
>>>>I am sorry Mike:
>>>>
>>>>
>>>>TURN THE HEATER SWITCH OFF MAN!
>>>>
>>>>
>>>>Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.
>>>>

>>>>
>>>>If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.
>>>>
>>>>
>>>>Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.
>>>>
>>>>
>>>>Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.
>>>>
>>>>
>>>>Just do not put heaters back on while working on the relay keying problem.
>>>>
>>>>
>>>>Terry K9TW
>>>>
>>>>
>>>>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>>
>>>>
>>>>also Mike after it sets on for about 10 min the final tubes glow red and it blows the fuse
>>>>
>>>>
>>>>
>>>>

>>>>
>>>>
>>>>_____
>>>> From: Mike <w5rkl@...>

>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>Sent: Saturday, October 5, 2013 4:44 AM
>>>>Subject: Re: [TS-520_820_530_830] (unknown)
>>>>
>>>>
>>>>
>>>>
>>>>
>>>>Hi Ron,
>>>>
>>>>Have you tried
grounding pin
2 on the MIC
socket to see
if the relays
energize? Pin
2 on the MIC
socket is in
parallel with
the SEND
switch.
>>>>
>>>>The meter
switch
settings are
not enabled in
receive. The
820 has to

switch to
transmit
(relay on the
RELAY Unit)
must energize
for the meter
switch
settings to
work.
>>>>
>>>>73
>>>>Mike W5RKL
>>>>
>>>>
>>>>On 10/4/2013 10:04 PM, Ronald Robinson wrote:
>>>>
>>>>
>>>>>>
>>>>>>>
>>>>>>>>new to me ---a ts 820s   recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good   any ideas anyone or where to start

? thanks Ron KK4PWF
>>>>>>>>
>>>>>>>
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>>

45128. RE: Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 21:48:52 UTC
From: <w0ppa_jd@...>
Topic: 45103 Message: 45128

Newbies might ask the questions because the want adivise from those more experienced in the radio they are asking about. How will they every learn if no once will advise them. They might be new at these types of radios. I do not think you need to be an experienced tech to enjoy them. Some may ask the questions so they do not have to waste time trying to figure out the problem. It might be a simple solution to the problem.
You do not need test equipment to be in the radio hobby.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have made these same observations. If newbies don't want to follow the instructions they should not be messing with these radios.

If you don't want buy the necessary test equipment this is not a hobby for you!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----

From: W5RKL

To: TS-520_820_530_830@yahoogroups.com

Sent: Sunday, October 06, 2013 11:22 AM

Subject: Re: [TS-520_820_530_830] Following instructions

Yes, I could have included a statement that said, "follow instructions that are backed up with actual facts and explanations why you should perform the instructions". I did not include that statement or something similar because more often than not, instructions provided to member on this group, more often that not, include facts and supporting statements why the instructions should be followed. Yes, I know there are some suggestions that are pure non-sense and out right wrong but when those appear, the factual statement/instructions point those out and why they should not be followed.

Something I have a difficult time understanding is a ham who has no basic knowledge of electronics, can't read a schematic, has never performed any troubleshooting, and doesn't have nor has ever used test equipment, believes they can repair their sophisticated KW hybrid by asking a few questions. While they may be "trolling" for answers so they can the answers to someone else who is experienced, I suspect most of the time that is not the case. There has been many times where I have seen members say, "I don't have the experienced/knowledge but I want to learn". That's a great idea but unless that member(s) actually spend time reading and studying and asking questions about topics they are having troubles understanding, the statement is nothing more than words on a computer screen. Learning electronics not something you learn overnight, over a weekend, or even within 6 moths. It takes time to study and that means reading reference material that has been

provided many times on this group. I don't know how one is going to learn if they are not interested in reading/studying? Maybe because, as many thing are today, "There's not an ap for that!!".

I'm no expert, I have never said I was. However, I didn't learn what I know by sitting on my butt and having someone else do the work. I still read/study/review the basic subjects such as resistors, capacitors, inductors, power supplies, receivers, transmitters, and other electronic subjects. Again, a person will not learn it overnight, over a weekend, or even after 6 months. It takes time to study and ask questions.

Again, I mean no disrespect towards anyone.

73
Mike W5RKL

On 10/6/2013 9:56 AM, Chris Maness wrote:

I would agree with this mostly. However I don't advise someone to blindly follow advise that doesn't make sense to them. Make sure you understand the reasoning behind the expert's advise. If it does not make sense to you, you should have the elmer explain there reasoning. Elmer's should also be patient with this process. It is a part of the learning process -- the most important one. I have had elmer's loose their cool more than once.

This also clears miscommunication, and prevents one from being led down a rabbit hole.

Terry did a great job in this respect -- Kudos :D

My $.02,
Chris KQ6UP

On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@...> wrote:
>
>
>
> I don't mean any disrespect to anyone with what I am going to say.
>
> I see a lot of senseless confusion that occurs because members asking for help don't seem to use common sense and follow simple instructions.
>
> Quite often members don't seem to take the time to read/study the operator's manual before they attempt to operate their hybrid. A lot of operator error problem can be solved it the member read/studied the operator's manual. If the manual was not included in the sale, download it from Gordon's website
>
> www.n6wk.com/kenwood/ (http://www.n6wk.com/kenwood/)
>
> and read/study it.
>
> I also see where a lot of members who want to fix their hybrid but quite often do not have or even have access to basic test equipment. You can't fix your hybrid without some basic test equipment. I made a video showing some basic test equipment (see the following link):
>

> http://www.n6wk.com/w5rkl/Test%20Equipment/
>
> You also need to know how to properly and "safely" use the test equipment which includes having a thorough understanding of the proper safety precautions you MUST follow when working around HV. Many times we have stated, "There are voltages in the KW hybrid that can KILL YOU!" so don't ignore the importance of safety!! YOUR LIFE depends on it!!
>
> Quite often members asking for help seem to leave out a lot of important information in their request for help. Here are a few examples of important information left out of a member's post asking for help:
>
> 1. Do you have and have you read the operator AND service manuals?
> 2. What level of electronic knowledge along with any troubleshooting and repair skills do you have?
> 3. What test equipment do you have and do you know how to properly and safely use the test equipment?
> 4. Do you have a dummy load?
> 5. Have you properly set the controls according to the operator's manual?
> 6. What components have you replaced, if any, before you asked for help?
> 7. Have you explained, in detail, everything about the problem you are experiencing? We can't read your mind.
>
>
> If you are given instructions to follow, FOLLOW them, don't do anything else! Quite often I've seen members create more problems by doing something they were not instructed to do. Here's an example of not following instructions:
>
> "I read where I should also do ..... so in addition to your instructions I also did that. Now the transmitter no longer keys. What's wrong now?"
>
> What's wrong NOW? It's simple, you have now created more problems or made the problem worse because you did something you were not instructed to do!
>
> I, as well as others who are providing help, understand the hybrid you have is yours to do with what ever and how ever you please. However, when you ask us for help and are given instructions to follow, don't blame us when we point out things you should not have done that have made the problem worse!
>
> 73
> Mike W5RKL
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45129. Re: What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 22:47:32 UTC
From: clifford wright
Topic: 45105 Message: 45129

I would be very interested to know if you have an SWR (standing wave ratio) bridge between your Kenwood
and the tuner. In my experience you can get some pretty weird mismatches with an arrangement like yours.
For example your 80 metre dipole would be reasonably OK on any band where you have an even harmonic relationship
like 80/40/20. On the WARC bands all hell could break loose in your Kenwood or your antenna tuner.
BUT without a Balun or a choke wound in your Coax you will very likely get a lot of RF on the outer
shielding which can cause problems.
You have to realise that wire antennas (unless tuned against ground) are basically a balanced system and coax cable
is Un balanced, by definition.
In my youth I remember a few RF burns caused by very high SWR and mismatches even when I was running only 50 watts or so.
We all had to learn at some time after all.

In essence that is why I am a big fan of balanced lines. They are-
1. Easy to make.
2. Cheap to make with everyday materials.
3. Have lower losses at HF frequencies.
4. Don't use those @$%$@#$% "UHF" connectors (which I hate with a passion). So many problems are caused by faulty connections
with the shielding or melted coax insulation!!!
5. Handle moderate mismatch without major losses.

Don't get me wrong my 5/8 wave 20 M vertical is fed with 50 Ohm coax but the G5RV is fed with glass sheathed brass studding drilled through the 20 cm thick concrete blocks of my basement with cone insulators at each end. The glass protection was cut from laboratory glass tubing to fit.
The balanced feeders go all the way to my Z match tuner.
It took a bit of trouble to do with a long masonary drill but it was well worth it.

ZL1BDA

45130. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 23:02:11 UTC
From: clifford wright
Topic: 45103 Message: 45130

Hi MIke!
Just last week I got a request that shows how Ham Radio is not the only hobby that suffers from, what I
often call the "instant gratification syndrome".
The secretary of a local government committee that I am on asked me to look at a modern "GO TO" telescope
that her husband had but didn't know how to use. You might have seen them, they have a lot of electronics in them that
automatically point the scope at an object on their data base, or at a given position in the sky.
BUT, of course they have to be set up for their location and direction.
Unfortunately this guy had NO knowledge of Astronomy at all. In fact if he read a book written for kids of 10
he would know quite enough to operate it. But apparently he didn't have enough interest to do that, so a $1500
scope sits idle.

My own scopes aren't as busy as they once were but then I am getting some eyesight problems.

So you see Ham radio isn't alone. BTW isn't there a technical exam still in North America for your Ham licence?
If it was even half as difficult as the NZ one still is, I can't understand how someone could be licenced without
having at least a basic knowledge. Perhaps it is all those multiple choice questions and crib sheets?
ZL1BDA

45131. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 23:12:22 UTC
From: clifford wright
Topic: 45105 Message: 45131

My solution is what my grandsons call my "Igor" switches. The line comes into some big
old fashioned DPDT knife switches with built in discharge points.
That means that my feeders are disconnected from the rig when lightning is around and the
build up of static is limited. There is a good earthing system to 4 copper pipes buried about 2.3 Metres
into wet soil and the antenna can be grounded, or switched over to a 400 Ohm bulb dummy load.

"Igor switches" are like those used by the assistant to Baron Frankenstein for monster animation!!!

But these aren't quite as big as the movie version just abut 80mm by 40 on the ceramic bases.
Works OK here, but we only get lightning very occasionally NW of Auckland.
ZL1BDA

45132. RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 23:28:25 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45132

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need,
especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible.
It was actually rather cheap...$30.00.

Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at
this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune"
my exacto knife approach as the slugs are junk(broken in half)...and I can observe them

under my magnified light..remember...
use "decaf" coffee...those damn blades are sharp!

I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe
some "crud" on the associated band switch contact points...as the "cal signal" I believe is inserted after L-41..(antenna step xfmr)
so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease
as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M

I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
my recommendation to what my limited knowledge allows me to do

hey Mo.....

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

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I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
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to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece
of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

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From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

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Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45133. Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 23:32:23 UTC
From: Timothy Johnston
Topic: 45055 Message: 45133

They should NOT be pushed, they should be turned (screwed). If the "pushed
to the bottom, you have lost the internal threads.

Tj Johnston, K4TFJ ==
Webpage: K4TFJ's Internet QTH <http://www.qsl.net/k4tfj/>
YouTube Channel: K4TFJ
Projects<http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w>

On Sun, Oct 6, 2013 at 7:28 PM, <yioutta_99@...> wrote:

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45134. Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 00:08:38 UTC
From: Joseph Stiles
Topic: 45055 Message: 45134

Steve,

Were you trying to turn them and they just went to the bottom?

It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's

There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool,
  making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and
the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY
rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times.

  The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the
  the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck.

 I like the second method better...super glue in a coil form scares the @*#$ outta me.

  Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can
to take up some slack, and the wax on the floss acts as a lubricant.

  Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem.
  They also have slots on both ends...so they can be swapped end for end.

 These are the two most common methods...good luck & GO SLOW

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something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them

for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45135. RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 00:33:06 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45135

I was thinking of a similar method, only I was considering super gluing a wood dowel on..again I had reservations about using too much glue etc. if it worked to get it up, i would simply leave the dowels attached for the next alignment. I think I will investigate your second method first though. Is the slug threaded? maybe some wax on the threads would take up the slack..but it could also give way if it got to warm.
BTW where is T2. I see TP2 next to a can..but i am thinking that might be a TEST POINT that I also dont see.

I havent found a printable manual yet, so i have the PDF on the iPad..is there one here in forum..I havent found it yet...or on the web.

thanks.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Were you trying to turn them and they just went to the bottom?

It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's

There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool,
making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and
the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY
rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times.

The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the
the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck.

I like the second method better...super glue in a coil form scares the @*#$ outta me.

Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can
to take up some slack, and the wax on the floss acts as a lubricant.

Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem.
They also have slots on both ends...so they can be swapped end for end.

These are the two most common methods...good luck & GO SLOW

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:28 PM
Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

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I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine

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It was actually rather cheap...$30.00.

Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at
this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune"

my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember...
use "decaf" coffee...those damn blades are sharp!

I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe
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I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
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There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

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45136. RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 00:37:15 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45136

I didnt really push that hard, if you'd call it a push at all. I think the weight of the tool took it to the bottom, the other one was already bottomed out. do you have a suggestion to regain the threads?

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

They should NOT be pushed, they should be turned (screwed). If the "pushed to the bottom, you have lost the internal threads.

Tj Johnston, K4TFJ ==========

Webpage: K4TFJ's Internet QTH (http://www.qsl.net/k4tfj/) YouTube Channel: K4TFJ Projects (http://www.youtube.com/channel/UCNdqOCz7wlQRwgk76PC_F7w)

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45137. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 00:49:34 UTC
From: Jim S
Topic: 45103 Message: 45137

My last post got sent before I was really finished with it. But I read it through, and it is probably about as complete as I wished it to be, anyway.

I am the Editor of our Astronomy Club's newsletter "The Observer". I have placed as high as 2nd place in the country with the Astronomical League for excellence in newsletter publications, and have held an Amateur Radio Extra since the late 1960s, so I believe I can remark with some authority on the subject of "goto" telescopes, reading the manuals, and finding such technical devices as telescopes and radios ending up in closets.

Unfortunately, along with the simplifying of the examination system in the U.S., a simplifying of the expectations of operating an amateur radio has also come about. Some people call it a "dumbing down" of the hobby. Just like the "goto" telescopes have generated a expectation that ANYONE can take a telescope, plop it down on the ground, push a few buttons, and see such far away and dim sights as the Great Andromeda Galaxy, the Double Cluster of Persues, or the Orion Nebula, Ham Radio has generated the expectations that anyone can purchase a radio, and a G5RV antenna, string it (the antenna that is) up between two clothesline poles and "Work the World with Amateur Radio" . And when a person attempting to do either hobby fails in their expectations, they throw the equipment into the closet and go on to another hopefully less technically oriented hobby. It is a doggone shame that this has happened in two wonderful hobbies. Model Aircraft is another hobby that is victim to the "gotta have it now" syndrome. Hardly anyone builds model aircraft from balsa and plans, any more.

I see that you are having eyesight problems. Have you considered taking up astro-photography? You want to talk about technical challenges. We could, but that would be totally hijacking this thread.

You can reach me at jimstan@... if you would like to know more about astronomy and astro-photography!

Jim AG3Y

On 10/6/2013 7:02 PM, clifford wright wrote:
>
> Hi MIke!
> Just last week I got a request that shows how Ham Radio is not the only
> hobby that suffers from, what I
> often call the "instant gratification syndrome".
> The secretary of a local government committee that I am on asked me to
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> them, they have a lot of electronics in them that
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> given position in the sky.
> BUT, of course they have to be set up for their location and direction.
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> he read a book written for kids of 10
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> enough interest to do that, so a $1500
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> some eyesight problems.
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> in North America for your Ham licence?
> If it was even half as difficult as the NZ one still is, I can't
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> having at least a basic knowledge. Perhaps it is all those multiple
> choice questions and crib sheets?
> ZL1BDA
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45138. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 01:22:54 UTC
From: Mike
Topic: 45103 Message: 45138

The American Amateur Radio exams are tough? Heck no! The Amateur Radio exams have become much easier and the FCC has relaxed the requirements to become an Extra Class ham. Years before an applicant had to be a licensed General or Advanced class for a minimum of 2 years before they could apply for and take the Extra exam. Now anyone who thinks they can pass it can take it even if they have never held an Amateur Radio license before!

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45139. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 02:13:41 UTC
From: Otis McCoy
Topic: 45103 Message: 45139

I think you have it over simplified. On the old test it was the advanced that was the hard test now it is split up between the general and extra class tests so you don't get bombarded on one test plus the theory has changed just like the technology (plug and play) besides how many hams will build a antenna let alone a radio. I think we have spoiled people by not doing the heavy theory. The hard part is getting people to remember the theory instead of just learning enough to pass the test. Thanks to Gordon West to make easier learn enough to pass the test. Hams are different from when I started compared to now. Granted it made it easier for the 11 meter crowd to become hams and making it appealing to them in my area we have a decrease in 11 meter interference . I guess as a VE I have to accept the lesser of the two evils and so be it at least we are getting more usage on the bands . But what we need is for hams to stay hams instead of falling to the wayside.

45140. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 02:44:41 UTC
From: Mike
Topic: 45103 Message: 45140

I was simply saying that it's much easier today to get a ham license
then it was back in the 60s and 70s.

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> ---
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> *To: * <TS-520_820_530_830@yahoogroups.com>;
> *Subject: * Re: [TS-520_820_530_830] Following instructions
> *Sent: * Mon, Oct 7, 2013 1:22:54 AM
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45141. Re: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-06 04:37:51 UTC
From: Joseph Stiles
Topic: 45055 Message: 45141

Just make sure that you get ALL the band switch wafers properly aligned! Take some pictures...or draw diagram..getting
them out of "sync" without knowing it WILL drive you nuts...

I got some alignment items off "amazon"...... search for radio/tv alignment tools.

The larger set, I got off ebay....it has stuff I will probably not use...but it did have what I needed.
I found no "part numbers" on the items. You may also browse "digikey" or "mouser" electronics. You really can make all the tuning tools/wands easily. I just
got lazy.

I live in a city of 200K people...the last decent electronic supply house closed up 2 years ago.
Seattle is about a 30-40 minute drive...then try and find a place to park

IF, the tuning slug is very deep in one/both of the 10Mhz cans as stated...that may be the reason for your low "cal" signal.

Take your time... and document your work! Keep a notebook with some pics and your notes...they could come in handy
sometime down the road.

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 9:11 PM
Subject: RE: Re: Re: [TS-520_820_530_830] 530s repost

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  I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
my recommendation to what my limited knowledge allows me to do

   hey Mo.....

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

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thanks

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73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45142. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 03:56:21 UTC
From: clifford wright
Topic: 45103 Message: 45142

AS to Amateur Radio exams. In NZ we used to have a "novice" system for 2 years on 80 m and vhf.
I think that's long gone and we now still have technician class (VHF/UHF) and General.
Our exam was reasonably tough a year or two ago, but I think that the "tick the box" syndrome has
been a bit of a killer. Still I have yet to meet a local Ham who was ignorant of Ohm's law or Voltage,
Power and current measurement (long may it continue).
I was never rich and always made as much of my gear as I could. Even now the Kenwood TS820s
is my (much modified) only bit of commercial gear apart from an Advance sig gen and a new 150 MHZ
digital scope. I built my telescopes too, except for the optics.

What puzzles me is how folks these days will spend days learning how to drive some new flash computer
or tablet App but don't have the time to study up on simple skills.

Thanks for the suggestion about digital astro photography I'll contact you some time on that.
Zl1BDA

45143. RE: Re: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 04:24:34 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45143

the glue trick worked!!
are you north or south of seattle?

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Just make sure that you get ALL the band switch wafers properly aligned! Take some pictures...or draw diagram..getting
them out of "sync" without knowing it WILL drive you nuts...

I got some alignment items off "amazon"..... search for radio/tv alignment tools.

The larger set, I got off ebay....it has stuff I will probably not use...but it did have what I needed.
I found no "part numbers" on the items. You may also browse "digikey" or "mouser" electronics. You really can make all the tuning tools/wands easily. I just
got lazy.

I live in a city of 200K people...the last decent electronic supply house closed up 2 years ago.
Seattle is about a 30-40 minute drive...then try and find a place to park

IF, the tuning slug is very deep in one/both of the 10Mhz cans as stated...that may be the reason for your low "cal" signal.

Take your time... and document your work! Keep a notebook with some pics and your notes...they could come in handy
sometime down the road.

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 5, 2013 9:11 PM
Subject: RE: Re: Re: [TS-520_820_530_830] 530s repost

I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file

tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
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steve

45144. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 04:26:56 UTC
From: GEAgent21@...
Topic: 45105 Message: 45144

Thanks everyone for the answers on lighting protection on ladder line.

73
Greg
KC9VVU

In a message dated 10/6/2013 4:09:16 P.M. Eastern Daylight Time,
macklinbob@... writes:

☐
The only positive solution for lightning protection is to disconnect the
feed line from the shack where it enters the building. And move the feedline
as far from the building as possible.

I spent 4 years doing lightning protection on telescopes on top of
mountains in Arizona. Look at the photos of lightning at Kitt Peak (KPNO).

There are areas of the US that are lightning prone. And lightning is
completely unpredictable.

Don't say that disconnection the feedline is too inconvenient. It's the
cheapest and most positive solution.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----
From: _Wes Will_ (mailto:wwill@...)
To: _TS-520_820_530_830@yahoogroups.com_
(mailto:TS-520_820_530_830@yahoogroups.com)
Sent: Sunday, October 06, 2013 12:25 PM
Subject: Re: [TS-520_820_530_830] What is the Big Deal?

On 10/06/2013 01:41 PM, Greg wrote:
>
>
> Terry
> What would you use for lightning protection when using 450 ohm ladder
> line. Sorry for the hijack.
> Greg
> KC9VVU

Spark gap.

Make some pointy copper/brass spikes (should look like a copper nail)m or you can use some copper-clad carbon arc light or welding rod. One goes on the ladder line wire, the other gets tied to a solid ground with about an eighth of an inch between the points. Of course you need one pair for each leg of the ladder.

Or you can use some non-resistor spark plugs (check tractor supply places if your local auto parts store doesn't have any non-resistor types, or maybe chainsaw/lawnmower repair shops), one per leg, leading to ground on one side of the gap.

Either way, the idea is to give the bolt an easier path to ground than the one presented by your radio and its ground.

--
Wes Will
N9KDY

45145. RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 04:30:52 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45145

Glue trick worked!

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Were you trying to turn them and they just went to the bottom?

It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's

There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool,
making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and
the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY
rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times.

The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the
the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck.

I like the second method better...super glue in a coil form scares the @*#$ outta me.

Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can
to take up some slack, and the wax on the floss acts as a lubricant.

Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem.
They also have slots on both ends...so they can be swapped end for end.

These are the two most common methods...good luck & GO SLOW

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:28 PM
Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve

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steve

45146. Alignment and coil adjustment tools

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 06:35:53 UTC
From: Wes Will
Topic: 45055 Message: 45146

I keep seeing people making coil-slug tuning tools, and asking where to get the proper tools.

Maybe we could list some of the sources for these kinds of things in one place somewhere, so people searching earlier posts can find them?

For instance, have you all heard about

minute-man.com?

Cheap tool source, has a fairly big selection. Their only real drawback is a twenty-dollar minimum order, but even I can come up with a double-sawbuck. Look into their item 63-8420 ($4.89) or 63-8454 ($5.52) or 63-910 ($5.86) if a set of tuning tools is what you're after. The page at

http://www.minute-man.com/acatalog/TV_and_Radio_Alignment_Tools.html

shows all of those items, single tools for a couple of dollars if you spot the exact item you need, and some dental-probe kind of soldering aids for six or eight bucks a set.

They also carry resistors, semi-conductors, and wiring products (terminal strips, connectors, and the like). Their basic catalogue listing is rather clunky, but it is here:

http://www.minute-man.com/acatalog/

If there are three or four people in close physical proximity (local club members for instance) you could order three or four sets to get that minimum order size and split the shipping to save a little cash.

I hate seeing people having to fiddle about for lack of the right tools to do the job. These are not the absolute finest quality tools you've ever seen, but we are talking all-plastic hex-end slug chasers here, they don't need to be titanium and sapphire.

For the $20 minimum order, plus something for shipping of course but they've never done me too badly there, you can get a couple of sets of tools, some stainless steel solder picks, and a plastic inspection mirror - great for looking into some of the more inaccessible crevices in one of our pet radios to check for cracked traces or burned solder pads or the like.

It is not the 'prettiest' web site I've ever seen, clunky like I said above, but it is simple and it works well enough for my purposes so far. I have never had any problems with them for quality or shipping, though that's only been tested across three orders total. As always buyer

beware on the internet.

--
Wes Will
N9KDY

45147. RE: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 06:47:04 UTC
From: fpath fpath
Topic: 45103 Message: 45147

Hi Guys,

I have sat here reading all these posts and there are valuable comments. However, if a person has no idea on how to operate these radios the very best thing to do is read the manual as Mike, Terry and others suggest. Then ask questions for clarification, no issue. But when people who have no idea ask questions and then disagree or fail to follow great advice or instructional advice, one would have to ask how in the hell did they get a licence or survive in the workplace

As an example, I have repaired a 520s, 5 times for the same issue, all because the so called licenced ham believes he knows best, yet continues to take advice from a CB wanker after being shown numerous times how to tune his 520 properly, I no longer help this individual, he is paying $150 per hour for labour at a professional workshop. My time is valuable to me and as I don't charge hams for labour it gets a bit tiring. If a person who wants to learn and follows the advice of the SME (specific material expert) and then continues to ask questions, applies and learn, no one from this group scolds or flames the individual, even if they ask for further clarification - no such thing as a stupid question when your learning, only a stupid person who doesn't ask a question and stuff things up.

Mike is doing an outstanding job on making videos and explaining things. It would be fantastic if Terry, made some videos on how to do a basic alignment, neutralize tubes, how to measure voltages etc, but he does so much now it would be unfair to expect any more. Terry, Mike and others put in a huge amount of time and effort with little or no thanks, for which I will be forever thankful!

I have had some weird issues and Terry, has worked with me off list for weeks on end, going through the issue time and time again and getting the right voltages yet not being able to get to the source of the problem. Sometimes it's just a matter of stop working on it, leave it for a few days and clear your head and start from the beginning.

I'm off my soapbox now. Thanks to all who support this group and attempt to help others and getting back to the way ham radio use to be, experimenting, learning and helping one another.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: chris@chrismaness.com
Date: Sun, 6 Oct 2013 07:56:33 -0700
Subject: Re: [TS-520_820_530_830] Following instructions

I would agree with this mostly. However I don't advise someone to blindly follow advise that doesn't make sense to them. Make sure you understand the reasoning behind the expert's

advise. If it does not make sense to you, you should have the elmer explain there reasoning. Elmer's should also be patient with this process. It is a part of the learning process -- the most important one. I have had elmer's loose their cool more than once.

This also clears miscommunication, and prevents one from being led down a rabbit hole. Terry did a great job in this respect -- Kudos :D
My $.02,
Chris KQ6UP
On Oct 6, 2013 7:25 AM, "Mike" <w5rkl@yahoo.com> wrote:
>
>
>
> I don't mean any disrespect to anyone with what I am going to say.
>
> I see a lot of senseless confusion that occurs because members asking for help don't seem to use common sense and follow simple instructions.
>
> Quite often members don't seem to take the time to read/study the operator's manual before they attempt to operate their hybrid. A lot of operator error problem can be solved it the member read/studied the operator's manual. If the manual was not included in the sale, download it from Gordon's website
>
> www.n6wk.com/kenwood/
>
> and read/study it.
>
> I also see where a lot of members who want to fix their hybrid but quite often do not have or even have access to basic test equipment. You can't fix your hybrid without some basic test equipment. I made a video showing some basic test equipment (see the following link):
>
> http://www.n6wk.com/w5rkl/Test%20Equipment/
>
> You also need to know how to properly and "safely" use the test equipment which includes having a thorough understanding of the proper safety precautions you MUST follow when working around HV. Many times we have stated, "There are voltages in the KW hybrid that can KILL YOU!" so don't ignore the importance of safety!! YOUR LIFE depends on it!!
>
> Quite often members asking for help seem to leave out a lot of important information in their request for help. Here are a few examples of important information left out of a member's post asking for help:
>
> 1. Do you have and have you read the operator AND service manuals?
> 2. What level of electronic knowledge along with any troubleshooting and repair skills do you have?
> 3. What test equipment do you have and do you know how to properly and safely use the test equipment?
> 4. Do you have a dummy load?
> 5. Have you properly set the controls according to the operator's manual?
> 6. What components have you replaced, if any, before you asked for help?
> 7. Have you explained, in detail, everything about the problem you are experiencing? We

can't read your mind.
>
>
> If you are given instructions to follow, FOLLOW them, don't do anything else! Quite often I've seen members create more problems by doing something they were not instructed to do. Here's an example of not following instructions:
>
> "I read where I should also do ..... so in addition to your instructions I also did that. Now the transmitter no longer keys. What's wrong now?"
>
> What's wrong NOW? It's simple, you have now created more problems or made the problem worse because you did something you were not instructed to do!
>
> I, as well as others who are providing help, understand the hybrid you have is yours to do with what ever and how ever you please. However, when you ask us for help and are given instructions to follow, don't blame us when we point out things you should not have done that have made the problem worse!
>
> 73
> Mike W5RKL
>
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>

45148. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 08:24:15 UTC
From: Dave & Loraine
Topic: 45103 Message: 45148

"...advice from a CB wanker after being..."
Moderators, please put a stop to this.
Let's stick to repair and maintenance.
Dave f4eyk

45149. RE: 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 10:38:21 UTC
From: <adrian@...>
Topic: 45055 Message: 45149

Joe what's your approach for "unsoldering the can"? If we're talking about the coils on the RF board, then it's always puzzled me how they can be desoldered, as the shafts for PA tuning go through the boards, so looks like major dismantling job to get them out the rig for desoldering. What are other folks doing faced with this? 73s Adrian G4IQW

45150. Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 10:52:24 UTC
From: Wes Will
Topic: 45103 Message: 45150

One of the files in the archive, the one concerning the factory-recommended mods to the TS-830, has a notation that there is data missing for the MV-203 diode which is recommended for a replacement of some stock parts.

I don't know if anyone has followed up on that note, can't seem to find any reference to it. The MV-203 is a 'stabilizing diode' used to keep bias and other voltages (usually inputs to a transistor oscillator or amplifier stage) within tolerance. An equivalent to it is:

ZTE-2
BZ102/2V1
BZX75C/2V1

Either one is listed as a cross-reference compatible with the MV-203. Basic specifications are:

Uz 2.1V
Iz 80mA
Rz 19.5Ω
N 0.25W

So basically a 2.1v quarter-watt Zener.

An MA27T-A would also be an acceptable replacement, but it's another obsolete diode type. Roughly 2V, 2,04 or something like it, plenty close for this kind of application.

Don't know if the cross-references to other obsolete parts will help in finding one, but the specifications ought to.

There seems to be some of the BZX75C/2V1 in stock in the UK, only 40 pence a pop, but the shipping could kill you, price-wise:

http://www.signalsuk.com/signalsuk.nsf/ViewSC?OpenForm&cat=Diode+Zener

Look down the list, they have the part number in there, but without the slash - BZX75C2V1 . I know nothing of this dealer whatsoever. Minimum orders and shipping to the U.S. or other countries has to be taken up with them. It could be that a UK ham could re-mail something if they were of a mind, and perhaps compensated for their troubles and the risk of the forty p and postage, but that's nothing I can even guess at.

Would this information be of any use in updating that pdf file? Or in helping 830 owners get diodes for these mods?

--
Wes Will

N9KDY

45151. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 11:07:20 UTC
From: Mike
Topic: 45103 Message: 45151

I agree, we have discussed this enough, me included.

Thanks for the comments so lets get back to KW Hybrids.

73
Mike W5RKL
Moderator

On 10/7/2013 3:24 AM, Dave & Loraine wrote:
>
> "...advice from a CB wanker after being..."
> Moderators, please put a stop to this.
> Let's stick to repair and maintenance.
> Dave f4eyk
>

45152. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 05:18:46 UTC
From: NA6XR
Topic: 45103 Message: 45152

I totally agree with you on that point

73's DE NA6XR
Otis McCoy

> On Oct 6, 2013, at 7:44 PM, Mike <w5rkl@...> wrote:
>
> I was simply saying that it's much easier today to get a ham license then it was back in the 60s and 70s.
>
> 73
> Mike W5RKL
>
>
>
>
>> On 10/6/2013 9:13 PM, Otis McCoy wrote:
>>
>> I think you have it over simplified. On the old test it was the advanced that was the hard test now it is split up between the general and extra class tests so you don't get bombarded on one test plus the theory has changed just like the technology (plug and play) besides how many hams will build a antenna let alone a radio. I think we have spoiled people by not doing the heavy theory. The hard part is getting people to remember the theory instead of just learning enough to pass the test. Thanks to Gordon West to make easier learn enough to pass the test. Hams are different from when I started compared to now. Granted it made it easier for the 11 meter crowd to become hams and making it appealing to them in my area we have a decrease in 11 meter interference . I guess as a VE I have to accept the lesser of the two evils and so be it at least we are getting more usage on the bands . But what we need is for hams to stay hams instead of falling to the wayside.
>>
>>
>> From: Mike <w5rkl@...>;
>> To: <TS-520_820_530_830@yahoogroups.com>;
>> Subject: Re: [TS-520_820_530_830] Following instructions
>> Sent: Mon, Oct 7, 2013 1:22:54 AM
>>
>> Â
>> The American Amateur Radio exams are tough? Heck no! The Amateur Radio exams have become much easier and the FCC has relaxed the requirements to become an Extra Class ham. Years before an applicant had to be a licensed General or Advanced class for a minimum of 2 years before they could apply for and take the Extra exam. Now anyone who thinks they can pass it can take it even if they have never held an Amateur Radio license before!
>>
>> 73

>> Mike W5RKL
>>
>>
>> Â
>>
>>
>>
>>
>>> On 10/6/2013 6:02 PM, clifford wright wrote:
>>> Â
>>> Hi MIke!
>>> Just last week I got a request that shows how Ham Radio is not the only
>>> hobby that suffers from, what I
>>> often call the "instant gratification syndrome".
>>> The secretary of a local government committee that I am on asked me to
>>> look at a modern "GO TO" telescope
>>> that her husband had but didn't know how to use. You might have seen
>>> them, they have a lot of electronics in them that
>>> automatically point the scope at an object on their data base, or at a
>>> given position in the sky.
>>> BUT, of course they have to be set up for their location and direction.
>>> Unfortunately this guy had NO knowledge of Astronomy at all. In fact if
>>> he read a book written for kids of 10
>>> he would know quite enough to operate it. But apparently he didn't have
>>> enough interest to do that, so a $1500
>>> scope sits idle.
>>>
>>> My own scopes aren't as busy as they once were but then I am getting
>>> some eyesight problems.
>>>
>>> So you see Ham radio isn't alone. BTW isn't there a technical exam still
>>> in North America for your Ham licence?
>>> If it was even half as difficult as the NZ one still is, I can't
>>> understand how someone could be licenced without
>>> having at least a basic knowledge. Perhaps it is all those multiple
>>> choice questions and crib sheets?

>>> ZL1BDA
>
>

45153. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 05:21:49 UTC
From: NA6XR
Topic: 45103 Message: 45153

Hey if you really want to have fun try the Canadian ham tests, it drove me nuts .

73's DE NA6XR
Otis McCoy

> On Oct 6, 2013, at 8:56 PM, clifford wright <c.c.wright@...> wrote:
>
> AS to Amateur Radio exams. In NZ we used to have a "novice" system for 2
> years on 80 m and vhf.
> I think that's long gone and we now still have technician class
> (VHF/UHF) and General.
> Our exam was reasonably tough a year or two ago, but I think that the
> "tick the box" syndrome has
> been a bit of a killer. Still I have yet to meet a local Ham who was
> ignorant of Ohm's law or Voltage,
> Power and current measurement (long may it continue).
> I was never rich and always made as much of my gear as I could. Even now
> the Kenwood TS820s
> is my (much modified) only bit of commercial gear apart from an Advance
> sig gen and a new 150 MHZ
> digital scope. I built my telescopes too, except for the optics.
>
> What puzzles me is how folks these days will spend days learning how to
> drive some new flash computer
> or tablet App but don't have the time to study up on simple skills.
>
> Thanks for the suggestion about digital astro photography I'll contact
> you some time on that.
> Zl1BDA
>
>

45154. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 05:26:42 UTC
From: NA6XR
Topic: 45103 Message: 45154

Very true!

73's DE NA6XR
Otis McCoy

> On Oct 6, 2013, at 6:22 PM, Mike <w5rkl@...> wrote:
>
> The American Amateur Radio exams are tough? Heck no! The Amateur Radio exams have become much easier and the FCC has relaxed the requirements to become an Extra Class ham. Years before an applicant had to be a licensed General or Advanced class for a minimum of 2 years before they could apply for and take the Extra exam. Now anyone who thinks they can pass it can take it even if they have never held an Amateur Radio license before!
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
>> On 10/6/2013 6:02 PM, clifford wright wrote:
>>
>> Hi MIke!
>> Just last week I got a request that shows how Ham Radio is not the only
>> hobby that suffers from, what I
>> often call the "instant gratification syndrome".
>> The secretary of a local government committee that I am on asked me to
>> look at a modern "GO TO" telescope
>> that her husband had but didn't know how to use. You might have seen
>> them, they have a lot of electronics in them that
>> automatically point the scope at an object on their data base, or at a
>> given position in the sky.
>> BUT, of course they have to be set up for their location and direction.
>> Unfortunately this guy had NO knowledge of Astronomy at all. In fact if
>> he read a book written for kids of 10
>> he would know quite enough to operate it. But apparently he didn't have
>> enough interest to do that, so a $1500
>> scope sits idle.
>>
>> My own scopes aren't as busy as they once were but then I am getting
>> some eyesight problems.
>>
>> So you see Ham radio isn't alone. BTW isn't there a technical exam still

>> in North America for your Ham licence?
>> If it was even half as difficult as the NZ one still is, I can't
>> understand how someone could be licenced without
>> having at least a basic knowledge. Perhaps it is all those multiple
>> choice questions and crib sheets?
>> ZL1BDA
>
>

45155. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 08:28:18 UTC
From: kenny
Topic: 45103 Message: 45155

Hi what is wrong with CBs,i think must people started from the good old CB days.
73s
Kenny
Scotland
----- Original Message -----
From: Dave & Loraine
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 07, 2013 9:24 AM
Subject: Re: [TS-520_820_530_830] Following instructions

"...advice from a CB wanker after being..."
Moderators, please put a stop to this.
Let's stick to repair and maintenance.
Dave f4eyk

45156. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 16:41:49 UTC
From: Joe - W7RKN
Topic: 45103 Message: 45156

Not to mention the CW requirement has gone away completely! Personally, I think the FCC should have retained some sort of CW requirement for the Extra privilege!

(No. I am not an Extra, but I passed my novice in 1962, with a code speed of 26 wpm. I *think* could still do 25 characters per minute, [5 wpm] if I had to...wouldn't say much about my fist though...more than likely, very laughable!)

Joe - W7RKN (Was WA6RKN)

----- Original Message -----

On Oct 6, 2013, at 6:22 PM, Mike <w5rkl@...> wrote:

The American Amateur Radio exams are tough? Heck no! The Amateur Radio exams have become much easier and the FCC has relaxed the requirements to become an Extra Class ham. Years before an applicant had to be a licensed General or Advanced class for a minimum of 2 years before they could apply for and take the Extra exam. Now anyone who thinks they can pass it can take it even if they have never held an Amateur Radio license before!

45157. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 16:45:43 UTC
From: Gordon JC Pearce
Topic: 45103 Message: 45157

On Mon, Oct 07, 2013 at 09:28:18AM +0100, kenny wrote:
> Hi what is wrong with CBs,i think must people started from the good old CB days.
> 73s
> Kenny

I bet if you looked at the licence issue dates, you'd see a huge bump in the early-to-mid-80s as people got bored with CB and moved onto bigger and louder toys.

Certainly my late father Ralph GM0EXW got both his B and A licence at roughly the same time as a group of people he knew from his interest in the (old, illegal AM) CB scene. 27MHz wasn't doing it, so it was time to get a licence and use 7MHz instead. That's round about when my interest in the hobby started too, but my mum made it quite clear that I'd be far better off studying for school instead of any amateur radio licence, particularly if I wanted to eat my dinner in the house ;-)

I do sometimes wonder if I'd get quite so much of the "Oh you've got an M callsign so you must have just heard about radio last week, you stupid kid" attitude from people old enough to know better if I re-activate my dad's old GM0 callsign.

--
Gordonjcp MM0YEQ

45158. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 17:05:29 UTC
From: John Schroeder
Topic: 45103 Message: 45158

Agreed about the CW for the Extra... Way too many ex CB'ers with extra calls, that they didn't really work for... John ...

From: Joe - W7RKN <w7rkn.7@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 11:41 AM
Subject: Re: [TS-520_820_530_830] Following instructions

☐
Not to mention the CW requirement has gone away
completely! Personally, I think the FCC should have retained some sort of
CW requirement for the Extra privilege!

(No. I am not an Extra, but I passed my novice in
1962, with a code speed of 26 wpm. I *think* could still do
25 characters per minute, [5 wpm] if I had to...wouldn't say much about my fist though...more than likely, very laughable!)

Joe - W7RKN (Was WA6RKN)

----- Original Message -----
On Oct 6, 2013, at 6:22 PM, Mike <w5rkl@yahoo.com> wrote:
>
>>The American Amateur Radio exams are tough? Heck no! The Amateur Radio exams have become much easier and the FCC has relaxed the requirements to become an Extra Class ham. Years before an applicant had to be a licensed General or Advanced class for a minimum of 2 years before they could apply for and take the Extra exam. Now anyone who thinks they can pass it can take it even if they have never held an Amateur Radio license before!
>>
>>

45159. "Extra" effort

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 17:11:12 UTC
From: Craig Roberts
Topic: 45103 Message: 45159

Perhaps, following the FCC commercial license model, the Amateur Extra Class could be divided into two licenses. One would be the Amateur Extra Class Radiotelephone license and the other the Amateur Extra Class Radiotelegraph license. The former would grant all privileges EXCEPT operation in those exclusive 25 KHz CW segments now set aside for Extras. The Radiotelegraph license, requiring passage of a 20-wpm code test, would authorize its holder to operate on all U.S. amateur band frequencies. The written tests would be identical and Radiotelegraph endorsement issued to current Extras upon the successful completion of the code test.

Creation of an Amateur Extra Class Radiotelegraph license would help smooth the ruffled feathers of the rugged, he-man "vintage" Extras who bemoan the fact that "anyone" can get the top class license these days. Hey! I'd go for it.

By the way, the older Extras may have a point. I just upgraded to Extra yesterday with a perfect, 100% test score. If THAT's not proof that the new tests are too easy, I don't know what is. :-)

73,

Craig
W3CRR/AE

TS-530S, TS-830S, SP-230, AT-230, SM-220

45160. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 16:39:46 UTC
From: Joseph Stiles
Topic: 45103 Message: 45160

Greetings Group,

  Thanks Mike. I agree let's get back to the base function of this board.

  Thanks to all to participated

73 Joe
WB7UQU
Group Co-owner

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 4:07 AM
Subject: Re: [TS-520_820_530_830] Following instructions

I agree, we have discussed this enough, me included.

Thanks for the comments so lets get back to KW Hybrids.

73
Mike W5RKL
Moderator

On 10/7/2013 3:24 AM, Dave & Loraine wrote:

>"...advice from a CB wanker after being..."
>Moderators, please put a stop to this.
>Let's stick to repair and maintenance.
>Dave f4eyk

45161. Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 17:38:20 UTC
From: Larry Shorthill
Topic: 45103 Message: 45161

The MV-203 is a varactor diode, not a zener. Any stabilization that it would do would be in a voltage controlled frequency control loop, not in a voltage stabilizing circuit. The original MV-xxx numbers stood for Motorola Varactor.

Ct{Cj} Nom. (F) Junction Cap. : 11p

C1/C2 Min. Capacitance Ratio : 4.3

V(RRM)(V) Rep.Pk.Rev. Voltage : 30

Q Factor Min. : 300

f(co) Min. (Hz) Cut-off freq. :

P(D) Max. (W) : 250m

Semiconductor Material : Silicon

Package Style : DO-35

Read more:
<http://www.americanmicrosemi.com/information/spec/?ss_pn=MV203#ixzz2h3gtwiEi>
http://www.americanmicrosemi.com/information/spec/?ss_pn=MV203#ixzz2h3gtwiEi

IF there are small zeners that need some replacements that are hard to find, I recommend a replacement with TLVH431 3 terminal shunt regulators. These versatile devices with a couple of resistors work extremely well to make ideal zeners and they are adjustable with the right resistors from 1.24V up to about 37V. They are available in TO-92 packages making them simple to solder and TI can sample them if you go on their website. I have no affiliation with TI-they were a competitor of mine at one time. NXP has the same devices but not in TO-92. They are not very high current shunt regulators, but with a few more parts even that can be fixed.

73

Larry Shorthill, KS7J

45162. TS-520 Load control all up one end

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 18:41:37 UTC
From: Gordon JC Pearce
Topic: 45162 Message: 45162

When I tune up on any band following the instructions in the manual (which are how I've been tuning up valve PAs for quite a long time now) I notice that the LOAD control is fully anticlockwise (VC2 fully meshed) when I tune for maximum deflection on the RF meter.

I'd expect this to be somewhere around the middle (ie. with the plates half-meshed). It doesn't seem to make a difference which band I'm on, although on 20m maximum deflection is obtained with the plates out of mesh by about 5mm - if the pointer on the knob is at 3 o'clock for fully meshed then it's at 4 o'clock for maximum deflection on 20m.

Nothing appears to be amiss in the PA cage, and although I haven't neutralised it since I fitted the PA valves a couple of years ago it was fine then and I don't see why it would have changed. The bias current is correct. I'm tuning into a 50 ohm dummy load with a short (20cm or so) pigtail with a UHF connector on the end.

Where should I start looking first? Since it behaves much the same on all bands is it possible that C17 (33pF, across one section of VC2) is open?

--
Gordonjcp MM0YEQ

45163. RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 19:09:46 UTC
From: <wagstw46@...>
Topic: 45103 Message: 45163

I believe there is a lot of confusion about what MV-203 is and why it is used in the Noise blanker gate driver transistor emitter and why would we be concerned about temperature stability device.

Part of the problem is that more than one manufacturer (TV set manufacturer included) used the same part number for different type of "diode". It would make no sense to me to use a Varactor in this application. .

Study the TS-830 noise blanker gate signal driver Q25 circuit and you may be able to figure it out. You will see 9vdc regulated is taken thru series resistor R96 820 ohm to shunt (diode, varactor, stabistor ????) to provide a regulated 2.2 vdc for the emitter of Q25.

The schematic shows 6.2vdc on the emitter of Q25 and that is true if the NB is turned off. If you turn on the NB and vary the NB control thru its range you will get a voltage of approx 0.10 vdc thru approx 2.2vdc at the emitter of Q25. Bring your soldering iron tip close to D25 (MV-203) and see what happens.

I contacted Kenwood Part several years ago and was told to use a MA27T-B which appears to be a Stabistor?

All of this has been hashed out on Eham and QRZ related to TS-440s in the past.

I have never seen a bad MV-203.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The MV-203 is a varactor diode, not a zener. Any stabilization that it would do would be in a voltage controlled frequency control loop, not in a voltage stabilizing circuit. The original MV-xxx numbers stood for Motorola Varactor.

Ct{Cj} Nom. (F) Junction Cap. : 11p
C1/C2 Min. Capacitance Ratio : 4.3
V(RRM)(V) Rep.Pk.Rev. Voltage : 30
Q Factor Min. : 300
f(co) Min. (Hz) Cut-off freq. :
P(D) Max. (W) : 250m
Semiconductor Material : Silicon
Package Style : DO-35

Read more: http://www.americanmicrosemi.com/information/spec/?ss_pn=MV203#ixzz2h3gtwiEi

IF there are small zeners that need some replacements that are hard to find, I recommend a replacement with TLVH431 3 terminal shunt regulators. These versatile devices with a couple of resistors work extremely well to make ideal zeners and they are adjustable with the right resistors from 1.24V up to about 37V. They are available in TO-92 packages making them simple to solder and TI can sample them if you go on their website. I have no

affiliation with TI—they were a competitor of mine at one time. NXP has the same devices but not in TO-92. They are not very high current shunt regulators, but with a few more parts even that can be fixed.

73
Larry Shorthill, KS7J

45164. Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 16:59:49 UTC
From: Joseph Stiles
Topic: 45055 Message: 45164

Steve,

  Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand...
and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but,
that doesn't seem to work on these small items

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 9:30 PM
Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Glue trick worked!

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Were you trying to turn them and they just went to the bottom?

It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's

There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool,
   making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and
the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY
rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times.

  The second is to unsolder the offending can
and you can insert your tuning tool in through the bottom and turn & push up to the
   the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck.

 I like the second method better...super glue in a coil form scares the @*#$ outta me.

  Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can
to take up some slack, and the wax on the floss acts as a lubricant.

Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem.
They also have slots on both ends...so they can be swapped end for end.

These are the two most common methods...good luck & GO SLOW

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:28 PM
Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need,
especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830

RF board...as this tool is
flexible.
It was actually rather cheap...$30.00.

  Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at
this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune"
my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember...
use "decaf" coffee...those damn blades are sharp!

  I am shooting from the hip
here...as I don't have a schematic in front of me...but with all else being equal...there maybe
some "crud" on the associated band switch contact points...as the "cal signal" I believe is inserted after L-41..(antenna step xfmr)
so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease
as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M

  I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
my recommendation to what my limited knowledge allows me to do

   hey Mo.....

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

  I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
will have to do is take a very sharp knife...say
an exacto...and trim back some of the plastic as the end is at times too short
to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to

a
hobby or craft store and look for a piece
of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45165. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 19:53:20 UTC
From: John Davidson
Topic: 45105 Message: 45165

Disconnecting the antenna is only reducing one of many paths lightning comes into the rig. I have seen many times at radio sites where lightning comes thru power and telephone lines to do it's damage. For instance , if you have a "modern" setup with a computer hooked to the radio, one path is thru the computer from your internet connections if it is TV cable and a modem. Lightning can hit a utility pole and come in thru the Power line, DSL or TV cable drop also.

From: clifford wright <c.c.wright@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 7:12 PM
Subject: Re: [TS-520_820_530_830] What is the Big Deal?

My solution is what my grandsons call my "Igor" switches. The line comes into some big
old fashioned DPDT knife switches with built in discharge points.
That means that my feeders are disconnected from the rig when lightning is around and the
build up of static is limited. ry occasionally NW of Auckland.
ZL1BDA

45166. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 19:46:57 UTC
From: Mike
Topic: 45103 Message: 45166

Okay guys, we can continue this discussion through email, not a problem with me, but lets cube it on the group okay?

73
Mike W5RKL

On 10/7/2013 12:05 PM, John Schroeder wrote:
> Agreed about the CW for the Extra... Way too many ex CB'ers with extra
> calls, that they didn't really work for... John ...
>
> *From:* Joe - W7RKN <w7rkn.7@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, October 7, 2013 11:41 AM
> *Subject:* Re: [TS-520_820_530_830] Following instructions
> □
> Not to mention the CW requirement has gone away completely!
> Personally, I think the FCC should have retained some sort of CW
> requirement for the Extra privilege!
> (No. I am not an Extra, but I passed my novice in 1962, with a code
> speed of 26 wpm. I *think*//could still do 25 characters per minute,
> [5 wpm] if I had to...wouldn't say much about my fist though...more
> than likely, very laughable!)
> Joe - W7RKN (Was WA6RKN)
> ----- Original Message -----
>
> On Oct 6, 2013, at 6:22 PM, Mike <w5rkl@...
> <mailto:w5rkl@...>> wrote:
>> The American Amateur Radio exams are tough? Heck no! The Amateur
>> Radio exams have become much easier and the FCC has relaxed the
>> requirements to become an Extra Class ham. Years before an
>> applicant had to be a licensed General or Advanced class for a
>> minimum of 2 years before they could apply for and take the Extra
>> exam. Now anyone who thinks they can pass it can take it even if
>> they have never held an Amateur Radio license before!
>>
>

45167. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 20:10:45 UTC
From: Craig Roberts
Topic: 45105 Message: 45167

My 93 year old mother-in-law informs me that lightning can also travel through telephone landlines and plumbing pipes -- which is why you should only use a cell phone while taking a shower during a thunderstorm.

While following mom's advice may help avoid personal injury, your expensive, often irreplaceable ham gear -- more importantly -- is ALWAYS in danger from lightning induced currents traveling electromagnetically from anywhere on the planet, even if your radios are unplugged from both antennae and power sources. Storing rigs in an inert state underground in a Faraday cage is just about the only realistic hope you have.

Remain vigilant. Never relax!

73,

Craig
W3CRR

NOTE: THE PRECEDING IS PRESENTED FOR ENTERTAINMENT PURPOSES ONLY. IN OTHER WORDS, IT'S A JOKE, SON! (or is it?)

45168. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 20:11:35 UTC
From: Joe - W7RKN
Topic: 45105 Message: 45168

Yup...happened to me 2 years ago...a very intense lightning storm blew through Reno...one strike hit a telephone distribution box, 3 blocks from my house. The energy came through the phone lines and took out everything remotely connected to the line..TV's, Network, refrigerator, freezer, Even somehow took out both my HVAC systems in the house..and..oh yes, my TS-2000..has a hole burned through the main RF board, which Cliff, down in Texas at AVVid repaired (Replaced, actually. BTW, the board had the new filters but nothing else)

Phone company denied anything happened..ie: Not their fault....Insurance and then small claims convinced them otherwise....to the collective tune of over $15,000.00! Good thing I didn't go to district court..I imagine the punitive damages would have taken care of a pair or 3 new Kenwood super radios, TS-990S, with the amplifiers to go with them! Hmm..it's not too late.....isn't the statute of limitations 3 years, or is it 5 on damage claims? HMMMMMMMM Heh.

Joe - W7RKN

----- Original Message -----
From: John Davidson
Subject: Re: [TS-520_820_530_830] What is the Big Deal?

Disconnecting the antenna is only reducing one of many paths lightning comes into the rig. I have seen many times at radio sites where lightning comes thru power and telephone lines to do it's damage. For instance , if you have a "modern" setup with a computer hooked to the radio, one path is thru the computer from your internet connections if it is TV cable and a modem. Lightning can hit a utility pole and come in thru the Power line, DSL or TV cable drop also.

45169. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 20:18:36 UTC
From: K5MYJ
Topic: 45105 Message: 45169

This is all true. I was only commenting about the antenna problem. Many times the antenna is the main lightning attracter because of it's height.

When I was in Az when a thunderstorm was in the area we shut all the computers and other sensitive electronics down and unplugged them from the wall.

On the Mt. Lemmon telescope I had the building wired with a large 4 phase knife switch. We disconnected all three incoming powerlines and the local earth ground. We had gas discharge clamps (600V) and semiconductor clamps (250V) on all the lines. All power was underground and once we took a hit directly to the powerhouse. We had two large (marine) standby generators. On of the generators took the direct hit.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: John Davidson
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 07, 2013 12:53 PM
Subject: Re: [TS-520_820_530_830] What is the Big Deal?

Disconnecting the antenna is only reducing one of many paths lightning comes into the rig. I have seen many times at radio sites where lightning comes thru power and telephone lines to do it's damage. For instance , if you have a "modern" setup with a computer hooked to the radio, one path is thru the computer from your internet connections if it is TV cable and a modem. Lightning can hit a utility pole and come in thru the Power line, DSL or TV cable drop also.

From: clifford wright <c.c.wright@....nz>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 7:12 PM
Subject: Re: [TS-520_820_530_830] What is the Big Deal?

My solution is what my grandsons call my "Igor" switches. The line comes
into some big
old fashioned DPDT knife switches with built in discharge points.
That means that my feeders are disconnected from the rig when lightning
is around and the
build up of static is limited. ry occasionally NW of Auckland.
ZL1BDA

45170. Re: [TS-520_820_530_830] What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 20:20:28 UTC
From: Mike
Topic: 45105 Message: 45170

Yes and that's how most lightning strikes damages occur, through the main power feed to the house. That's why it's very important to have ALL grounds, shack included, at the "same ground potential". This means if your shack has a separate ground outside the window or your shack is a separate building from the house, the grounds should all be connected to the house main ground.

My shack is separate from the house, 10 x 20 building in the back yard. Power to the shack is supplied through PVC pipe, 12 inches underground, from the house (electrician installed it). The electrician said I didn't need a ground at the shack because the heavy solid copper wire connecting the shack to the house ground was sufficient. I disagreed with him and said "put the ground rod in next to the shack and ground the shack panel to it". He said OK and did that. Doing this made the house and shack grounds at the same potential. I've had no problems even with lightning hit the 90 foot tall pine tree 15 feet from the shack.

Tom Rauch, W8JI, has a very good and informative webpage on grounding and lightning. I highly recommend taking some time and read/review his webpages on grounding. My shack is grounded the same way Tom's website illustrations show.

www.w8ji.com

73
Mike W5RKL

On 10/7/2013 2:53 PM, John Davidson wrote:
> Disconnecting the antenna is only reducing one of many paths lightning
> comes into the rig.
> I have seen many times at radio sites where lightning comes thru power
> and telephone lines to do it's damage. For instance , if you have a
> "modern" setup with a computer hooked to the radio, one path is thru
> the computer from your internet connections if it is TV cable and a
> modem. Lightning can hit a utility pole and come in thru the Power
> line, DSL or TV cable drop also.
> ---
> *From:* clifford wright <c.c.wright@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, October 6, 2013 7:12 PM
> *Subject:* Re: [TS-520_820_530_830] What is the Big Deal?
>
> My solution is what my grandsons call my "Igor" switches. The line comes
> into some big
> old fashioned DPDT knife switches with built in discharge points.
> That means that my feeders are disconnected from the rig when lightning

> is around and the
> build up of static is limited. ry occasionally NW of Auckland.
> ZL1BDA
>
>
>

45171. RE: What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 20:25:16 UTC
From: <glene77is@...>
Topic: 45105 Message: 45171

Joe, W7RKN,
Yup, happened to me , too!
Have a 185' Long-Wire hooked directly to my MFJ tuner.
Lightning struck out in the trees behind my house.
The Long-Wire captured enough of the Electro Impulse
that it burned out the diodes and transistor meter circuits.

A full disconnect is required.
I use an Antenna Switch with a ground select for the Tuner.

Years back, working in a down-building, 7 stories tall, lightning struck a rain gutter, arced across to a window screen, arced into and touched a printer which was wired directly to the I.T. server farm. Burned out 7 servers. We had put supressors on all the power lines, and all the T-10 lines to the terminals.
But Lightning found a "back-door". That was worth $250K per day in lost business.

"Watch Your Back" has taken on a New Meaning in Ham Radio !

Glen Ellis, KK4LPG

45172. RE: RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 21:09:03 UTC
From: <wagstw46@...>
Topic: 45103 Message: 45172

I forgot to mention if you look at D22 (MV-203) symbol you will see it looks like 2 silicon diodes in series and not a varactor diode. Kenwood uses the traditional varactor diode symbol quite appropriately for the RIT diode in the VFO.

Have to ask yourself what level of precision is required for Q25 emitter voltage? How precise a reference is necessary for NB gate driver?

Also I dont think there is a reason and no room to install a band gap TL431 reference at the D22 location.

In a pinch to replace a bad MV-203 "zener" diode and restore the TS830 Noise Blanker you can just use a Orange or Yellow LED as a 2.0vdc to 2.2vdc reference source.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I believe there is a lot of confusion about what MV-203 is and why it is used in the Noise blanker gate driver transistor emitter and why would we be concerned about temperature stability device.

Part of the problem is that more than one manufacturer (TV set manufacturer included) used the same part number for different type of "diode". It would make no sense to me to use a Varactor in this application. .

Study the TS-830 noise blanker gate signal driver Q25 circuit and you may be able to figure it out. You will see 9vdc regulated is taken thru series resistor R96 820 ohm to shunt (diode, varactor, stabistor ????) to provide a regulated 2.2 vdc for the emitter of Q25.

The schematic shows 6.2vdc on the emitter of Q25 and that is true if the NB is turned off. If you turn on the NB and vary the NB control thru its range you will get a voltage of approx 0.10 vdc thru approx 2.2vdc at the emitter of Q25. Bring your soldering iron tip close to D25 (MV-203) and see what happens.

I contacted Kenwood Part several years ago and was told to use a MA27T-B which appears to be a Stabistor?

All of this has been hashed out on Eham and QRZ related to TS-440s in the past.

I have never seen a bad MV-203.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The MV-203 is a varactor diode, not a zener. Any stabilization that it would do would be in a voltage controlled frequency control loop, not in a voltage stabilizing circuit. The original MV-xxx numbers stood for Motorola Varactor.

Ct{Cj} Nom. (F) Junction Cap. : 11p
C1/C2 Min. Capacitance Ratio : 4.3
V(RRM)(V) Rep.Pk.Rev. Voltage : 30
Q Factor Min. : 300
f(co) Min. (Hz) Cut-off freq. :
P(D) Max. (W) : 250m
Semiconductor Material : Silicon
Package Style : DO-35

Read more: http://www.americanmicrosemi.com/information/spec/?ss_pn=MV203#ixzz2h3gtwiEi

IF there are small zeners that need some replacements that are hard to find, I recommend a replacement with TLVH431 3 terminal shunt regulators. These versatile devices with a couple of resistors work extremely well to make ideal zeners and they are adjustable with the right resistors from 1.24V up to about 37V. They are available in TO-92 packages making them simple to solder and TI can sample them if you go on their website. I have no affiliation with TI—they were a competitor of mine at one time. NXP has the same devices but not in TO-92. They are not very high current shunt regulators, but with a few more parts even that can be fixed.

73
Larry Shorthill, KS7J

45173. Re: [TS-520_820_530_830] RE: What is the Big Deal?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 21:11:30 UTC
From: Chris Maness
Topic: 45105 Message: 45173

Well technically, the only fool proof way to protect a radio is to put it
in a Faraday cage :D

Regards,
Chris KQ6UP

On Mon, Oct 7, 2013 at 1:25 PM, <glene77is@...> wrote:

>
>
> Joe, W7RKN,
>
> Yup, happened to me , too!
>
> Have a 185' Long-Wire hooked directly to my MFJ tuner.
>
> Lightning struck out in the trees behind my house.
>
> The Long-Wire captured enough of the Electro Impulse
>
> that it burned out the diodes and transistor meter circuits.
>
>
> A full disconnect is required.
>
> I use an Antenna Switch with a ground select for the Tuner.
>
>
> Years back, working in a down-building, 7 stories tall, lightning struck a
> rain gutter, arced across to a window screen, arced into and touched a
> printer which was wired directly to the I.T. server farm. Burned out 7
> servers. We had put supressors on all the power lines, and all the T-10
> lines to the terminals.
>
> But Lightning found a "back-door". That was worth $250K per day in lost
> business.
>
>
> "Watch Your Back" has taken on a New Meaning in Ham Radio !
>
>
>
> Glen Ellis, KK4LPG
>
>
>

>
>
>

45174. Re: [TS-520_820_530_830] RE: RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 21:30:21 UTC
From: Wes Will
Topic: 45103 Message: 45174

On 10/07/2013 04:09 PM, wagstw46@... wrote:
>
>
> I forgot to mention if you look at D22 (MV-203) symbol you will see it
> looks like 2 silicon diodes in series and not a varactor diode. Kenwood
> uses the traditional varactor diode symbol quite appropriately for the
> RIT diode in the VFO.
>
>
> Have to ask yourself what level of precision is required for Q25 emitter
> voltage? How precise a reference is necessary for NB gate driver?

Then perhaps the solution to that annotation in the files is to either remove it entire, or add a note to the thing about this NOT being needed.

I seem to recall (checked, yes it's there) that the note only applies to EARLY models of the 830, before a certain serial number, that were produced WITHOUT the MV-203 zener diode.

Which is what I identified the part as, by the way, a 2.2v ZENER, in the post that started this thread. NOT a varactor. Here is the note copied from the pdf file:

"Note:
Applies to any unit before serial: 2010000*, 1120950*, 1132058*"

If there is already an MV-203 in there, it obviously doesn't NEED one. If it is one of these lower serial numbers, and you're wanting to follow this tech note, then one or another of the cross-referenced diodes, can be used to substitute fot the MV-203.

Now, if some of the possible replacements I listed in the original post are actually varactors instead of zener diodes, that's the fault of the cross-reference I used. It is not intentional at all.

Is that what brought varactors into this in the first place? THAT is what is confusing me. I used a cross-reference database and copied the results into the message. I did NOT put every one of the results back in and pull up a complete data sheet to double-check.

If that is the problem, just say, "Part X is not a zener; it is not a correct replacement part," and go on from there.

Mea Maxima Culpa.

I think that if the pdf file on this (to see the serial number limitations) and the original post (which says that the part needed is a '2.2v zener') were actually -read-, there might be less confusion ongoing.

--
Wes Will

45175. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 21:59:36 UTC
From: clifford wright
Topic: 45103 Message: 45175

The thing is Kenny, to be an old time CB'er you needed no exam and were limited to about 5 watts (legally)
on the 27 Mhz band. Comparing it to the idea of "proper" Ham radio is rather like comparing a Cessna
to a Eurofighter.
The whole original idea of Ham radio was to train people in radio technology and allow them to transmit
on what was then considered less useful frequencies. It was expected that most Hams would build at least
some of their own equipment.
CB was simply about the ancient equivalent of texting.
ZL1BDA

45176. Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 22:34:09 UTC
From: larry shorthill
Topic: 45103 Message: 45176

Terry,

In looking over the NB circuit it seems that D22 in the service manual (Revised Edition) is listed as an MV-13 which is a 1.2V nominal zener type device. R96 in this schematic is 2.2K.

The problem I'm having is the diode symbol which shows the cathode at ground and the anode driven by current through R96. In otherwords it is forward biased instead of in zener breakdown according to the symbol used. It shows 2 diode arrows in series which is what you would have for voltage at 1.2V. It does not seem that the device would apply an emitter bias of 2.2V in this version of the schematic so depending on the revision perhaps this circuit was modified over the course of the product cycle.

My take on the circuit is that when off, 6.2V at the emitter of Q25 holds that device completely off even with a large noise spike at its base. When on, the threshold voltage to turn Q25 on is determined by the potentiomer that is fed by the diode stabilizer in question. This is a relatively low voltage compared to 6.2V so a small noise pulse would turn on Q25 to drive the noise gate. The pot sets the threshold and a decently stabilized voltage would keep the threshold steady. Temperature effects at Q25 and at D22 would move this threshold around but without a lot of thinking on this it may be that there is temperature compensation inherent in the circuit. That's conjecture on my part and I could be wrong on temp effects.

At any rate an MV-203 varactor is not the device to be used in this circuit unless there was another zener device of the same type number. This would be a very big confusion and would render the circuit useless if the wrong type was used. This needs to be regulator device and depending on the revision seems to be either a 1.2V or 2.1V part. Several good options for replacements for either voltage.

73
Larry. KS7J

45177. RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 00:08:06 UTC
From: <wagstw46@...>
Topic: 45103 Message: 45177

Larry

I think your analysis is pretty close. You can see that 12vdc regulated is divided by the two 100k divider resistors to approx 6.0vdc. I have measured several TS-830 and I see approx 5.98vdc at Emitter of Q25 with NB turned Off. .

If you measure NBV terminal at Molex Conn 9 you will see 2.05vdc.

With NB turned On the voltage range at Emitter Q25 is 0.109vdc with level control full CW and 2.05vdc with level control full CCW. I have not measured Emitter current and may do that when I get some time.

So I believe that D22 is simply a nominal 2.0vdc "zener" of the early 1980s. I dont think it has anything to do with temperature stability. Traditional ways to temperature stabilize a transistor amp would include:
1. Swamping resistor from Q25 Emitter lead to ground to provide degen feedback
2. Thermistor from Q25 Base to grd
3. Forward biased diode from Base to ground.

I think in 1980s there was limited choice in a 2 vdc zener diode and I understand today not much better as the performance of the low voltage zeners I have read about is not good.

I think we agree that D22 isnt a varactor or a thermistor. Sure looks like it is serving as a "zener" to me.

Maybe it would be better to call it a "reverse" zener based on the symbol?

It may well be a Stabistor which has good stable forward voltage. That would explain the symbol. I understand that they do come with multiple series connected diodes inside a single package so that would also align with the symbol. With the 2.05 vdc that I have measured three anodes in the symbol would make more sense than two.

So instead of using a LED to replace it then just stack 3 silicon diodes in series for approx 2.1vdc? There is room to insert 3 series connected silicon diodes at D22 location on Audio board.

I have no experience with a Stabistor but seems to me would be ideal for transistor bias regulator circuit.

It amazes me that this topic never seems to die and so many opinions on what an MV203 is. As I said I found several different data sheets from different mfg including one that was for a varactor diode. I have seen on other forums where posters have stated pretty emphatically that it is a varactor in the involved Kenwood rig including non Hybrids.

I have not found been able to find the MA27T-B diode yet. If you locate would be interested in what it is.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

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At any rate an MV-203 varactor is not the device to be used in this circuit unless there was another zener device of the same type number. This would be a very big confusion and would render the circuit useless if the wrong type was used. This needs to be regulator device and depending on the revision seems to be either a 1.2V or 2.1V part. Several good options for replacements for either voltage.

73
Larry. KS7J

45178. RE: Re: [TS-520_820_530_830] RE: RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 00:28:34 UTC
From: <wagstw46@...>
Topic: 45103 Message: 45178

I am not criticizing any thing you wrote.

It is just old news and agree should be cleared up, but doubt any sense of urgency to do so. Would hope would be addressed when and if someone has a failed one. I did not detect that you had a bad D22 and was asking what was the sub for it?

There are numerous things in the Files Section that need removed or cleared up. Havent got the time or energy to begin typing that list. As some one said because it is said or written does not make it so. Have to evaluate all based on does it make sense to you and when it does not then surely ask. Asking at time of need might be better use of resources?

I am just trying to say it is not a Varactor diode even though you can clearly find MV-203 data sheets for Varactor diodes which has led some folks on other forums to insist it is a Varactor.

I am saying that I believe it is a Stabistor and not technically a Zener diode, but serves same purpose to provide regulated lower voltage from a higher voltage.

I just wish people would look at circuits and attempt to analyze them in order to determine the what and why related to component selection and config. OK to look up the part number and look at the data sheet and the app notes, but once you have done that does any of that make sense based on your understanding of the circuit.

Perhaps at one time there was a MV-203 Stabistor or perhaps it is just a typo?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 10/07/2013 04:09 PM, wagstw46@... wrote:

>
>
> I forgot to mention if you look at D22 (MV-203) symbol you will see it
> looks like 2 silicon diodes in series and not a varactor diode. Kenwood
> uses the traditional varactor diode symbol quite appropriately for the
> RIT diode in the VFO.
>
>
> Have to ask yourself what level of precision is required for Q25 emitter
> voltage? How precise a reference is necessary for NB gate driver?

Then perhaps the solution to that annotation in the files is to either
remove it entire, or add a note to the thing about this NOT being needed.

I seem to recall (checked, yes it's there) that the note only applies to EARLY models of the 830, before a certain serial number, that were produced WITHOUT the MV-203 zener diode.

Which is what I identified the part as, by the way, a 2.2v ZENER, in the post that started this thread. NOT a varactor. Here is the note copied from the pdf file:

"Note:
Applies to any unit before serial: 2010000*, 1120950*, 1132058*"

If there is already an MV-203 in there, it obviously doesn't NEED one. If it is one of these lower serial numbers, and you're wanting to follow this tech note, then one or another of the cross-referenced diodes, can be used to substitute fot the MV-203.

Now, if some of the possible replacements I listed in the original post are actually varactors instead of zener diodes, that's the fault of the cross-reference I used. It is not intentional at all.

Is that what brought varactors into this in the first place? THAT is what is confusing me. I used a cross-reference database and copied the results into the message. I did NOT put every one of the results back in and pull up a complete data sheet to double-check.

If that is the problem, just say, "Part X is not a zener; it is not a correct replacement part," and go on from there.

Mea Maxima Culpa.

I think that if the pdf file on this (to see the serial number limitations) and the original post (which says that the part needed is a '2.2v zener') were actually -read-, there might be less confusion ongoing.

--
Wes Will

45179. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 17:01:47 UTC
From: Joseph Stiles
Topic: 45103 Message: 45179

OK......this topic is now CLOSED.

   Thanks for your understanding

73 Joe
WB7UQU
Group Co-owner

From: Gordon JC Pearce <gordon@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 9:45 AM
Subject: Re: [TS-520_820_530_830] Following instructions

On Mon, Oct 07, 2013 at 09:28:18AM +0100, kenny wrote:
> Hi what is wrong with CBs,i think must people started from the good old CB days.
> 73s
> Kenny

I bet if you looked at the licence issue dates, you'd see a huge bump in the early-to-mid-80s as people got bored with CB and moved onto bigger and louder toys.

Certainly my late father Ralph GM0EXW got both his B and A licence at roughly the same time as a group of people he knew from his interest in the (old, illegal AM) CB scene. 27MHz wasn't doing it, so it was time to get a licence and use 7MHz instead. That's round about when my interest in the hobby started too, but my mum made it quite clear that I'd be far better off studying for school instead of any amateur radio licence, particularly if I wanted to eat my dinner in the house ;-)

I do sometimes wonder if I'd get quite so much of the "Oh you've got an M callsign so you must have just heard about radio last week, you stupid kid" attitude from people old enough to know better if I re-activate my dad's old GM0 callsign.

--
Gordonjcp MM0YEQ

45180. TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 02:26:21 UTC
From: Craig Roberts
Topic: 45103 Message: 45180

For emergency and portable use, I would like to add a solid state transceiver to my Kenwood TS "collection."

Given that I am now spoiled rotten by the superb performance and quality build of my 530 and 830, what model would you recommend?

73,

Craig
W3CRR
>

45181. Re: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 02:50:41 UTC
From: <wa7zyq@...>
Topic: 45103 Message: 45181

This may not be helpful, and I apologize if that is the case, but the term “portable” should not really be used with any rig that has a built in power supply: TS-930S, TS-850S, TS-940S, etc. I have the TS-930S and when I think of going portable, it comes in near the bottom of the list just before my Drake TR4C. I’ve had a TS-940 and, as I remember, it was heavier than the ‘930S.

Again, just my knee-jerk reaction.

David, WA7ZYQ

From: Craig Roberts
Sent: Monday, October 07, 2013 7:26 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] TS-940 or ???

For emergency and portable use, I would like to add a solid state transceiver to my Kenwood TS "collection."

Given that I am now spoiled rotten by the superb performance and quality build of my 530 and 830, what model would you recommend?

73,

Craig
W3CRR

45182. Re: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 03:20:40 UTC
From: Craig Roberts
Topic: 45103 Message: 45182

True enough, David. Along those same lines, my parents had a GE "portable" TV back in the late 50's. The magazine advertisement for this model showed a pert young lady merrily transporting this thing easily by way of the handy, dandy built-in handle on the top of the stylish two-tone red and cream colored cabinet.

The ad bragged that "It's amazing enough that the General Electric Big Screen Portable is so light. Just 32 pounds so it's easy to carry wherever you want..."

Well, like my 32 pound TS-830S, it felt more like 75 pounds after a minute or two.

Craig
W3CRR

45183. RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 03:22:57 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45183

I left the tweakier glued to the slug untill i got max signal, then detached it and did the other..then very gently tweeked the first. i didnt remove them. i am hoping they are high enough that they are getting a good bite now on the threads. I have thought about putting a drop of wax down there..but dont want to temp fate. i got my new brass couplers in from Ken. If anything, they are shipping fast now. so now i need to stop at the hardware store and get a long allen wrench. then once the and switch is in, ill put in the new cathode resistors..and hopefully I'll be set for the winter.... cruising the NEW warc bands. LOL

or maybe ill listen to 3 guys talking to a Nazi sub who wants to be taken over by remote control.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand...
and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but,
that doesn't seem to work on these small items

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 9:30 PM
Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Glue trick worked!

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Were you trying to turn them and they just went to the bottom?

It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's

There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool,
making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and
the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY
rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times.

The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the
the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck.

I like the second method better...super glue in a coil form scares the @*#$ outta me.

Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can
to take up some slack, and the wax on the floss acts as a lubricant.

Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem.
They also have slots on both ends...so they can be swapped end for end.

These are the two most common methods...good luck & GO SLOW

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:28 PM
Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need,
especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible.
It was actually rather cheap...$30.00.

Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at
this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune"
my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember...
use "decaf" coffee...those damn blades are sharp!

I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe
some "crud" on the associated band switch contact points...as the "cal signal" I believe is inserted after L-41..(antenna step xfmr)
so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease
as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M

I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve
my recommendation to what my limited knowledge allows me to do

hey Mo.....

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you
will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short
to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece
of plastic rod that you can "custom" make your own...or a nice piece of dowel stock.

I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered
something about a noise blanker a few posts ago.

As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45184. RE: RE: 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 03:30:36 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45184

I had good luck with joes advice on using some super glue on the tip of the tuning tool, and carefully inserting it into the slug's slot. waited longer than normal for the glue to cure, then slowly pull and turn up until the slug came up the can. i also looked at taking the RF board out, but decided that might lead to more problems. I now have 30 meters again.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Joe what's your approach for "unsoldering the can"? If we're talking about the coils on the RF board, then it's always puzzled me how they can be desoldered, as the shafts for PA tuning go through the boards, so looks like major dismantling job to get them out the rig for desoldering. What are other folks doing faced with this? 73s Adrian G4IQW

45185. V06B diodes are in hand.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 03:48:58 UTC
From: Wes Will
Topic: 45055 Message: 45185

The three gents who wanted 'em, check your email.

If the SASE is already on the way, ignore the email. Expect the diodes sent to you the day the envelope arrives. No problem turning it around the same day, they're not exactly tedious to handle...

Terry, if you send me an envelope, I will drop the extras to you in it. Otherwise I'll send them to you at the address listed in the FCC database some time next week early at my expense. (One whole 1st class stamp and an envelope, not exactly a burden.)

--
Wes Will
N9KDY

45186. Re: Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 04:24:43 UTC
From: John Davidson
Topic: 45103 Message: 45186

Wasting time trying to figure out the problem????? Trying to figure out a problem is how you learn. It is never a waste of time !
Wasting time is randomly pushing buttons or probing with a VOM without starting troubleshooting by reading the manuals !
Wasting time is griping about not getting help when you don't understand, instead of listening to advice on how the circuits that are bad are supposed to work.
The last is wasting all who read the posts' time.

From: "w0ppa_jd@charter.net" <w0ppa_jd@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 5:48 PM
Subject: RE: Re: [TS-520_820_530_830] Following instructions

Newbies might ask the questions because the want adivise from those more experienced i. Some may ask the questions so they do not have to waste time trying to figure out the problem. It might be a simple solution to the problem.

You do not need test equipment to be in the radio hobby.

>>Again, I mean no disrespect towards anyone.
>>
>>
>>>
a web post Reply to sender Reply to group Start a New Topic Messages in this topic (8)
Recent Activity: * New Members 5
Visit Your Group

Switch to: Text-Only, Daily Digest • Unsubscribe • Terms of Use • Send us Feedback
.

45187. Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 05:08:35 UTC
From: W LEWIS
Topic: 45055 Message: 45187

Hey Guys,
Just a word to the wise. I recently installed the shaft couplers from Ken in my 830S and was having some issues until I realized that the original nylon couplers used metric set screws and Ken's use SAE. Fortunately I had just purchased a 25 piece Metric/SAE allen wrench set from Harbour Freight for under $10 which made the process fairly easy. Hope I have saved you some frustration.
73,
Butch Lewis
KØPSA

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 10:22 PM
Subject: RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

I left the tweakier glued to the slug untill i got max signal, then detached it and did the other..then very gently tweeked the first. i didnt remove them. i am hoping they are high enough that they are getting a good bite now on the threads. I have thought about putting a drop of wax down there..but dont want to temp fate. i got my new brass couplers in from Ken. If anything, they are shipping fast now. so now i need to stop at the hardware store and get a long allen wrench. then once the and switch is in, ill put in the new cathode resistors..and hopefully I'll be set for the winter.... cruising the NEW warc bands. LOL

  or maybe ill listen to 3 guys talking to a Nazi sub who wants to be taken over by remote control.
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Steve, Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand...and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but,that doesn't seem to work on these small items

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To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 9:30 PM
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Glue trick worked!
---In TS-520_820_530_830@...m, <ts-520_820_530_830@yahoogroups.com> wrote:
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Sent: Sunday, October 6, 2013 4:28 PM
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I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
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73 JoeWB7UQU

From: "yioutta_99@..." <yioutta_99@...>
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Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45188. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 06:35:56 UTC
From: Gordon JC Pearce
Topic: 45103 Message: 45188

On Tue, Oct 08, 2013 at 10:59:36AM +1300, clifford wright wrote:
> The whole original idea of Ham radio was to train people in radio
> technology and allow them to transmit
> on what was then considered less useful frequencies. It was expected
> that most Hams would build at least
> some of their own equipment.

In the UK amateurs with Foundation licences (M3/M6 calls) aren't allowed to operate homebrew transmitters (but you can use one built from a commercial kit). In order to get the Intermediate licence you *must* build an operable radio-related project. There's nothing to say what it has to be or how complex, but most people I know have built one of the many SDR kits or a QRP transceiver kit. I know one local(-ish) amateur who transmits *less* since he passed his Intermediate, and spends most of his time playing with regenerative HF receivers since he got the bug by building one from a magazine article for his Intermediate project - I guess it's true, we do learn more by listening.

Of course there's another amateur I hear (and talk to) who has been a commercial HF op for years, and having retired is quite content to stuff his licence limit 10W into the horking great rhombic he has up. From the opposite end of the UK he is just about the loudest guy on 40m. Wouldn't it be nice to have the space to get that much wire up?

--
Gordonjcp MM0YEQ

45189. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 06:55:42 UTC
From: Joe - W7RKN
Topic: 45103 Message: 45189

"HORKING"??!!!

LOL!

Joe - W7RKN

----- Original Message -----
From: "Gordon JC Pearce" <gordon@...>
Subject: Re: [TS-520_820_530_830] Following instructions

> Of course there's another amateur I hear (and talk to) who has been a
> commercial HF op for years, and having retired is quite content to stuff
> his licence limit 10W into the horking great rhombic he has up. From the
> opposite end of the UK he is just about the loudest guy on 40m. Wouldn't
> it be nice to have the space to get that much wire up?

45190. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-07 22:30:30 UTC
From: Joseph Stiles
Topic: 45103 Message: 45190

Greetings Group,

Yes, I did approve this message to be posted...my error... I stated prior, that this subject is CLOSED

This is the last message regarding this topic. Feel free to communicate "off list."

We now return you to our regular scheduled programming.....

73 Joe
WB7UQU
Group Co-owner

From: clifford wright <c.c.wright@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 2:59 PM
Subject: Re: [TS-520_820_530_830] Following instructions

The thing is Kenny, to be an old time CB'er you needed no exam and were limited to about 5 watts (legally)
on the 27 Mhz band. Comparing it to the idea of "proper" Ham radio is rather like comparing a Cessna
to a Eurofighter.
The whole original idea of Ham radio was to train people in radio technology and allow them to transmit
on what was then considered less useful frequencies. It was expected that most Hams would build at least
some of their own equipment.
CB was simply about the ancient equivalent of texting.
ZL1BDA

45191. Re: [TS-520_820_530_830] Following instructions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 11:59:30 UTC
From: Mike
Topic: 45103 Message: 45191

If you want to continue discussing this subject do it through private email, NOT on the group.

Mike W5RKL
Group Moderator

On 10/8/2013 1:35 AM, Gordon JC Pearce wrote:
>
> On Tue, Oct 08, 2013 at 10:59:36AM +1300, clifford wright wrote:
> > The whole original idea of Ham radio was to train people in radio
> > technology and allow them to transmit
> > on what was then considered less useful frequencies. It was expected
> > that most Hams would build at least
> > some of their own equipment.
>
> In the UK amateurs with Foundation licences (M3/M6 calls) aren't
> allowed to operate homebrew transmitters (but you can use one built
> from a commercial kit). In order to get the Intermediate licence you
> *must* build an operable radio-related project. There's nothing to say
> what it has to be or how complex, but most people I know have built
> one of the many SDR kits or a QRP transceiver kit. I know one
> local(-ish) amateur who transmits *less* since he passed his
> Intermediate, and spends most of his time playing with regenerative HF
> receivers since he got the bug by building one from a magazine article
> for his Intermediate project - I guess it's true, we do learn more by
> listening.
>
> Of course there's another amateur I hear (and talk to) who has been a
> commercial HF op for years, and having retired is quite content to
> stuff his licence limit 10W into the horking great rhombic he has up.
> From the opposite end of the UK he is just about the loudest guy on
> 40m. Wouldn't it be nice to have the space to get that much wire up?
>
> --
> Gordonjcp MM0YEQ
>
>

45192. RE: RE: Re: [TS-520_820_530_830] RE: RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 13:51:38 UTC
From: <wagstw46@...>
Topic: 45103 Message: 45192

Sorry forgot the data sheet for the 1N4157 diode

http://www.littlediode.com/datasheets/pdf/Datasheets-1N4/1N4157.PDF
http://www.littlediode.com/datasheets/pdf/Datasheets-1N4/1N4157.PDF

Here is explanation of how 4 series connected silicon diodes can provide reasonable 2.8vdc regulated from 12vdc source up to approx 20ma load. So it would seem that two would provide approx 1.4vdc and 3 would provide approx 2.1vdc.

http://www-personal.engin.umd.umich.edu/~fmeral/ELECTRONICS%20II/01%25c3-Misc%20Notes/Diode%20Voltage%20Regulator.pdf http://www-personal.engin.umd.umich.edu/~fmeral/ELECTRONICS%20II/01%25c3-Misc%20Notes/Diode%20Voltage%20Regulator.pdf

I think pretty safe to assume that MV-203 is a Forward Regulator Diode or a Stabistor.

Google is our friend!

I just never pulled the string very hard as I say have never seen a bad one.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am not criticizing any thing you wrote.

It is just old news and agree should be cleared up, but doubt any sense of urgency to do so. Would hope would be addressed when and if someone has a failed one. I did not detect that you had a bad D22 and was asking what was the sub for it?

There are numerous things in the Files Section that need removed or cleared up. Havent got the time or energy to begin typing that list. As some one said because it is said or written does not make it so. Have to evaluate all based on does it make sense to you and when it does not then surely ask. Asking at time of need might be better use of resources?

I am just trying to say it is not a Varactor diode even though you can clearly find MV-203 data sheets for Varactor diodes which has led some folks on other forums to insist it is a Varactor.

I am saying that I believe it is a Stabistor and not technically a Zener diode, but serves same purpose to provide regulated lower voltage from a higher voltage.

I just wish people would look at circuits and attempt to analyze them in order to determine the what and why related to component selection and config. OK to look up the part number and look at the data sheet and the app notes, but once you have done that does any of that make sense based on your understanding of the circuit.

Perhaps at one time there was a MV-203 Stabistor or perhaps it is just a typo?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 10/07/2013 04:09 PM, wagstw46@... mailto:wagstw46@... wrote:
>
>
> I forgot to mention if you look at D22 (MV-203) symbol you will see it
> looks like 2 silicon diodes in series and not a varactor diode. Kenwood
> uses the traditional varactor diode symbol quite appropriately for the
> RIT diode in the VFO.
>
>
> Have to ask yourself what level of precision is required for Q25 emitter
> voltage? How precise a reference is necessary for NB gate driver?

Then perhaps the solution to that annotation in the files is to either remove it entire, or add a note to the thing about this NOT being needed.

I seem to recall (checked, yes it's there) that the note only applies to EARLY models of the 830, before a certain serial number, that were produced WITHOUT the MV-203 zener diode.

Which is what I identified the part as, by the way, a 2.2v ZENER, in the post that started this thread. NOT a varactor. Here is the note copied from the pdf file:

"Note:
Applies to any unit before serial: 2010000*, 1120950*, 1132058*"

If there is already an MV-203 in there, it obviously doesn't NEED one. If it is one of these lower serial numbers, and you're wanting to follow this tech note, then one or another of the cross-referenced diodes, can be used to substitute fot the MV-203.

Now, if some of the possible replacements I listed in the original post are actually varactors instead of zener diodes, that's the fault of the cross-reference I used. It is not intentional at all.

Is that what brought varactors into this in the first place? THAT is what is confusing me. I used a cross-reference database and copied the results into the message. I did NOT put every one of the results back in and pull up a complete data sheet to double-check.

If that is the problem, just say, "Part X is not a zener; it is not a correct replacement part," and go on from there.

Mea Maxima Culpa.

I think that if the pdf file on this (to see the serial number limitations) and the original post (which says that the part needed is a '2.2v zener') were actually -read-, there might be less confusion ongoing.

--
Wes Will

45193. RE: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 14:43:29 UTC
From: Brad Allen
Topic: 45103 Message: 45193

A Kenwood 940 and an optional crane. Real radio's have meat and build strong bodies 12 ways, Got Milk! Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Craig Roberts
Sent: Monday, October 07, 2013 10:26 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] TS-940 or ???

For emergency and portable use, I would like to add a solid state transceiver to my Kenwood TS "collection."

Given that I am now spoiled rotten by the superb performance and quality build of my 530 and 830, what model would you recommend?

73,

Craig
W3CRR
<http://geo.yahoo.com/serv?s=97359714/grpId=7525021/grpspId=1705063108/msgId=45178/stime=1381192114>

45194. Re: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 14:52:10 UTC
From: Jim S
Topic: 45103 Message: 45194

Gotta love those 50s era women ! ! !

Jim AG3Y

On 10/7/2013 11:20 PM, Craig Roberts wrote:
>
> True enough, David. Along those same lines, my parents had a GE
> "portable" TV back in the late 50's. The magazine advertisement for
> this model showed a pert young lady merrily transporting this thing
> easily by way of the handy, dandy built-in handle on the top of the
> stylish two-tone red and cream colored cabinet.
>
> The ad bragged that "It's amazing enough that the General Electric Big
> Screen Portable is so light. Just 32 pounds so it's easy to carry
> wherever you want..."
>
> Well, like my 32 pound TS-830S, it felt more like 75 pounds after a
> minute or two.
>
> Craig
> W3CRR
>
>
>

45195. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 14:55:40 UTC
From: Jim S
Topic: 45055 Message: 45195

I used to put a layer of bond paper down in the hole, and then screw the slug down on to the paper. You only need a strip about an eighth of an inch wide for those smaller slugs and a quarter inch for the larger ones, as a rule.

Jim AG3Y

On 10/7/2013 11:22 PM, yioutta_99@... wrote:
>
> I left the tweakier glued to the slug untill i got max signal, then
> detached it and did the other..then very gently tweeked the first. i
> didnt remove them. i am hoping they are high enough that they are
> getting a good bite now on the threads.
>

<snip>

45196. Curious about VOX with an MC-50 mic and TS-820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 15:08:55 UTC
From: <bonnevilleblb@...>
Topic: 45196 Message: 45196

I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings?

Thanks to you guys as usual... and I tried to check in to the Hybrid Net Saturday - I just couldn't get through. I thought conditions were going to be good for me, but I wasn't heard, so I'll try to get through next time.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45197. Re: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 02:34:17 UTC
From: Ron
Topic: 45103 Message: 45197

My back up is the 480

Sent from my iPhone

On Oct 7, 2013, at 9:26 PM, Craig Roberts <crgrbrts@...> wrote:

>
>
>
> For emergency and portable use, I would like to add a solid state transceiver to my Kenwood TS "collection."
>
> Given that I am now spoiled rotten by the superb performance and quality build of my 530 and 830, what model would you recommend?
>

> 73,
>
> Craig
> W3CRR
>
>
>
>

45198. Re: [TS-520_820_530_830] (unknown)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 13:01:21 UTC
From: Ron
Topic: 45058 Message: 45198

Hey Terry , I have acquired a ts520 that powers on but vfo only comes on with heater switch is on and no power to the finals Any ideas

Sent from my iPhone

On Oct 6, 2013, at 6:52 AM, <wagstw46@...> wrote:

>
>
> I think you are Red and perhaps now Black and Blue!
>
>
>
> Your rig and you can chose to run with heaters on at all times if you want. Folks do but I would not. Lots of rigs with no heater switch. KW provided it to facilitate mobile operation to lessen drain on battery.
>
>
>
> How did you see the plates glowing red? Were you looking inside PA cage for source of relay keying issue?
>
>
>
> Was the radio working in receive mode during this 10 minute period before they turned red?
>
>
>
> If no receive are you sure the relays are not keyed and rig is in standing TX mode?
>
>
>
> If good receive then relays not keyed and about only way for finals to take off in receive mode is a problem with cut off bias.
>
>
>
> Terry
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> thanks for the heads up Terry ,as u know i'm still green !!!!!
>

> From: "wagstw46@..." <wagstw46@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Saturday, October 5, 2013 5:17 PM
> Subject: RE: RE: Re: [TS-520_820_530_830] (unknown)
>
>
>
> When I said "Sorry Mike" I was apologizing to Mike for butting in on his thread.
>
> I was not Chastising Mike in any way. His advice to try keying the rig by grounding mic jack Pin 2 was spot on. If Send switch and mic PTT wont key rig Mikes direction is the next logical step.
>
> I was trying to very quickly get Rons attention to get the damn Heater switch turned off. Why would anyone troubleshooting a rig keying problem have the heater switch on?
>
> And sure didnt want Ron to re-fuse the rig and try burning up the Plate choke or the HV rectifier board, or the Power transformer.
>
> I am sorry and should have let it go. No way for me to know if Mike or anyone else was monitoring and could stop Ron from further damaging his rig. Felt like could not just sit on sideline and watch him do this.
>
> I apologize to Mike if it looked like to one or more of our members that I was chastising Mike. We can all have professional differences but none exist related to this thread.
>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> I am sorry Mike:
>
> TURN THE HEATER SWITCH OFF MAN!
>
> Why would you have the filaments on when troubleshooting a relay keying problem? There is no reason to have the heaters on until a few minutes before ready to load and transmit. Tubes only have so much life and running heaters all the time is not necessary.
>
> If heaters are off then can be no cathode emission and if you lose cut-off or operating bias there will be no Plate current.
>
> Likely you have lost the final tubes. They do not like thermal run away. How did you see the plate glow? Do you have the PA cage cover off? If so why? Have to be very careful with 900vdc present here.
>
> Will let Mike help you trouble shoot this problem as well as the relay keying issues. Not likely related.
>
> Just do not put heaters back on while working on the relay keying problem.

>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> also Mike after it sets on for about 10 min the final tubes glow red and it blows the fuse
>
>
> From: Mike <w5rkl@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Saturday, October 5, 2013 4:44 AM
> Subject: Re: [TS-520_820_530_830] (unknown)
>
>
>
> Hi Ron,
>
> Have you tried grounding pin 2 on the MIC socket to see if the relays energize? Pin 2 on the MIC socket is in parallel with the SEND switch.
>
> The meter switch settings are not enabled in receive. The 820 has to switch to transmit (relay on the RELAY Unit) must energize for the meter switch settings to work.
>
> 73
> Mike W5RKL
>
> On 10/4/2013 10:04 PM, Ronald Robinson wrote:
>> new to me ---a ts 820s recieve works, ok but no send recieve ,no hv on meter ,no ip on meter, no alc ,i've checked the voltages they are ok , relay is not working when switch is flipped , hv board checked out good any ideas anyone or where to start ? thanks Ron KK4PWF
>
>
>
>
>
>
>
>
>
>
>
>
>

45199. Re: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 17:28:38 UTC
From: Guy Morgan
Topic: 45103 Message: 45199

I have a TS440SAT which I use in the relatively confined space on my boat. It’s a great rig, 12 volt powered and IMHO ideal for portable.

73

Guy – G3POM

From: Ron
Sent: Tuesday, October 8, 2013 3:34 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] TS-940 or ???

My back up is the 480

Sent from my iPhone

On Oct 7, 2013, at 9:26 PM, Craig Roberts <crgrbrts@...> wrote:

For emergency and portable use, I would like to add a solid state transceiver to my Kenwood TS "collection."

Given that I am now spoiled rotten by the superb performance and quality build of my 530 and 830, what model would you recommend?

73,

Craig
W3CRR

45200. Re: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 17:31:58 UTC
From: Joseph Stiles
Topic: 45196 Message: 45200

Barry,

There are no "special" settings. Each operator can and should , adjust the 3 controls to fit the situation.

With rig tuned up on what ever band(license class dependent) ...into a dummy load(preferred)...mode switch to USB or LSB.. turn VOX switch to ON....in a normal voice level..and about 2 or so inches from microphone...turn UP the "VOX GAIN" until the transmitter is keyed...then adjust the "DELAY" so that after about about 0.5 to 1 second after you stop speaking...the transmitter is un-keyed...there is an "anti-vox" adjustment also. read the operators manual...and play with the various adjustments to suit YOUR needs. Just make sure to monitor your AGC level...and adjust that as necessary

73 Joe
WB7UQU

From: "bonnevilleblb@..." <bonnevilleblb@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 8:08 AM
Subject: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820

I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings?

Thanks to you guys as usual... and I tried to check in to the Hybrid Net Saturday - I just couldn't get through. I thought conditions were going to be good for me, but I wasn't heard, so I'll try to get through next time.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45201. Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 17:56:55 UTC
From: Joseph Stiles
Topic: 45055 Message: 45201

Butch,

  I had a doubt about this...so I checked...I have a couple of broken nylon ones(screws still there) and a
couple of "Kens." There is a slight difference as you stated, but my long shaft 1.5MM allen wrench tool(ok...no jokes here)
seems to work just fine on both

73 Joe
WB7UQU

From: W LEWIS <nscb56a@prodigy.net>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, October 7, 2013 10:08 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Hey Guys,
Just a word to the wise. I recently installed the shaft couplers from Ken in my 830S and was having some issues until I realized that the original nylon couplers used metric set screws and Ken's use SAE. Fortunately I had just purchased a 25 piece Metric/SAE allen wrench set from Harbour Freight for under $10 which made the process fairly easy. Hope I have saved you some frustration.
73,
Butch Lewis
KØPSA

From: "yioutta_99@yahoo.com" <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 10:22 PM
Subject: RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

I left the tweakier glued to the slug untill i got max signal, then detached it and did the other..then very gently tweeked the first. i didnt remove them. i am hoping they are high enough that they are getting a good bite now on the threads. I have thought about putting a drop of wax down there..but dont want to temp fate. i got my new brass couplers in from Ken. If anything, they are shipping fast now. so now i need to stop at the hardware store and get a long allen wrench. then once the and switch is in, ill put in the new cathode resistors..and hopefully I'll be set for the winter.... cruising the NEW warc bands. LOL

  or maybe ill listen to 3 guys talking to a Nazi sub who wants to be taken over by remote control.
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve,   Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand... and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but, that doesn't seem to work on these small items

73 Joe WB7UQU

From: "yio! utta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 9:30 PM
Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Glue trick worked!
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve, Were you trying to turn them and they just went to the bottom? It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool, making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times. The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck. I like the second method better...super glue in a coil form scares the @*#$ outta me. Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can to take up some slack, and the wax on the floss acts as a lubricant. Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem. They also have slots on both ends...so they can be swapped end for end. These are the two most common methods...good luck & GO SLOW

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:28 PM
Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are

loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve,   I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need, especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible. It was actually rather cheap...$30.00.   Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune" my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember... use "decaf" coffee...those damn blades are sharp!   I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe some "crud" on the associated band switch contact points...as the "cal signal" I believe
is inserted after L-41..(antenna step xfmr) so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M   I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve my recommendation to what my limited knowledge allows me to do   hey Mo.....

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve,   I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece of plastic rod that you can "custom" make your own...or a nice piece of dowel stock. I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered something about a noise

blanker a few posts ago. As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45202. Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 18:53:59 UTC
From: <rrmvargo@...>
Topic: 45202 Message: 45202

Hi All,
I am trying to fix a donated TS830 that has some display problems & a meter problem. The display is still intermittent & occasionally bright. I still have not found the cold solder joint(s). There is a crack or joint problem somewhere.

As I start tracing wires, I notice Connector 9 on the south top side of the IF board is disconnected. So I connect it & immediately lose all audio. I unplug it & the audio does not return. Now I have bigger fish to fry it looks like. As I look at the online schematics, I can find the connector but cannot read the the detail on either the rendition of the board or the schematic.

Any chance someone has a good pdf copy of both they could send?

Thanx much - 73 Bob V W8RMV

45203. ts 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 18:35:32 UTC
From: <bozo231@...>
Topic: 45203 Message: 45203

any one know what would take out r5-6 on the rectifier board of a 520 ,also what else goes when these go thanks Ron KK4PWF

45204. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:14:50 UTC
From: Mike
Topic: 45055 Message: 45204

I ran into similar issues trying to remove a coupler in a TS-530 where a standard U.S. Precision Craft tool's Hex wrench wouldn't fit/work. The coupler's Hex set screw was obviously metric. I looked for and found a complete set of metric BONDHUS Hex wrenches which contained every metric size, including the 1.5mm Hex wrench, at my local hardware store. The Hex wrench tool set is made by BONDHUS tools.

There may be other metric sets available but the BONDHUS set is what I use which contains the 1.5mm hex wrench.

73
Mike W5RKL

On 10/8/2013 12:56 PM, Joseph Stiles wrote:
> Butch,
>
> I had a doubt about this...so I checked...I have a couple of broken
> nylon ones(screws still there) and a
> couple of "Kens." There is a slight difference as you stated, but my
> long shaft 1.5MM allen wrench tool(ok...no jokes here)
> seems to work just fine on both
> 73 Joe
> WB7UQU
>
> ---
> *From:* W LEWIS <nscb56a@...>
> *To:* "TS-520_820_530_830@yahoogroups.com"
> <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Monday, October 7, 2013 10:08 PM
> *Subject:* Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
> Hey Guys,
> Just a word to the wise. I recently installed the shaft couplers from
> Ken in my 830S and was having some issues until I realized that the
> original nylon couplers used metric set screws and Ken's use SAE.
> Fortunately I had just purchased a 25 piece Metric/SAE allen wrench
> set from Harbour Freight for under $10 which made the process fairly
> easy. Hope I have saved you some frustration.
> 73,
> Butch Lewis
> KØPSA
>
> *From:* "yioutta_99@..." <yioutta_99@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, October 7, 2013 10:22 PM
> *Subject:* RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

> I left the tweakier glued to the slug untill i got max signal, then
> detached it and did the other..then very gently tweeked the first. i
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> getting a good bite now on the threads. I have thought about putting
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> putting the slug back in. Re-install the slug while the can is still
> in your hand... and see if it works...there should be some resistance
> to being turned. I have seen pieces of rubberband used for the same
> purpose but, that doesn't seem to work on these small items
>
> 73 Joe WB7UQU
>
> *From:* "yio! utta_99@..." <yioutta_99@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, October 6, 2013 9:30 PM
> *Subject:* RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
> Glue trick worked!
> ---In TS-520_820_530_830@yahoogroups.com,
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> *From:* "yioutta_99@..." <yioutta_99@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, October 6, 2013 4:28 PM
> *Subject:* RE: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
> Joe,
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>
> 73 Joe WB7UQU
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> *From:* "yioutta_99@..." <yioutta_99@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, October 4, 2013 9:35 PM
> *Subject:* RE: Re: [TS-520_820_530_830] 530s repost
>
> No Joe, I dont get a good cal sig on 30. most other bands are close
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>
> 73 Joe WB7UQU
>
> *From:* "yioutta_99@..." <yioutta_99@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, October 4, 2013 5:58 PM
> *Subject:* [TS-520_820_530_830] 530s repost
>
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> Also 30 meters is very low on recieve, all other bands okay.
> anything there besides an alignment?
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> steve
>
>
>

45205. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:14:57 UTC
From: n6wk@...
Topic: 45202 Message: 45205

http://www.n6wk.com/kenwood/TS-830S-excellent%20schematic.pdf

They don't get much better then this one!

73,
Gordon
N6WK

On 10/8/2013 11:53 AM, rrmvargo@... wrote:
>
> Hi All,
> I am trying to fix a donated TS830 that has some display problems & a
> meter problem. The display is still intermittent& occasionallybright.
> I still have not found the cold solder joint(s).There is a crack or
> joint problem somewhere.
>
> As I start tracing wires, I notice Connector 9 on the south top side
> of the IF board is disconnected. So I connect it & immediately lose
> all audio. I unplug it & the audio does not return. Now I have
> bigger fish to fry it looks like. As I look at the online schematics,
> I can find the connector but cannot read the the detail on either the
> rendition of the board or the schematic.
>
> Any chance someone has a good pdf copy of both they could send?
>
> Thanx much - 73 Bob V W8RMV
>
>

--

45206. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:16:42 UTC
From: Mike
Topic: 45202 Message: 45206

Go to Gordon's website and download the high resolution "color" TS-830
schematic pdf file.

www.n6wk.com/kenwood/

73
Mike W5RKL

On 10/8/2013 1:53 PM, rrmvargo@... wrote:
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> Hi All,
> I am trying to fix a donated TS830 that has some display problems & a
> meter problem. The display is still intermittent& occasionallybright.
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> Thanx much - 73 Bob V W8RMV
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45207. Re: [TS-520_820_530_830] ts 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:21:43 UTC
From: Joseph Stiles
Topic: 45203 Message: 45207

Ron,

Are you for a fact looking at the "rectifier board" vs the "hv board?" as there are R-5's & R-6's on both.

What are the symptoms/complaints that you are inquiring about...and by "take out" ...do you mean..destroyed, broken
or just way high in value?

73 Joe
WB7UQU

From: "bozo231@..." <bozo231@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 11:35 AM
Subject: [TS-520_820_530_830] ts 520

any one know what would take out r5-6 on the rectifier board of a 520 ,also what else goes when these go thanks Ron KK4PWF

45208. Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:22:55 UTC
From: W LEWIS
Topic: 45055 Message: 45208

Hi Joe,
I'm glad that you're not having a problem. My 1.5MM slipped in the brass coupler and that's when I realized that Ken's couplers used SAE.
73,
Butch
KØPSA

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, October 8, 2013 12:56 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Butch, I had a doubt about this...so I checked...I have a couple of broken nylon ones(screws still there) and a couple of "Kens." There is a slight difference as you stated, but my long shaft 1.5MM allen wrench tool(ok...no jokes here)seems to work just fine on both

73 JoeWB7UQU

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To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, October 7, 2013 10:08 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

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To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 9:30 PM
Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Glue trick worked!
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Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

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I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve,   I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need, especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible. It was actually rather cheap...$30.00.   Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune" my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember... use "decaf" coffee...those damn blades are sharp!   I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe some "crud" on the associated band switch contact points...as the "cal signal" I believe
is inserted after L-41..(antenna step xfmr) so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M   I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve my recommendation to what my limited knowledge allows me to do   hey Mo.....

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve,   I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece of plastic rod that you can "custom" make your own...or a nice piece of dowel stock. I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered something about a noise blanker a few posts ago. As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe WB7UQU

_____
From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45209. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:23:03 UTC
From: n6wk@...
Topic: 45202 Message: 45209

Be aware that a couple of connectors can be swapped by mistake. ie..
they will both plug into the other, but that causes problems...LOL
I don't remember off hand if it is 8 & 9 or 11 & 12
Might want to double check them.
There is a "High Resolution" Service manual on my website that allows
you to zoom in pretty nice on the IF board.

73,
Gordon
N6WK

On 10/8/2013 11:53 AM, rrmvargo@... wrote:
>
> Hi All,
> I am trying to fix a donated TS830 that has some display problems & a
> meter problem. The display is still intermittent& occasionallybright.
> I still have not found the cold solder joint(s).There is a crack or
> joint problem somewhere.
>
> As I start tracing wires, I notice Connector 9 on the south top side
> of the IF board is disconnected. So I connect it & immediately lose
> all audio. I unplug it & the audio does not return. Now I have
> bigger fish to fry it looks like. As I look at the online schematics,
> I can find the connector but cannot read the the detail on either the
> rendition of the board or the schematic.
>
> Any chance someone has a good pdf copy of both they could send?
>
> Thanx much - 73 Bob V W8RMV
>
>

--

45210. Re: [TS-520_820_530_830] ts 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:25:14 UTC
From: Mike
Topic: 45203 Message: 45210

Appears that filter capacitors C27 (backwards "D" terminal 22ufd 450VDC) for R5 and C28 (backwards "D" terminal 22ufd 450VDC) for R6 may be shorted internally. You can see this by reviewing the TS-520 schematic. These capacitors are located on the left rear below the VOX Unit and Marker Unit boards.

73
Mike W5RKL

On 10/8/2013 1:35 PM, bozo231@... wrote:
>
> any one know what would take out r5-6 on the rectifier board of a 520
> ,also what else goes when these go thanks Ron KK4PWF
>
>

45211. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:26:39 UTC
From: W LEWIS
Topic: 45055 Message: 45211

Hi Mike,
The reason I bought the Harbour Freight allen set was that was the first one I found with the 1.5MM wrench.
73,
Butch

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 2:14 PM
Subject: Re: [TS-520_820_530_830] 530s repost

I ran into similar issues trying to remove a coupler in a TS-530 where a standard U.S. Precision Craft tool's Hex wrench wouldn't fit/work. The coupler's Hex set screw was obviously metric. I looked for and found a complete set of metric BONDHUS Hex wrenches which contained every metric size, including the 1.5mm Hex wrench, at my local hardware store. The Hex wrench tool set is made by BONDHUS tools.

There may be other metric sets available but the BONDHUS set is
what I use which contains the 1.5mm hex wrench.

73
Mike W5RKL

On 10/8/2013 12:56 PM, Joseph Stiles wrote:

>Butch, I had a doubt about this...so I checked...I have a couple of broken nylon ones(screws still there) and a couple of "Kens." There is a slight difference as you stated, but my long shaft 1.5MM allen wrench tool(ok...no jokes here) seems to work just fine on both
>
>73 Joe WB7UQU
>
>
>
>
>---
> From: W LEWIS mailto:nscb56a@...
>To: mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
>Sent: Monday, October 7, 2013 10:08 PM
>Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
>
>
>
>Hey Guys,
>Just a word to the wise. I recently installed the shaft couplers from Ken in my 830S and

was having some issues until I realized that the original nylon couplers used metric set screws and Ken's use SAE. Fortunately I had just purchased a 25 piece Metric/SAE allen wrench set from Harbour Freight for under $10 which made the process fairly easy. Hope I have saved you some frustration.
>73,
>Butch Lewis
>KÃPSA
>
>
>From: mailto:yioutta_99@yahoo.com mailto:yioutta_99@...
>To: TS-520_820_530_830@...m
>Sent: Monday, October 7, 2013 10:22 PM
>Subject: RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
>
>I left the tweakier glued to the slug untill i got max signal, then detached it and did the other..then very gently tweeked the first. i didnt remove them. i am hoping they are high enough that they are getting a good bite now on the threads. I have thought about putting a drop of wax down there..but dont want to temp fate. i got my new brass couplers in from Ken. If anything, they are shipping fast now. so now i need to stop at the hardware store and get a long allen wrench. then once the and switch is in, ill put in the new cathode resistors..and hopefully I'll be set for the winter.... cruising the NEW warc bands. LOL
>
>
> or maybe ill listen to 3 guys talking to a Nazi sub who wants to be taken over by remote control.
>---In TS-520_820_530_830@yahoogroups.com, mailto:ts-520_820_530_830@yahoogroups.com wrote:
>Steve,   Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand... and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but, that doesn't seem to work on these small items
>
>
>
>73 Joe WB7UQU
>
>
>
>From: "yio! utta_99@..." mailto:yioutta_99@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Sunday, October 6, 2013 9:30 PM
>Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
>
>
>
>Glue trick worked!
>---In TS-520_820_530_830@yahoogroups.com, mailto:ts-520_820_530_830@yahoogroups.com wrote:

>Steve, Were you trying to turn them and they just went to the bottom? It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool, making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times. The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck. I like the second method better...super glue in a coil form scares the @*#$ outta me. Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can to take up some slack, and the wax on the floss acts as a lubricant. Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem. They also have slots on both ends...so they can be swapped end for end. These are the two most common methods...good luck & GO SLOW
>
>
>
>73 Joe WB7UQU
>
>
>
>From: mailto:yioutta_99@... mailto:yioutta_99@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Sunday, October 6, 2013 4:28 PM
>Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost
>
>
>
>
>Joe,
>
>
>The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.
>
>
>any experience with these?
>
>
>steve
>---In TS-520_820_530_830@yahoogroups.com, mailto:ts-520_820_530_830@yahoogroups.com

wrote:
>I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
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>
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>
>
>
>73 Joe WB7UQU
>
>
>
>From: mailto:yioutta_99@... mailto:yioutta_99@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Friday, October 4, 2013 9:35 PM
>Subject: RE: Re: [TS-520_820_530_830] 530s repost
>
>
>
>

>No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"
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>There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?
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>73 Joe WB7UQU
>
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>From: mailto:yioutta_99@... mailto:yioutta_99@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Friday, October 4, 2013 5:58 PM
>Subject: [TS-520_820_530_830] 530s repost
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>
>
>
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>
>
>steve

45212. Re: [TS-520_820_530_830] ts 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:35:47 UTC
From: Mike
Topic: 45203 Message: 45212

Joe and Ron,

I think Ron's looking at the Rectifier Unit's R5 and R6. If R5 and R6 overheat/crack or otherwise fail, it's most likely due to C27 and C28 have shorted internally.

Ron, I also would check D5 and D6 both on the Rectifier Unit. If R5 and R6 on the Rectifier Unit failed due to C27 and C28 shorting internally then more than likely D5 and D6 are also bad, become open. If you measure the voltage at the Rectifier Unit's "210A" and "300A" and at the Junction of D5/R5 and D6/R6 and the voltage at both places is zero then diodes D5 and D6 are open.

C27 and C28 are multiple can capacitors, difficult to find replacements. Most people use individual axial or radial lead capacitor as replacements.

73
Mike W5RKL

On 10/8/2013 2:21 PM, Joseph Stiles wrote:
> Ron,
>
> Are you for a fact looking at the "rectifier board" vs the "hv
> board?" as there are R-5's & R-6's on both.
>
> What are the symptoms/complaints that you are inquiring about...and
> by "take out" ...do you mean..destroyed, broken
> or just way high in value?
>
> 73 Joe
> WB7UQU
>
> ---
> *From:* "bozo231@..." <bozo231@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, October 8, 2013 11:35 AM
> *Subject:* [TS-520_820_530_830] ts 520
>
> any one know what would take out r5-6 on the rectifier board of a 520
> ,also what else goes when these go thanks Ron KK4PWF
>
>
>

45213. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:36:20 UTC
From: Joseph Stiles
Topic: 45202 Message: 45213

Gordon & group,

  Gordon, you are correct on both counts.....8 & 9 and 11& 12 could possibly be swapped by mistake,

    Connector #8 should be: blue, brown, yellow, orange, red wires

    Connector#11 should be: violet, violet, black, white wires.

    The color of the wires are the ones that are right at the connector...note: that on connectors 11, 12, & 9, the wires change
color just prior to getting to the connector. That's why it's a real good idea to mark the connectors or... document is some other way.

73 Joe
WB7UQU

From: "n6wk@..." <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 12:23 PM
Subject: Re: [TS-520_820_530_830] Connector 9

Be aware that a couple of connectors can be swapped by mistake. ie.. they will both plug into the other, but that causes problems...LOL
I don't remember off hand if it is 8 & 9 or 11 & 12
Might want to double check them.
There is a "High Resolution" Service manual on my website that
allows you to zoom in pretty nice on the IF board.

73,
Gordon
N6WK

On 10/8/2013 11:53 AM, rrmvargo@... wrote:

>Hi All,
>I am trying to fix a donated TS830 that has some display
problems & a meter problem.   The display is still intermittent& occasionallybright. I still have not found the cold solder joint(s). There is a crack or joint problem somewhere.
>
>As I start tracing wires, I notice Connector 9 on the south top side of the IF board is disconnected. So I connect it & immediately lose all audio. I unplug it & the audio does not return. Now I have bigger fish to fry it looks like. As I look at the online schematics, I can find the connector but cannot read the the detail on either the rendition of the board or the schematic.

>
>Any chance someone has a good pdf copy of both they could
send?
>
>Thanx much - 73 Bob V W8RMV

--

45214. RE: Curious about VOX with an MC-50 mic and TS-820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:44:13 UTC
From: <bonnevilleblb@...>
Topic: 45196 Message: 45214

Thanks very much, Joe. I'll check it out tonight. Sounds easy enough!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Barry,

There are no "special" settings. Each operator can and should , adjust the 3 controls to fit the situation.

With rig tuned up on what ever band(license class dependent) ...into a dummy load(preferred)...mode switch to USB or LSB.. turn VOX switch to ON....in a normal voice level..and about 2 or so inches from microphone...turn UP the "VOX GAIN" until the transmitter is keyed...then adjust the "DELAY" so that after
about about 0.5 to 1 second after you stop speaking...the transmitter is un-keyed...there is an "anti-vox" adjustment also. read the operators
manual...and play with the various adjustments to suit YOUR needs. Just make sure to monitor your AGC level...and adjust that as necessary

73 Joe
WB7UQU

From: "bonnevilleblb@..." <bonnevilleblb@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 8:08 AM
Subject: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820

I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings?

Thanks to you guys as usual... and I tried to check in to the Hybrid Net Saturday - I just couldn't get through. I thought conditions were going to be good for me, but I wasn't heard, so I'll try to get through next time.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45215. RE: Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 19:48:24 UTC
From: <rrmvargo@...>
Topic: 45202 Message: 45215

Hi Gordon & Mike,

What took you so long? ;-) Thanx for the very quick responses!! You guys must work at Jimmy Johns. I'll take a look.

And I noticed no. 8 looks exactly like No. 9 & is very close. Unfortunately the wired connectors aren't numbered!

73 - Bob V W8RMV

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Be aware that a couple of connectors can be swapped by mistake. ie.. they will both plug into the other, but that causes problems...LOL
I don't remember off hand if it is 8 & 9 or 11 & 12
Might want to double check them.
There is a "High Resolution" Service manual on my website that allows you to zoom in pretty nice on the IF board.

73,
Gordon
N6WK

On 10/8/2013 11:53 AM, rrmvargo@... mailto:rrmvargo@... wrote:

Hi All,
I am trying to fix a donated TS830 that has some display problems & a meter problem. The display is still intermittent & occasionally bright. I still have not found the cold solder joint(s). There is a crack or joint problem somewhere.

As I start tracing wires, I notice Connector 9 on the south top side of the IF board is disconnected. So I connect it & immediately lose all audio. I unplug it & the audio does not return. Now I have bigger fish to fry it looks like. As I look at the online schematics, I can find the connector but cannot read the the detail on either the rendition of the board or the schematic.

Any chance someone has a good pdf copy of both they could send?

Thanx much - 73 Bob V W8RMV

--

45216. RE: Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 20:28:57 UTC
From: <rrmvargo@...>
Topic: 45202 Message: 45216

Joe & et al,
Thank you for this detail. Well the connectors are in the right places based on the new info. And after letting the 830 sit for awhile, the audio is back!! But as soon as I plug in #9 again it goes deaf. So the "simple" display & meter repairs have morphed into a lot more.

I am trying to d/l the HD SM but it is slow. The schematic came right thru. Looks like #9 (SSB,SM,VX1,G,RB2) connects to the audio board. More investigation!

Thanx again TO all who pitched in. 73 Bob V W8RMV

TRIMMED....

45217. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 21:35:47 UTC
From: W2FID
Topic: 45202 Message: 45217

HI GORDON:
IS THERE A HI RESOLUTION SCHEMATIC LIKE THIS ONE FOR THE TS530?
THE EYES ARE NOT WHAT THEY USED TO BE.
THANKS
73,
MARSHALL
W2FID

From: "n6wk@..." <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 3:14 PM
Subject: Re: [TS-520_820_530_830] Connector 9

http://www.n6wk.com/kenwood/TS-830S-excellent%20schematic.pdf

They don't get much better then this one!

73,
Gordon
N6WK

On 10/8/2013 11:53 AM, rrmvargo@... wrote:

>Hi All,
>I am trying to fix a donated TS830 that has some display problems & a meter problem. The display is still intermittent& occasionallybright. I still have not found the cold solder joint(s). There is a crack or joint problem somewhere.
>
>As I start tracing wires, I notice Connector 9 on the south top side of the IF board is disconnected. So I connect it & immediately lose all audio. I unplug it & the audio does not return. Now I have bigger fish to fry it looks like. As I look at the online schematics, I can find the connector but cannot read the the detail on either the rendition of the board or the schematic.
>
>Any chance someone has a good pdf copy of both they could send?
>
>Thanx much - 73 Bob V W8RMV
--

45218. Re: [TS-520_820_530_830] RE: Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 21:59:37 UTC
From: n6wk@...
Topic: 45202 Message: 45218

Bob,
The service manual is pretty big, but worth the Download.
The size is why it's so slow. I have 20Mbps speed, so it doesn't take
long for me..hi hi..

73,
Gordon
N6WK

On 10/8/2013 1:28 PM, rrmvargo@... wrote:
>
> Joe & et al,
> Thank you for this detail. Well the connectors are in the right
> places based on the new info. And after letting the 830 sit for
> awhile, the audio is back!! But as soon as I plug in #9 again it goes
> deaf. So the "simple" display & meter repairs have morphed into a lot
> more.
>
> I am trying to d/l the HD SM but it is slow. The schematic came right
> thru. Looks like #9 (SSB,SM,VX1,G,RB2) connects to the audio board.
> More investigation!
>
> Thanx again TO all who pitched in. 73 Bob V W8RMV
>
> TRIMMED....
>

--

45219. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 22:31:43 UTC
From: n6wk@...
Topic: 45202 Message: 45219

Hi Marshall,
This is the Best one I have.
http://www.n6wk.com/kenwood/TS-530S_Service.pdf
It's around 17 megs in size. but is the whole Service manual. The
schematic blows up well in this one.
I do not have a separate Schematic for the 530 like the one for the 830.

73,
Gordon
N6WK

On 10/8/2013 2:35 PM, W2FID wrote:
> HI GORDON:
> IS THERE A HI RESOLUTION SCHEMATIC LIKE THIS ONE FOR THE TS530?
> THE EYES ARE NOT WHAT THEY USED TO BE.
> THANKS
> 73,
> MARSHALL
> W2FID
>
> *From:* "n6wk@..." <n6wk@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, October 8, 2013 3:14 PM
> *Subject:* Re: [TS-520_820_530_830] Connector 9
> http://www.n6wk.com/kenwood/TS-830S-excellent%20schematic.pdf
>
> They don't get much better then this one!
>
> 73,
> Gordon
> N6WK
>
>
> On 10/8/2013 11:53 AM, rrmvargo@... <mailto:rrmvargo@...> wrote:
>> Hi All,
>> I am trying to fix a donated TS830 that has some display problems & a
>> meter problem. The display is still intermittent& occasionallybright.
>> I still have not found the cold solder joint(s).There is a crack or
>> joint problem somewhere.
>>
>> As I start tracing wires, I notice Connector 9 on the south top side
>> of the IF board is disconnected. So I connect it & immediately lose
>> all audio. I unplug it & the audio does not return. Now I have
>> bigger fish to fry it looks like. As I look at the online
>> schematics, I can find the connector but cannot read the the detail

>> on either the rendition of the board or the schematic.
>>
>> Any chance someone has a good pdf copy of both they could send?
>>
>> Thanx much - 73 Bob V W8RMV
> --
>
>
>
>

--

45220. RE: RE: Re: [TS-520_820_530_830] RE: RE: Re: Addendum to one of the files in the file list - 830 diodes pdf.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 13:44:05 UTC
From: <wagstw46@...>
Topic: 45103 Message: 45220

Here is what I think would replace your failed TS-830 D22 or your TS-530 D20 whether it is a speced as a MV-203 or MV-13 Stabistor.

Read the Design Data for explanation of what it is and how it works. Look at Table 2 at 1ma current and you can see that it will provide the 2.05 vdc NBV voltage that I have measured on more than one TS-830. I have not measured NBV on working TS-530.

I have not performed an exhaustive search but I believe that this device is obsolete? NTE calls out a NTE-177 silicon diode as a sub and that wont work unless you series them.

So if D20 or D22 has failed on your rig and you cant find a 1n4157 I would experiment with an orange LED or series string of silicon diodes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am not criticizing any thing you wrote.

It is just old news and agree should be cleared up, but doubt any sense of urgency to do so. Would hope would be addressed when and if someone has a failed one. I did not detect that you had a bad D22 and was asking what was the sub for it?

There are numerous things in the Files Section that need removed or cleared up. Havent got the time or energy to begin typing that list. As some one said because it is said or written does not make it so. Have to evaluate all based on does it make sense to you and when it does not then surely ask. Asking at time of need might be better use of resources?

I am just trying to say it is not a Varactor diode even though you can clearly find MV-203 data sheets for Varactor diodes which has led some folks on other forums to insist it is a Varactor.

I am saying that I believe it is a Stabistor and not technically a Zener diode, but serves same purpose to provide regulated lower voltage from a higher voltage.

I just wish people would look at circuits and attempt to analyze them in order to determine the what and why related to component selection and config. OK to look up the part number and look at the data sheet and the app notes, but once you have done that does any of that make sense based on your understanding of the circuit.

Perhaps at one time there was a MV-203 Stabistor or perhaps it is just a typo?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 10/07/2013 04:09 PM, wagstw46@... mailto:wagstw46@... wrote:
>
>
> I forgot to mention if you look at D22 (MV-203) symbol you will see it
> looks like 2 silicon diodes in series and not a varactor diode. Kenwood
> uses the traditional varactor diode symbol quite appropriately for the
> RIT diode in the VFO.
>
>
> Have to ask yourself what level of precision is required for Q25 emitter
> voltage? How precise a reference is necessary for NB gate driver?

Then perhaps the solution to that annotation in the files is to either remove it entire, or add a note to the thing about this NOT being needed.

I seem to recall (checked, yes it's there) that the note only applies to EARLY models of the 830, before a certain serial number, that were produced WITHOUT the MV-203 zener diode.

Which is what I identified the part as, by the way, a 2.2v ZENER, in the post that started this thread. NOT a varactor. Here is the note copied from the pdf file:

"Note:
Applies to any unit before serial: 2010000*, 1120950*, 1132058*"

If there is already an MV-203 in there, it obviously doesn't NEED one. If it is one of these lower serial numbers, and you're wanting to follow this tech note, then one or another of the cross-referenced diodes, can be used to substitute fot the MV-203.

Now, if some of the possible replacements I listed in the original post are actually varactors instead of zener diodes, that's the fault of the cross-reference I used. It is not intentional at all.

Is that what brought varactors into this in the first place? THAT is what is confusing me. I used a cross-reference database and copied the results into the message. I did NOT put every one of the results back in and pull up a complete data sheet to double-check.

If that is the problem, just say, "Part X is not a zener; it is not a correct replacement part," and go on from there.

Mea Maxima Culpa.

I think that if the pdf file on this (to see the serial number limitations) and the original post (which says that the part needed is a '2.2v zener') were actually -read-, there might be less confusion ongoing.

--
Wes Will

45221. Re: [TS-520_820_530_830] Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 23:08:09 UTC
From: W2FID
Topic: 45202 Message: 45221

THANK YOU GORDON. I'LL CHECK IT OUT.
MARSHALL
W2FID

From: "n6wk@..." <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 6:31 PM
Subject: Re: [TS-520_820_530_830] Connector 9

Hi Marshall,
 This is the Best one I have. http://www.n6wk.com/kenwood/TS-530S_Service.pdf
It's around 17 megs in size. but is the whole Service manual. The schematic blows up well in this one.
I do not have a separate Schematic for the 530 like the one for the 830.

73,
Gordon
N6WK

On 10/8/2013 2:35 PM, W2FID wrote:

>HI GORDON:
>IS THERE A HI RESOLUTION SCHEMATIC LIKE THIS ONE FOR THE TS530?
>THE EYES ARE NOT WHAT THEY USED TO BE.
>THANKS
>73,
>MARSHALL
>W2FID
>
>
>From: mailto:n6wk@... mailto:n6wk@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Tuesday, October 8, 2013 3:14 PM
>Subject: Re: [TS-520_820_530_830] Connector 9
>
>
>http://www.n6wk.com/kenwood/TS-830S-excellent%20schematic.pdfThey don't get much better then this one!73,GordonN6WK
>On 10/8/2013 11:53 AM, rrmvargo@... wrote:
>
>
>>Hi All,I am trying to fix a donated TS830 that has some display problems & a meter problem.   The display is still intermittent& occasionallybright. I still have not found the cold solder joint(s). There is a crack or joint problem somewhere.
>>

>>As I start tracing wires, I notice Connector 9 on the south top side of the IF board is disconnected. So I connect it & immediately lose all audio. I unplug it & the audio does not return. Now I have bigger fish to fry it looks like. As I look at the online schematics, I can find the connector but cannot read the the detail on either the rendition of the board or the schematic. Any chance someone has a good pdf copy of both they could send? Thanx much - 73 Bob V W8RMV
>--
--

45222. RE: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-08 23:38:08 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45222

I looked for a long 1.5 m but my local hard ware store only had the small short type. It worked okay for me. I did clamp it in a forceps which helped a bit. But the wrench was only 50 cents

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Joe,
I'm glad that you're not having a problem. My 1.5MM slipped in the brass coupler and that's when I realized that Ken's couplers used SAE.
73,
Butch
KØPSA

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, October 8, 2013 12:56 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Butch, I had a doubt about this...so I checked...I have a couple of broken nylon ones(screws still there) and a couple of "Kens." There is a slight difference as you stated, but my long shaft 1.5MM allen wrench tool(ok...no jokes here) seems to work just fine on both

73 Joe WB7UQU

From: W LEWIS <nscb56a@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, October 7, 2013 10:08 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Hey Guys,
Just a word to the wise. I recently installed the shaft couplers from Ken in my 830S and was having some issues until I realized that the original nylon couplers used metric set screws and Ken's use SAE. Fortunately I had just purchased a 25 piece Metric/SAE allen wrench set from Harbour Freight for under $10 which made the process fairly easy. Hope I have saved you some frustration.
73,
Butch Lewis
KØPSA

From: "yioutta_99@..." <yioutta_99@...> To: TS-520_820_530_830@yahoogroups.com Sent: Monday, October 7, 2013 10:22 PM Subject: RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
I left the tweakier glued to the slug untill i got max signal, then detached it and did the other..then very gently tweeked the first. i didnt remove them. i am hoping they are high enough that they are getting a good bite now on the threads. I have thought about putting a drop of wax down there..but dont want to temp fate. i got my new brass couplers in from Ken. If anything, they are shipping fast now. so now i need to stop at the hardware store

and get a long allen wrench. then once the and switch is in, ill put in the new cathode resistors..and hopefully I'll be set for the winter.... cruising the NEW warc bands. LOL

or maybe ill listen to 3 guys talking to a Nazi sub who wants to be taken over by remote control.
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve, Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand... and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but, that doesn't seem to work on these small items

73 Joe WB7UQU

From: "yio! utta_99@..." <yioutta_99@...> To: TS-520_820_530_830@yahoogroups.com Sent: Sunday, October 6, 2013 9:30 PM Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost
Glue trick worked!
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve, Were you trying to turn them and they just went to the bottom? It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool, making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times. The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck. I like the second method better...super glue in a coil form scares the @*#$ outta me. Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can to take up some slack, and the wax on the floss acts as a lubricant. Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem. They also have slots on both ends...so they can be swapped end for end. These are the two most common methods...good luck & GO SLOW

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...> To: TS-520_820_530_830@yahoogroups.com Sent: Sunday, October 6, 2013 4:28 PM Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost
Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote: I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote: Steve, I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need, especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible. It was actually rather cheap...$30.00. Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune" my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember... use "decaf" coffee...those damn blades are sharp! I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe some "crud" on the associated band switch contact points...as the "cal signal" I believe is inserted after L-41..(antenna step xfmr) so should eliminate that as a possible problem. What is the difference between the "S" meter readings? They will tend to decrease as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve my recommendation to what my limited knowledge allows me to do hey Mo.....

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...> To: TS-520_820_530_830@yahoogroups.com Sent: Friday, October 4, 2013 9:35 PM Subject: RE: Re: [TS-520_820_530_830] 530s repost
No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote: Steve, I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or

craft store and look for a piece of plastic rod that you can "custom" make your own...or a nice piece of dowel stock. I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered something about a noise blanker a few posts ago. As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...> To: TS-520_820_530_830@yahoogroups.com Sent: Friday, October 4, 2013 5:58 PM Subject: [TS-520_820_530_830] 530s repost
Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45223. R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 00:31:39 UTC
From: <famtech@...>
Topic: 45223 Message: 45223

Here's an interesting issue regarding my R-599D/T-599D "Twins". When the R-599D is turned on, sensitivity is as it should be but when I key the T-599D on any band, upon going back to receive, the sensitivity of the R-599D drops-off. Sometimes after awhile, the receiver's gain will creep back to normal. Powering the receiver off and then back on will also restore normal gain too. The AGC voltage feeding the front-end RF board (X44-0020-00) tracks normally. Since I had some 1N60 diodes around, I replaced the protection diodes D1 and D2 in the antenna input circuit. I think my next step could be a "stressed" 3SK22 MOSFET first RF amp. Before I start tearing more into this, has anyone ran into this little issue before with their Twins ?? Receiver gain recovery after transmit ?? My first impression is that there aren't that many "Twins" out there still in the wild. Not as many as the transceivers for sure. After all these years, still a joy to operate and still get great signal reports.

Regards,

Jim L.

45224. RE: Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 00:50:53 UTC
From: <rrmvargo@...>
Topic: 45202 Message: 45224

Hi Gordon,
Not a speed issue I don't thing because I have 30MBS, it just doesn't seem to come down. I tried my MAC & my W8 machine & neither will download it. I get the first few pages & then it stalls. I have no problems at other sites, but it still could be a Charter cable issue. I'll try it again tomorrow.

73 - Bob W8RMV

---In ts-520_820_530_830@yahoogroups.com, <n6wk@...> wrote:

Bob,
The service manual is pretty big, but worth the Download.
The size is why it's so slow. I have 20Mbps speed, so it doesn't take long for me..hi hi..

73,
Gordon
N6WK

On 10/8/2013 1:28 PM, rrmvargo@... mailto:rrmvargo@... wrote:

Joe & et al,
Thank you for this detail. Well the connectors are in the right places based on the new info. And after letting the 830 sit for awhile, the audio is back!! But as soon as I plug in #9 again it goes deaf. So the "simple" display & meter repairs have morphed into a lot more.

I am trying to d/l the HD SM but it is slow. The schematic came right thru. Looks like #9 (SSB,SM,VX1,G,RB2) connects to the audio board. More investigation!

Thanx again TO all who pitched in. 73 Bob V W8RMV

TRIMMED....

--

45225. Re: [TS-520_820_530_830] ts 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 03:22:53 UTC
From: Ron
Topic: 45203 Message: 45225

Ok thanks a bunch for the info!!!!! And yes I was looking at the rectifier board , I don't have any symptoms yet just found these fried upon a visual. Insp , Ron kk4pwf

Sent from my iPhone

On Oct 8, 2013, at 3:35 PM, Mike <w5rkl@...> wrote:

>
>
> Joe and Ron,
>
> I think Ron's looking at the Rectifier Unit's R5 and R6. If R5 and R6 overheat/crack or otherwise fail, it's most likely due to C27 and C28 have shorted internally.
>
> Ron, I also would check D5 and D6 both on the Rectifier Unit. If R5 and R6 on the Rectifier Unit failed due to C27 and C28 shorting internally then more than likely D5 and D6 are also bad, become open. If you measure the voltage at the Rectifier Unit's "210A" and "300A" and at the Junction of D5/R5 and D6/R6 and the voltage at both places is zero then diodes D5 and D6 are open.
>
> C27 and C28 are multiple can capacitors, difficult to find replacements. Most people use individual axial or radial lead capacitor as replacements.
>
> 73
> Mike W5RKL
>
> On 10/8/2013 2:21 PM, Joseph Stiles wrote:
>> Ron,
>>
>> Are you for a fact looking at the "rectifier board" vs the "hv board?" as there are R-5's & R-6's on both.
>>
>> What are the symptoms/complaints that you are inquiring about...and by "take out" ...do you mean..destroyed, broken
>> or just way high in value?
>>
>>
>> 73 Joe
>> WB7UQU
>>
>> From: "bozo231@..." <bozo231@...>
>> To: TS-520_820_530_830@yahoogroups.com
>> Sent: Tuesday, October 8, 2013 11:35 AM
>> Subject: [TS-520_820_530_830] ts 520
>>
>>

>> any one know what would take out r5-6 on the rectifier board of a 520 ,also what else goes when these go thanks Ron KK4PWF
>
>
>
>

45226. Re: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 03:47:13 UTC
From: Joseph Stiles
Topic: 45055 Message: 45226

another place to find long tools...metric/sae... is the local hobby store...especially if they have a good sized RC car section

but, you'll pay more than 50cents hihi

73 Joe
WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 4:38 PM
Subject: RE: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

I looked for a long 1.5 m but my local hard ware store only had the small short type. It worked okay for me. I did clamp it in a forceps which helped a bit. But the wrench was only 50 cents

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Joe,
I'm glad that you're not having a problem. My 1.5MM slipped in the brass coupler and that's when I realized that Ken's couplers used SAE.
73,
Butch
KØPSA

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, October 8, 2013 12:56 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Butch,   I had a doubt about this...so I checked...I have a couple of broken nylon ones(screws still there) and a couple of "Kens." There is a slight difference as you stated, but my long shaft 1.5MM allen wrench tool(ok...no jokes here) seems to work just fine on both

73 Joe WB7UQU

From: W LEWIS <nscb56a@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Monday, October 7, 2013 10:08 PM
Subject: Re: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Hey Guys,
Just a word to the wise. I recently installed the shaft couplers from Ken in my 830S and was having some issues until I realized that the original nylon couplers used metric set screws and Ken's use SAE. Fortunately I had just purchased a 25 piece Metric/SAE allen wrench set from Harbour Freight for under $10 which made the process fairly easy. Hope I

have saved you some frustration.
73,
Butch Lewis
KØPSA

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 10:22 PM
Subject: RE: Re: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

I left the tweakier glued to the slug untill i got max signal, then detached it and did the other..then very gently tweeked the first. i didnt remove them. i am hoping they are high enough that they are getting a good bite now on the threads. I have thought about putting a drop of wax down there..but dont want to temp fate. i got my new brass couplers in from Ken. If anything, they are shipping fast now. so now i need to stop at the hardware store and get a long allen wrench. then once the and switch is in, ill put in the new cathode resistors..and hopefully I'll be set for the winter.... cruising the NEW warc bands. LOL

or maybe ill listen to 3 guys talking to a Nazi sub who wants to be taken over by remote control.
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve, Yahoo.. sorry...GREAT! I recommend the dental floss trick when putting the slug back in. Re-install the slug while the can is still in your hand... and see if it works...there should be some resistance to being turned. I have seen pieces of rubberband used for the same purpose but, that doesn't seem to work on these small items

73 Joe WB7UQU

From: "yio! utta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 9:30 PM
Subject: RE: Re: RE: Re: Re: [TS-520_820_530_830] 530s repost

Glue trick worked!
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve, Were you trying to turn them and they just went to the bottom? It is NOT uncommon for this to happen. I've had it happen to me about 4-5 times on 530/830's There are several methods: one is to use a very small amount of "super glue" on the very tip on the tuning tool, making sure the the tip goes into the slot...and the tool/tip remains vertical. You get glue between the slug and the thin plastic insulation...you are in trouble!! Don rush..let the glue set up for a few minutes...then SLOWLY & CAREFULLY rotate (counter-clockwise as seen from the front) the tool while applying slight up force...see if it comes up. Take your time...you may have to try the glue several times. The second is to unsolder the offending can and you can insert your tuning tool in through the bottom and turn & push up to the the slug up and out. Take notes on the orientation...most will go back in only one way...but why push your luck. I like the second method better...super glue in a coil form scares the @*#$ outta me. Once the offending slug(s) are out you can use a small piece of waxed dental floss between the slug and the inside of the can to take up some slack, and the wax on the floss acts as a lubricant. Do not use any metal tool or tools on or around those tuning cores/slugs...they will get really mad and break...compounding your problem. They also have slots on both ends...so they can be swapped end for end. These are the two most common methods...good luck & GO SLOW

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, October 6, 2013 4:28 PM
Subject: RE: RE: Re: Re: [TS-520_820_530_830] 530s repost

Joe,

The Lego tuning tool works very well. I got 10 MHZ to pop up to an S5 adjusting the rear, then i went to the front coil and it wasnt doing anything. I re re checked to make sure I was on the right coil. but it just stayed at the bottom of the can. I went back to the first coil and without much effort, the slug slipped to the bottom. So now I have two slugs sitting on te bottom of the cans. Is there a way to push them back up? I was concering de solderin them to see if it was open on the bottom, then push them back up to the top. and then resoldering.

any experience with these?

steve
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
I have the rig apart, now. I am waiting on Kens couples before i power up again. The plastic coupler on the band switch is broke. i was able to tighten up a bit as the screws were loose as well. Then when i was going through it again, i noticed that one of the set screws was now hanging out...by a thread. (haha) so i pulled that screw out, others are loose because the plastic scratched. i dont want to risk having a screw fall out when 900 volts is on. so once that is fixed, i will clean the contacts again (also will swap out the resistors on the final board and change the driver) THEN I will start recking the alignment again . All looked pretty good with the cal signal all close to S9...except 10 MHZ , like I said was really low S2 or 3 i think.
I found a little plastic rod in my sons lego stuff. It fits down into the can nice. Its short, so I glued into a tube used from a can of compressed air. I will carve and file tomorrow and try for fit. where did you find the NOS tools at? Amazon, Ebay? does it have a name or part number?

Thanks porcupine
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve,   I have the 5 pc version...but I did get a real good deal on an NOS tv alignment set...this had everything I could possibly need, especially some long shafted tools to get to some on the tuning coils...ie..T-4 on the 830 RF board...as this tool is flexible. It was actually rather cheap...$30.00.   Gordon's method sounds fine...about heating the tool...I have not used that method...but I trust his judgement,,,he's been at this a lot longer than I have..hihi. I have several different coil slugs that are found on/in the KW hybrids...I use them to "fine tune" my exacto knife approach as the slugs are junk(broken in half)...and I can observe them under my magnified light..remember... use "decaf" coffee...those damn blades are sharp!   I am shooting from the hip here...as I don't have a schematic in front of me...but with all else being equal...there maybe some "crud" on the associated band switch contact points...as the "cal signal" I believe
is inserted after L-41..(antenna step xfmr) so should eliminate that as a possible problem.
What is the difference between the "S" meter readings? They will tend to decrease as the band changes go higher in frequency...but should NOT fall off from say, "S-9" on 20M to "S-3" on 10M   I do not want to steer you in the wrong direction...others here have WAY more diagnostic skills than I do...so, I shall reserve my recommendation to what my limited

knowledge allows me to do hey Mo.....

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 9:35 PM
Subject: RE: Re: [TS-520_820_530_830] 530s repost

No Joe, I dont get a good cal sig on 30. most other bands are close to or at S9, Thats what makes me wonder if its not "something else"

There are two tool sets on amazon..one have 5 pc the other 12 (I think) which one did you get?

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Steve, I have used the "alignment tool set" from "Amazon" that your were talking about in your original post. The thing that you will have to do is take a very sharp knife...say an exacto...and trim back some of the plastic as the end is at times too short to get to the slug, as the shoulder of the tool can hit on the top of the "can." Or, go to a hobby or craft store and look for a piece of plastic rod that you can "custom" make your own...or a nice piece of dowel stock. I do not know enough about the noise blanker circuit to offer a logical/correct answer. I think that Terry-k9tw, just answered something about a noise blanker a few posts ago. As far as 30m goes...check for proper adjustment of the associated coils first. Can you get a good "cal signal?"

73 Joe WB7UQU

From: "yioutta_99@..." <yioutta_99@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 4, 2013 5:58 PM
Subject: [TS-520_820_530_830] 530s repost

Hi guys,,,I dont know where my post went, maybe into the land of rare DX . Strange thing is I saw a reply last night, where someone suggested K4EAAs site..oh well....but I was wondering if anybody has seen where to get alignment tools for the 530s. Ken sells them for the 520, but not the 530.
Also the noise blanker isnt working. Any ideas.

Also 30 meters is very low on recieve, all other bands okay. anything there besides an alignment?

steve

45227. Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 03:57:13 UTC
From: Don Allen
Topic: 45055 Message: 45227

Although the quality is sometimes suspect, don't discount Harbor Freight
for a source for tools that are not often used.

http://www.harborfreight.com/36-piece-sae-metric-hex-key-set-94725.html

http://www.harborfreight.com/25-piece-extra-long-hex-key-set-5962.html

73
Don W9CW

On 10/8/2013 10:47 PM, Joseph Stiles wrote:
> another place to find long tools...metric/sae... is the local hobby
> store...especially if they have a good sized RC car section
>
> but, you'll pay more than 50cents hihi
>
> 73 Joe
> WB7UQU
>

45228. Re: [TS-520_820_530_830] RE: Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 04:08:17 UTC
From: n6wk@...
Topic: 45202 Message: 45228

Hi Bob,
well let me know if you can't get it down and I'll Zip it up for you and try that way.
I just went to my website, clicked on the 830 Hi-Res service manual and it downloaded fine for me.

73,
Gordon
N6WK

On 10/8/2013 5:50 PM, rrmvargo@... wrote:
>
> Hi Gordon,
>
> Not a speed issue I don't thing because I have 30MBS, it just doesn't
> seem to come down. I tried my MAC & my W8 machine & neither will
> download it. I get the first few pages & then it stalls. I have no
> problems at other sites, but it still could be a Charter cable issue.
>
> I'll try it again tomorrow.
>
>
> 73 - Bob W8RMV
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <n6wk@...> wrote:
>
> Bob,
> The service manual is pretty big, but worth the Download.
> The size is why it's so slow. I have 20Mbps speed, so it doesn't take
> long for me..hi hi..
>
> 73,
> Gordon
> N6WK
>
> On 10/8/2013 1:28 PM, rrmvargo@... <mailto:rrmvargo@...> wrote:
>
>> Joe & et al,
>> Thank you for this detail. Well the connectors are in the right
>> places based on the new info. And after letting the 830 sit for
>> awhile, the audio is back!! But as soon as I plug in #9 again it
>> goes deaf. So the "simple" display & meter repairs have morphed
>> into a lot more.

>>
>> I am trying to d/l the HD SM but it is slow. The schematic came
>> right thru. Looks like #9 (SSB,SM,VX1,G,RB2) connects to the
>> audio board. More investigation!
>>
>> Thanx again TO all who pitched in. 73 Bob V W8RMV
>>
>> TRIMMED....
>
> --
>
>
>
>

--

45229. Re: [TS-520_820_530_830] RE: Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 04:13:09 UTC
From: n6wk@...
Topic: 45202 Message: 45229

Hi Bob,
If you still have issues downloading it, try this link
http://www.n6wk.com/kenwood/TS-830S-Hi-Res_Service-Manual.zip

73,
Gordon
N6WK

On 10/8/2013 5:50 PM, rrmvargo@... wrote:
>
> Hi Gordon,
>
> Not a speed issue I don't thing because I have 30MBS, it just doesn't
> seem to come down. I tried my MAC & my W8 machine & neither will
> download it. I get the first few pages & then it stalls. I have no
> problems at other sites, but it still could be a Charter cable issue.
>
> I'll try it again tomorrow.
>
>
> 73 - Bob W8RMV
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <n6wk@...> wrote:
>
> Bob,
> The service manual is pretty big, but worth the Download.
> The size is why it's so slow. I have 20Mbps speed, so it doesn't take
> long for me..hi hi..
>
> 73,
> Gordon
> N6WK
>
> On 10/8/2013 1:28 PM, rrmvargo@... <mailto:rrmvargo@...> wrote:
>
>> Joe & et al,
>> Thank you for this detail. Well the connectors are in the right
>> places based on the new info. And after letting the 830 sit for
>> awhile, the audio is back!! But as soon as I plug in #9 again it
>> goes deaf. So the "simple" display & meter repairs have morphed
>> into a lot more.
>>
>> I am trying to d/l the HD SM but it is slow. The schematic came

>> right thru. Looks like #9 (SSB,SM,VX1,G,RB2) connects to the
>> audio board. More investigation!
>>
>> Thanx again TO all who pitched in. 73 Bob V W8RMV
>>
>> TRIMMED....
>
> --
>
>
>
>

--

45230. Re: [TS-520_820_530_830] V06B diodes are in hand.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 05:07:28 UTC
From: Mac Haszard
Topic: 45055 Message: 45230

Wes,

SASE will go out tomorrow w/ green stamps enclosed - hope that's OK. Much easier than PP!

Apply any overage to the postal pool.

Thanks for doing this for the group.

73,

Mac K6OVI

From: Wes Will <wwill@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 7, 2013 11:48 PM
Subject: [TS-520_820_530_830] V06B diodes are in hand.

The three gents who wanted 'em, check your email.

If the SASE is already on the way, ignore the email. Expect the diodes
sent to you the day the envelope arrives. No problem turning it around
the same day, they're not exactly tedious to handle...

Terry, if you send me an envelope, I will drop the extras to you in it.
Otherwise I'll send them to you at the address listed in the FCC
database some time next week early at my expense. (One whole 1st class
stamp and an envelope, not exactly a burden.)

--
Wes Will
N9KDY

45231. Re: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 05:37:55 UTC
From: Allan Bear
Topic: 45223 Message: 45231

Hi Jim....sounds like the ae changeover relay contacts need cleaning...yes the twins are indeed a joy to use...73 de Allan GM3VXI
From: "famtech@..." <famtech@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, 9 October 2013, 1:31
Subject: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Here's an interesting issue regarding my R-599D/T-599D "Twins". When the R-599D is turned on, sensitivity is as it should be but when I key the T-599D on any band, upon going back to receive, the sensitivity of the R-599D drops-off. Sometimes after awhile, the receiver's gain will creep back to normal. Powering the receiver off and then back on will also restore normal gain too. The AGC voltage feeding the front-end RF board (X44-0020-00) tracks normally. Since I had some 1N60 diodes around, I replaced the protection diodes D1 and D2 in the antenna input circuit. I think my next step could be a "stressed" 3SK22 MOSFET first RF amp. Before I start tearing more into this, has anyone ran into this little issue before with their Twins ?? Receiver gain recovery after transmit ?? My first impression is that there aren't that many "Twins" out there still in the wild. Not as many as the transceivers for sure. After all these years, still a joy to operate and still get great signal reports.

Regards,

Jim L.

45232. Re: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 05:53:50 UTC
From: <pmarkavage@...>
Topic: 45223 Message: 45232

Never had that problem with mine and I've had mine since 1978. There's still a lot of active Twins out there.

Pete, wa2cwa
http://www.manualman.com

On 08 Oct 2013 17:31:39 -0700 <famtech@...> writes:

Here's an interesting issue regarding my R-599D/T-599D "Twins". When the R-599D is turned on, sensitivity is as it should be but when I key the T-599D on any band, upon going back to receive, the sensitivity of the R-599D drops-off. Sometimes after awhile, the receiver's gain will creep back to normal. Powering the receiver off and then back on will also restore normal gain too. The AGC voltage feeding the front-end RF board (X44-0020-00) tracks normally. Since I had some 1N60 diodes around, I replaced the protection diodes D1 and D2 in the antenna input circuit. I think my next step could be a "stressed" 3SK22 MOSFET first RF amp. Before I start tearing more into this, has anyone ran into this little issue before with their Twins ?? Receiver gain recovery after transmit ?? My first impression is that there aren't that many "Twins" out there still in the wild. Not as many as the transceivers for sure. After all these years, still a joy to operate and still get great signal reports.

Regards,

Jim L.

[Non-text portions of this message have been removed]

45233. RE: Re: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 10:54:33 UTC
From: <wagstw46@...>
Topic: 45223 Message: 45233

I agree that cleaning relay is good idea.

I dont know what AGC tracks normally means? Does that mean you measured AG2 terminal on RF board at normal receive and immediately after keying and unkeying and you see exact same voltage level?

When receiver gain is normal suggest you measure G1 and G2 of Q1 with hi Z meter (11meg vtvm) and record the values. Meter may pull voltage down.

Key rig and unkey and watch voltage directly at each gate to see if it is lower now and slowly comes back up to the voltage level that provides normal receive sensitivity. Then you know that it is the control voltage/bias on Q1 that is the issue.

If not G1 G2 voltage problem at Q1 then repeat measurements on the IF amp gain controlled devices.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Jim....sounds like the ae changeover relay contacts need cleaning...yes the twins are indeed a joy to use...73 de Allan GM3VXI

From: "famtech@..." <famtech@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, 9 October 2013, 1:31
Subject: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Here's an interesting issue regarding my R-599D/T-599D "Twins". When the R-599D is turned on, sensitivity is as it should be but when I key the T-599D on any band, upon going back to receive, the sensitivity of the R-599D drops-off. Sometimes after awhile, the receiver's gain will creep back to normal. Powering the receiver off and then back on will also restore normal gain too. The AGC voltage feeding the front-end RF board (X44-0020-00) tracks normally. Since I had some 1N60 diodes around, I replaced the protection diodes D1 and D2 in the antenna input circuit. I think my next step could be a "stressed" 3SK22 MOSFET first RF amp. Before I start tearing more into this, has anyone ran into this little issue before with their Twins ?? Receiver gain recovery after transmit ?? My first impression is that there aren't that many "Twins" out there still in the wild. Not as many as the transceivers for sure. After all these years, still a joy to operate and still get great signal reports. Regards, Jim L.

45234. RE: Curious about VOX with an MC-50 mic and TS-820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 12:18:24 UTC
From: <bonnevilleblb@...>
Topic: 45196 Message: 45234

Seems to be working perfectly well - thanks for the info, Joe. Everything worked just fine last night!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bonnevilleblb@...> wrote:

Thanks very much, Joe. I'll check it out tonight. Sounds easy enough!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Barry,

There are no "special" settings. Each operator can and should , adjust the 3 controls to fit the situation.

With rig tuned up on what ever band(license class dependent) ...into a dummy load(preferred)...mode switch to USB or LSB.. turn VOX switch to ON....in a normal voice level..and about 2 or so inches from microphone...turn UP the "VOX GAIN" until the transmitter is keyed...then adjust the "DELAY" so that after
about about 0.5 to 1 second after you stop speaking...the transmitter is un-keyed...there is an "anti-vox" adjustment also. read the operators
manual...and play with the various adjustments to suit YOUR needs. Just make sure to monitor your AGC level...and adjust that as necessary

73 Joe
WB7UQU

From: "bonnevilleblb@..." <bonnevilleblb@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 8:08 AM
Subject: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820

I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings?

Thanks to you guys as usual... and I tried to check in to the Hybrid Net Saturday - I just couldn't get through. I thought conditions were going to be good for me, but I wasn't heard, so I'll try to get through next time.

Barry
KK4RXN

Jeremiah 29:11-13 / John 3:16

45235. RE: R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 10:18:57 UTC
From: <famtech@...>
Topic: 45223 Message: 45235

Yep. After I sent this message, I checked further and it IS the T-R relay in the T-599. Now, where did I put that contact burnishing tool. When your dealing with microvolts going through a set of contacts, it doesn't take much to interrupt or reduce the signal path.

Jim L.

---In ts-520_820_530_830@yahoogroups.com, <pmarkavage@...> wrote:

Never had that problem with mine and I've had mine since 1978. There's still a lot of active Twins out there.

Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

On 08 Oct 2013 17:31:39 -0700 <famtech@... mailto:famtech@...> writes:

Here's an interesting issue regarding my R-599D/T-599D "Twins". When the R-599D is turned on, sensitivity is as it should be but when I key the T-599D on any band, upon going back to receive, the sensitivity of the R-599D drops-off. Sometimes after awhile, the receiver's gain will creep back to normal. Powering the receiver off and then back on will also restore normal gain too. The AGC voltage feeding the front-end RF board (X44-0020-00) tracks normally. Since I had some 1N60 diodes around, I replaced the protection diodes D1 and D2 in the antenna input circuit. I think my next step could be a "stressed" 3SK22 MOSFET first RF amp. Before I start tearing more into this, has anyone ran into this little issue before with their Twins ?? Receiver gain recovery after transmit ?? My first impression is that there aren't that many "Twins" out there still in the wild. Not as many as the transceivers for sure. After all these years, still a joy to operate and still get great signal reports.

Regards,

Jim L.

[Non-text portions of this message have been removed]

45236. RE: Re: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 10:17:45 UTC
From: <famtech@...>
Topic: 45223 Message: 45236

Yep. After I sent this message, I checked further and it IS the T-R relay in the T-599. Now, where did I put that contact burnishing tool. When your dealing with microvolts going through a set of contacts, it doesn't take much to interrupt or reduce the signal path.

Jim L.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Never had that problem with mine and I've had mine since 1978. There's
still a lot of active Twins out there.

Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

On 08 Oct 2013 17:31:39 -0700 <famtech@... mailto:famtech@...> writes:

Here's an interesting issue regarding my R-599D/T-599D "Twins". When the
R-599D is turned on, sensitivity is as it should be but when I key the
T-599D on any band, upon going back to receive, the sensitivity of the
R-599D drops-off. Sometimes after awhile, the receiver's gain will creep
back to normal. Powering the receiver off and then back on will also
restore normal gain too. The AGC voltage feeding the front-end RF board
(X44-0020-00) tracks normally. Since I had some 1N60 diodes around, I
replaced the protection diodes D1 and D2 in the antenna input circuit. I
think my next step could be a "stressed" 3SK22 MOSFET first RF amp.
Before I start tearing more into this, has anyone ran into this little
issue before with their Twins ?? Receiver gain recovery after transmit ??
My first impression is that there aren't that many "Twins" out there
still in the wild. Not as many as the transceivers for sure. After all
these years, still a joy to operate and still get great signal reports.

Regards,

Jim L.

[Non-text portions of this message have been removed]

45237. Re: [TS-520_820_530_830] RE: Curious about VOX with an MC-50 mic and TS-820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 15:25:49 UTC
From: Joseph Stiles
Topic: 45196 Message: 45237

Glad to assist

73 Joe
WB7UQU

On Wednesday, October 9, 2013 5:18 AM, "bonnevilleblb@..." <bonnevilleblb@...> wrote:

Seems to be working perfectly well - thanks for the info, Joe. Everything worked just fine last night!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bonnevilleblb@...> wrote:

Thanks very much, Joe. I'll check it out tonight. Sounds easy enough!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Barry,

There are no "special" settings. Each operator can and should , adjust the 3 controls to fit the situation.

With rig tuned up on what ever band(license class dependent) ...into a dummy load(preferred)...mode switch to USB or LSB.. turn VOX switch to ON....in a normal voice level..and about 2 or so inches from microphone...turn UP the "VOX GAIN" until the transmitter is keyed...then adjust the "DELAY" so that after about about 0.5 to 1 second after you stop speaking...the transmitter is un-keyed...there is an "anti-vox" adjustment also. read the operators manual...and play with the various adjustments to suit YOUR needs. Just make sure to monitor your AGC level...and adjust that as necessary

73 Joe
WB7UQU

From: "bonnevilleblb@..." <bonnevilleblb@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 8:08 AM
Subject: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820

I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings?

Thanks to you guys as usual... and I tried to check in to the Hybrid Net Saturday - I just couldn't get through. I thought conditions were going to be good for me, but I wasn't heard, so I'll try to get through next time.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45238. RE: Re: [TS-520_820_530_830] RE: Connector 9

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 15:53:04 UTC
From: <rrmvargo@...>
Topic: 45202 Message: 45238

ZIP file came down in seconds! And it is legible.
But now, I have no excuse for not working on the 830.

Thanx Gordon!
73 - Bob W8RMV

trimmed

45239. Re: R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 16:56:12 UTC
From: popeyebob@...
Topic: 45223 Message: 45239

My R-599 had the same problem. I replaced the T/R relay in the T-599, and never had the problem again. If you connect an antenna directly to the R-599's input, and receive is normal you can suspect the relay.

73
Robert Fitch

NB9G

45240. Re: [TS-520_820_530_830] TS-940 or ???

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 15:29:38 UTC
From: John Geyer
Topic: 45103 Message: 45240

Going portable with a ts-940 is like an 85 year old person taking a ride on a roller coaster. Forget about it and get a newer truly portable rig!

John wb6ubk

On Tue, 10/8/13, Craig Roberts <crgrbrts@...> wrote:

Subject: [TS-520_820_530_830] TS-940 or ???
To: TS-520_820_530_830@yahoogroups.com
Date: Tuesday, October 8, 2013, 2:26 AM

For emergency and portable use, I would like to add a solid state
transceiver to my Kenwood TS "collection."

Given that I am now spoiled rotten by the superb performance and
quality build of my 530 and 830, what model would you recommend?

73,

Craig

W3CRR

45241. Re: [TS-520_820_530_830] RE: Curious about VOX on CW

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 18:02:54 UTC
From: John Davidson
Topic: 45196 Message: 45241

I never use VOX on fone (Actually don't get on fone at all) with my TS520 or TS440s
 BUT the VOX is a useful tool for working "semi" break-in on CW also.
In the CW mode with the VOX turned on you just have to press the key down to switch from Rec to XMIT. The Delay setting can be advanced for more hang time before the receiver comers back on after you stop pressing the key (or slapping the paddle or bug)...

_____
From: "bonnevilleblbeck it out tonight. Sounds easy enough!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Barry,

 There are no "special" settings. Each operator can and should , adjust the 3 controls to fit the situation.

  With rig tuned up on what ever band(license class dependent) ...into a dummy load(preferred)...mode switch to USB or LSB.. turn VOX switch to ON

73 Joe
WB7UQU

_____
From: "bonnevilleblb@..." <bonnevilleblb@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 8, 2013 8:08 AM
Subject: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820

I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings? KK4RXN
Jeremiah 29:11-13 / John 3:16

45242. Kenwood Datamitter DR-100

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 17:29:15 UTC
From: <danbbower@...>
Topic: 45242 Message: 45242

Hi all

This is my first post so firstly thank you for welcoming me to your group. I am a newly licensed ham having gained my UK Foundation class license just 3 or 4 weeks ago.

A club member kindly sorted me out with a Kenwood TS 430S and having read about the hybrids I quickly sourced an 830S also and I am utterly smitten by it.

Secondly, apologies for this being slightly off topic but as part of my research into the vintage KW's I can across a Kenwood Datamitter DR-100 on ebay. It is clearly some kind of data mode interface and was made around 1983/84 but cannot find out any information on it.

Google throws up a couple of very vague Japanese and Chinese sites and Kenwood UK have no details at all on it.

Whilst the mic input / output works fine with the TS430S it needs some modification as there is a port which I assume connects it to a computer and this must somehow trigger a relay to flick it in to transmit mode so if any one happens to have any information on this I would be very grateful to hear it. In particular a manual would be fantastic.

This is a link to a photo of it hosted on my web space -
http://http://www.dannybower.co.uk/photos/dr1001.jpg
http://http://www.dannybower.co.uk/photos/dr1001.jpg

Thank you all and I look forward to learning more about these fantasic hybrid rigs.

73

Danny M6YDB

45243. RE: Curious about VOX with an MC-50 mic and TS-820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 21:07:04 UTC
From: <glene77is@...>
Topic: 45196 Message: 45243

John Davidson,
I use the Kenwood TS-830S on CW, only, via the Vox, set to aprox. 1 second.
Works OK, as you said "semi-breakin".
Glen Ellis, KK4LPG

---In ts-520_820_530_830@yahoogroups.com, <k8jd@...> wrote:

I never use VOX on fone (Actually don't get on fone at all) with my TS520 or TS440s
BUT the VOX is a useful tool for working "semi" break-in on CW also.
In the CW mode with the VOX turned on you just have to press the key down to switch from Rec to XMIT. The Delay setting can be advanced for more hang time before the receiver comers back on after you stop pressing the key (or slapping the paddle or bug)...
From: "bonnevilleblbeck it out tonight. Sounds easy enough!

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---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote: Barry, There are no "special" settings. Each operator can and should , adjust the 3 controls to fit the situation. With rig tuned up on what ever band(license class dependent) ...into a dummy load(preferred)...mode switch to USB or LSB.. turn VOX switch to ON

73 Joe WB7UQU

From: "bonnevilleblb@..." <bonnevilleblb@...> To: TS-520_820_530_830@yahoogroups.com Sent: Tuesday, October 8, 2013 8:08 AM Subject: [TS-520_820_530_830] Curious about VOX with an MC-50 mic and TS-820
I'm not in front of my 820 right now and won't be home for several hours, but I've never tried VOX with my MC-50. How easy is that to set and what are the optimum settings? KK4RXN
Jeremiah 29:11-13 / John 3:16

45244. Re: [TS-520_820_530_830] Kenwood Datamitter DR-100

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-09 21:51:33 UTC
From: Gordon JC Pearce
Topic: 45242 Message: 45244

On Wed, Oct 09, 2013 at 10:29:15AM -0700, danbbower@... wrote:
>
> Whilst the mic input / output works fine with the TS430S it needs some modification as there is a port which I assume connects it to a computer and this must somehow trigger a relay to flick it in to transmit mode so if any one happens to have any information on this I would be very grateful to hear it. In particular a manual would be fantastic.
>

Well, don't just sit there, get the screws out and see what's on the board! Oh, and post some pics of its guts so we can all venture an opinion.

--
Gordonjcp MM0YEQ

45245. RE: Kenwood Datamitter DR-100

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-10 00:05:19 UTC
From: <wagstw46@...>
Topic: 45242 Message: 45245

Do you know the baud rates?

Maybe an interface to get a VHF/UHF transceiver on digital modes?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all

This is my first post so firstly thank you for welcoming me to your group. I am a newly licensed ham having gained my UK Foundation class license just 3 or 4 weeks ago.

A club member kindly sorted me out with a Kenwood TS 430S and having read about the hybrids I quickly sourced an 830S also and I am utterly smitten by it.

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http://http://www.dannybower.co.uk/photos/dr1001.jpg
http://http://www.dannybower.co.uk/photos/dr1001.jpg

Thank you all and I look forward to learning more about these fantasic hybrid rigs.

73

Danny M6YDB

45246. RE: Re: [TS-520_820_530_830] R-599D gain recovery after transmit ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-10 00:54:59 UTC
From: <famtech@...>
Topic: 45223 Message: 45246

Yep. After I wrote my post, I went and took another look. Sure enough, the contacts in the T-R relay in the T-599D needed some TLC and after I located my contact burnishing tool, all is well again until the next time. Happens when relay contacts are passing microvolts through them. Doesn't take much to interfere with the signal path.

Regards,

Jim L.

---In ts-520_820_530_830@yahoogroups.com, <popeyebob@...> wrote:

My R-599 had the same problem. I replaced the T/R relay in the T-599, and never had the problem again. If you connect an antenna directly to the R-599's input, and receive is normal you can suspect the relay.

73
Robert Fitch
NB9G

45247. Re: [TS-520_820_530_830] msg test & inquiry

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-01 22:10:29 UTC
From: Joseph Stiles
Topic: 45003 Message: 45247

Mike,

TNX fer the response. Funny thing....right after I hit "send," the message I was talking about was posted. I know other members
have stated that their posts/inquiries never showed up...or took a long time to show up.....one would figure that, in this digitized, modernized, computerized...golly...gee whizz-afied world we now live in....that....oh never mind.....think I need to "moderate" myself.

  and now back to your regular scheduled programing.....

73 Joe
WB7UQU

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 1, 2013 2:31 PM
Subject: Re: [TS-520_820_530_830] msg test & inquiry

Joe,

I have seen messages, some of mine, have taken quite a while to get posted. This doesn't happen all the times but it does happen. This has occurred not only after Yahoo made the change but it also has occurred before they made the change. I have even seen messages that appear to get "lost" in the "bit bucket" then after a few days, even as long as a week, suddenly appear.

I can't say with any certainty what is causing this, only Yahoo knows. Don't expect a quick response from Yahoo, they are slow to respond. Yahoo took a couple of weeks to respond to my comments about their bad choice for change.

73
Mike W5RKL

On 10/1/2013 4:13 PM, Joseph Stiles wrote:

>Greeting Group
>
>
> Your caring Group Co-owner here...have any of the members here, had messages returned in the recent past and, up to now, by the yahoo "MAILER-DAEMON"
>as undeliverable to the "TS-520_.....830@yahoogroups.com?" I tried the other day and twice since, to answer member "yiotta_99" regarding
>the "cb hack" he found in a newly acquired

rig...the msg came back...maybe "yahoo" is peed-off and messing with us(me). I have sent >several messages to other well known members here...and they have disappeared..or came back as "undeliverable" to this group. Nothing >has changed as far as any setting...etc...my regular email...etc. ...is ok.
>
> Some members here(very few actually) are on "moderate," which means that either me-wb7uqu, Gordon -n6wk, Mike-w5rkl or, the other group "demi-gods" must "approve" the message/content before it is posted here which, depending on the time of day or, day of the week, maybe delayed. I know that the "powers that be" strive to review new member requests, review "moderated" messages...and take care of this groups business.
>
> So...I may be QRT, until I can get an answer from "yahoo" about what's going on. So far, "they" have not seen fit to respond to my inquiry.
>
> Let's see IF this msg gets posted.............
>
>
>73 Joe
>WB7UQU
>Group Co-owner
>

45248. Kenwood TS-530s & TS-830s display boards.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-10 13:08:43 UTC
From: <paw_paw44036@...>
Topic: 45248 Message: 45248

On the Kenwood counter boards in the 530 and the 830 that I have they are the same board. I have often wondered why Kenwood only used part of the display and not add the last 2 digit’s?
I know it is not that important, but was wondering. Also have you ever heard of a mod to use these last 2 digits?
Bill WD8OSJ

45249. RE: RE: Kenwood Datamitter DR-100

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-10 10:38:58 UTC
From: <danbbower@...>
Topic: 45242 Message: 45249

@Gordon - Innards and other photos posted in an album on the photos page. You can see the relay at the bottom of the board near the speaker cut out. I currently have it set up so that the audio out from my soundcard connects to the AF In cable you can see on the back.

The Mic cord is then connected to the Mic in on the TS430S.

I have used MixW to generate a data signal and applied 9V to the relay and it does indeed operate the 430S PTT function and send the data signal in.

So, now I need to figure a way of using perhaps the speaker out (white jumper socket near the relay toward the back of the board) as an AF signal and build a little module accordingly

The advantage then is that I can still have a Mic plugged in and use the TS430S on Phone as well without unplugging everything.

@Terry - Baud rates are 300 / 600. I have found a little more on the system as a whole. It would seem that the Datamitter was used in conjunction with a piece of software Kenwood called 'Letter' and indeed was originally for 2m FM transmissions.

The screenshots of Letter can be seen at
http://www.geocities.jp/upd780c1/n80/list3/ken/index.html
http://www.geocities.jp/upd780c1/n80/list3/ken/index.html (and if you use Chrome google will translate the page) and it shows a TM 401 being used.

Further, if you see the photo here -
http://www.lvye.org/modules/lvyebb/viewtopic.php?view=1&post_id=1055879
http://www.lvye.org/modules/lvyebb/viewtopic.php?view=1&post_id=1055879 - you can see the Datamitter box and it clearly shows it sitting on top of a rig that looks very much like a TM 401.

I will keep playing with it and if anyone comes across any further information on it I would be very grateful of hearing of it.

73

Danny M6YDB

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Do you know the baud rates?

Maybe an interface to get a VHF/UHF transceiver on digital modes?

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Thank you all and I look forward to learning more about these fantasic hybrid rigs.

73

Danny M6YDB

45250. RE: RE: RE: Kenwood Datamitter DR-100

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-10 18:52:37 UTC
From: <wagstw46@...>
Topic: 45242 Message: 45250

Ok looks like your research is getting you the needed details. I looked for a manual and came up empty. I thought the baud rate would give you a clue. Many years ago I got involved with FSK, but no recent experience.

Should be lots of folks on forum that can help you.

Surprised I couldnt find a manual or schematic?

Wonder if Kenwood USA has any parts for it? Might be worth a call?

Terry K9TW

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http://http://www.dannybower.co.uk/photos/dr1001.jpg

Thank you all and I look forward to learning more about these fantasic hybrid rigs.

73

Danny M6YDB

45251. R-820 Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 00:25:14 UTC
From: Byron
Topic: 45251 Message: 45251

Hello- Any R-820 experts lurking here? I recently bought a very nice R-820 receiver. It seems to do OK on all bands except 15 meters, the sensitivity is down considerably.I get a noticeable peak on the preselector on 15 meters. With the receiver connected to an antenna, the calibrator signal reads as follows on S-Meter: 1.9 Mhz = S9+25, 3.9 Mhz= S9+22, 7.3 Mhz=S9+12, 14.3 Mhz=S9+7, 21.3Mhz=S-2, 28.3 Mhz= S-8. I carefully checked it over by unplugging/plugging back in connectors and very carefully cleaning switch contacts (no spray).This is my first experience with the R-820 and I am very excited to be able to use one. I do have the service manual and will be studying up. Thank you, Byron WA5THJ

45252. TS-830: weak receive on 10 meter band

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 06:22:11 UTC
From: <tonrijnen@...>
Topic: 45252 Message: 45252

Hello group, i have got a very nice working TS-830 with one flaw: 10 meter receive is very weak. Also signal from marker unit is weak on 10 meter.
Has anyone an idea what's the culprit? Or how to re-align 10 meter band?
Thanks in advance.

73's Ton PA1PXL

45253. Re: [TS-520_820_530_830] TS-830: weak receive on 10 meter band

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 11:00:36 UTC
From: Mike
Topic: 45252 Message: 45253

The TS-830 alignment instructions are contained in the service manual
available at the following link:

http://www.n6wk.com/kenwood/TS-830S-Service-High%20Resolution.pdf

73
Mike W5RKL

On 10/11/2013 1:22 AM, tonrijnen@... wrote:
>
> Hello group, i have got a very nice working TS-830 with one flaw: 10
> meter receive is very weak. Also signal from marker unit is weak on 10
> meter.
>
> Has anyone an idea what's the culprit? Or how to re-align 10 meter band?
>
> Thanks in advance.
>
> 73's Ton PA1PXL
>
>

45254. RE: RE: RE: RE: Kenwood Datamitter DR-100

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 07:33:19 UTC
From: <danbbower@...>
Topic: 45242 Message: 45254

So far I have posted messages on qrz.com and eham.net and no one has heard of it. I have dropped an email to Ken K4EAA and he has not heard of it either.

No one at Kenwood UK has any knowledge of it but David G5HY - Area Sales Manager for Kenwood UK is in touch with Japan for me to see if they can find anything.

It is bizarre really as I would have though by now I would have found someone who had at least heard of it before but no.

I have a USB to RS232 lead on the way and I am hoping to use MixW's PTT trigger to trip the relay directly as I cannot get it to trip via the data connection.

OK, it won't be being used exactly as Kenwood intended but hey, isn't that one of the roles of a ham - to modify and hack kit to make it work to their needs?!

73

Danny M6YDB

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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So, now I need to figure a way of using perhaps the speaker out (white jumper socket near the relay toward the back of the board) as an AF signal and build a little module accordingly

The advantage then is that I can still have a Mic plugged in and use the TS430S on Phone as well without unplugging everything.

@Terry - Baud rates are 300 / 600. I have found a little more on the system as a whole. It would seem that the Datamitter was used in conjunction with a piece of software Kenwood called 'Letter' and indeed was originally for 2m FM transmissions.

The screenshots of Letter can be seen at
http://www.geocities.jp/upd780c1/n80/list3/ken/index.html
http://www.geocities.jp/upd780c1/n80/list3/ken/index.html (and if you use Chrome google will translate the page) and it shows a TM 401 being used.

Further, if you see the photo here -
http://www.lvye.org/modules/lvyebb/viewtopic.php?view=1&post_id=1055879
http://www.lvye.org/modules/lvyebb/viewtopic.php?view=1&post_id=1055879 - you can see the Datamitter box and it clearly shows it sitting on top of a rig that looks very much like a TM 401.

I will keep playing with it and if anyone comes across any further information on it I would be very grateful of hearing of it.

73

Danny M6YDB

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Do you know the baud rates?

Maybe an interface to get a VHF/UHF transceiver on digital modes?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi all

This is my first post so firstly thank you for welcoming me to your group. I am a newly licensed ham having gained my UK Foundation class license just 3 or 4 weeks ago.

A club member kindly sorted me out with a Kenwood TS 430S and having read about the hybrids I quickly sourced an 830S also and I am utterly smitten by it.

Secondly, apologies for this being slightly off topic but as part of my research into the vintage KW's I can across a Kenwood Datamitter DR-100 on ebay. It is clearly some kind of data mode interface and was made around 1983/84 but cannot find out any information on it.

Google throws up a couple of very vague Japanese and Chinese sites and Kenwood UK have no details at all on it.

Whilst the mic input / output works fine with the TS430S it needs some modification as there is a port which I assume connects it to a computer and this must somehow trigger a relay to flick it in to transmit mode so if any one happens to have any information on this I would be very grateful to hear it. In particular a manual would be fantastic.

This is a link to a photo of it hosted on my web space -
http://http://www.dannybower.co.uk/photos/dr1001.jpg
http://http://www.dannybower.co.uk/photos/dr1001.jpg

Thank you all and I look forward to learning more about these fantasic hybrid rigs.

73

Danny M6YDB

45255. TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 11:36:31 UTC
From: <sw20plus@...>
Topic: 45255 Message: 45255

Hi all,
A cple of month ago I've been given a TS520S. IT was . on the outside in much better cdx than my old TS520SE. But in the PA I found a 6146A together with a 6146B.
So I swapped my old tubes from the SE to theS. No problem.
Aftter that I had to Neutralize it. Took the set to our local club station and tried to to the job with the VTVM. Tuned it for neutralization iaw the manual
But no output at all was noticed on the VTVM. nothing at all. So we guessed that it must be allright and no neutralization was needed.
But 2 days ago after some playing around with the rig and have made a cple of nice QSO's with New York en Hongkong (so it is working !!!)
I noticed that the Ip-dip did NOT coincide with the output-peak.
So in my humble thoughts, the neut. is NOT correct.
I build a simple RF probe like the one KEN K4EAA is mentioning on his website.
But again NO output detectable watsoever.....
Checked the manual againm but I am sure that I'd followed all the rules..
I hope this is recognizable for and that someone can give me a hint.
The set has normal output on all the bands and I receive good reports on CW and on SSB.

Wally/ PA3BTT

45256. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 19:24:31 UTC
From: Mike
Topic: 45255 Message: 45256

You say there is no output. You also said you followed the manual's instruction.

The transmitter has to be tuned for fully output first then the SG switch is set to OFF then the neutralizing steps are performed. A "T" connector at the 50 ohm dummy load will allow you to measure the RF output with an RF probe and a VTVM, or scope, while adjusting the neutralizing capacitor. The amplifier enclosure cover must be in place to perform the adjustments.

Are you using an RF probe with the VTVM? If not then you won't see any indication on the VTVM connected to the rear SO-239 connector. You can also use a scope, a 30Mhz or higher scope will work fine.

Never mix 6146As with 6146Bs.

73
Mike W5RKL

On 10/11/2013 6:36 AM, sw20plus@... wrote:
>
> Hi all,
> A cple of month ago I've been given a TS520S. IT was . on the outside
> in much better cdx than my old TS520SE. But in the PA I found a 6146A
> together with a 6146B.
> So I swapped my old tubes from the SE to theS. No problem.
> Aftter that I had to Neutralize it. Took the set to our local club
> station and tried to to the job with the VTVM. Tuned it for
> neutralization iaw the manual
> But no output at all was noticed on the VTVM. nothing at all. So we
> guessed that it must be allright and no neutralization was needed.
> But 2 days ago after some playing around with the rig and have made a
> cple of nice QSO's with New York en Hongkong (so it is working !!!)
> I noticed that the Ip-dip did NOT coincide with the output-peak.
> So in my humble thoughts, the neut. is NOT correct.
> I build a simple RF probe like the one KEN K4EAA is mentioning on his
> website.
> But again NO output detectable watsoever.....
> Checked the manual againm but I am sure that I'd followed all the rules..
> I hope this is recognizable for and that someone can give me a hint.
> The set has normal output on all the bands and I receive good reports
> on CW and on SSB.
>
> Wally/ PA3BTT
>
>

45257. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 19:53:04 UTC
From: Joseph Stiles
Topic: 45255 Message: 45257

Mike is correct., don't mix the final tubes and also, you will not see any indication on your VTVM
if you are not using an RF probe, or an o'scope.
You can build a very simple RF probe, cost about $2.00
I made a simple "dummy load" from a PL-259 and 2 100 ohm 1/2watt (non-inductive resistors) in parallel (50ohms). Metal film resistors, etc..will work fine for this purpose.
As Mike stated..tune for max power...according to instructions in "op" or "service manual," SG switch to OFF...make necessary connections of measuring equipment/dummy load...adjust the "neutralization trimmer" capacitor for lowest reading while rig is in "transmit mode"...most likely...you will not get a "zero," just adjust for lowest reading.
DO NOT USE A METAL TOOL FOR THIS!!! There is enough RF energy/voltage here to make YOUR "TIMEX" cease ticking..if you happen to slip and "ground out"
The "trimmer" caps are usually very stiff...so make sure the tool that you are using will not
break under the torque required.

73 Joe
WB7UQU

On Friday, October 11, 2013 12:24 PM, Mike <w5rkl@...> wrote:

>You say there is no output. You also said you followed the manual's instruction.
>
>The transmitter has to be tuned for fully output first then the SG
switch is set to OFF then the neutralizing steps are performed. A
"T" connector at the 50 ohm dummy load will allow you to measure
the RF output with an RF probe and a VTVM, or scope, while
adjusting the neutralizing capacitor. The amplifier enclosure
cover must be in place to perform the adjustments.
>
>Are you using an RF probe with the VTVM? If not then you won't see
any indication on the VTVM connected to the rear SO-239 connector.
You can also use a scope, a 30Mhz or higher scope will work fine.
>
>Never mix 6146As with 6146Bs.
>
>73
>Mike W5RKL
>
>
>On 10/11/2013 6:36 AM, sw20plus@... wrote:
>
>
>>Hi all,
>>A cple of month ago I've been given a TS520S. IT was . on

the outside in much better cdx than my old TS520SE. But in the PA I found a 6146A together with a 6146B.
>>So I swapped my old tubes from the SE to theS. No problem.
>>Aftter that I had to Neutralize it. Took the set to our local club station and tried to to the job with the VTVM. Tuned it for neutralization iaw the manual
>>But no output at all was noticed on the VTVM. nothing at all. So we guessed that it must be allright and no neutralization was needed.
>>But 2 days ago after some playing around with the rig and have made a cple of nice QSO's with New York en Hongkong (so it is working !!!)
>>I noticed that the Ip-dip did NOT coincide with the output-peak.
>>So in my humble thoughts, the neut. is NOT correct.
>>I build a simple RF probe like the one KEN K4EAA is mentioning on his website.
>>But again NO output detectable watsoever.....
>>Checked the manual againm but I am sure that I'd followed all the rules..
>>I hope this is recognizable for and that someone can give me a hint.
>>The set has normal output on all the bands and I receive good reports on CW and on SSB.
>>
>>Wally/ PA3BTT
>
>
>
>

45258. MC-50 Connector Screw

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 19:56:29 UTC
From: Chris Maness
Topic: 45258 Message: 45258

Anybody know where I can find the little screw that secures the plastic tip of the microphone and keeps it from rotating? Mine is missing its little screw. I am thinking a eyeglass repair kit might have a suitable replacement. Would hate to cannibalize a new connector.

Regards,

Chris Maness

45259. Re: [TS-520_820_530_830] MC-50 Connector Screw

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 20:14:50 UTC
From: Joseph Stiles
Topic: 45258 Message: 45259

Chris,

  I think that the "eyeglass" screw will be a bit long. I have had good luck finding "off the wall,"
and other hard to find stuff at my local Ace Hardware. They have a very large selection of SAE & metric screws...of dang near all sizes

73 Joe
WB7UQU

On Friday, October 11, 2013 12:56 PM, Chris Maness <chris@...> wrote:

>Anybody know where I can find the little screw that secures the plastic tip of the microphone and keeps it from rotating? Mine is missing its little screw. I am thinking a eyeglass repair kit might have a suitable replacement. Would hate to cannibalize a new connector.
>Regards,
>Chris Maness
>
>
>

45260. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 20:17:31 UTC
From: Joseph Stiles
Topic: 45255 Message: 45260

I need to add that, the dummy load stated, is for use ONLY for final tube neutralization..SG switch in the OFF position!!!.

  remember to turn SG switch back to "ON" when done.

73 Joe
WB7UQU

On Friday, October 11, 2013 12:53 PM, Joseph Stiles <stilesjoseph@...> wrote:

>Mike is correct., don't mix the final tubes and also, you will not see any indication on your VTVM
>if you are not using an RF probe, or an o'scope.
>You can build a very simple RF probe, cost about $2.00
>I made a simple "dummy load" from a PL-259 and 2 100 ohm 1/2watt (non-inductive resistors) in parallel (50ohms). Metal film resistors, etc..will work fine for this purpose.
>As Mike stated..tune for max power...according to instructions in "op" or "service manual," SG switch to OFF...make necessary connections of measuring equipment/dummy load...adjust
>the "neutralization trimmer" capacitor for lowest reading while rig is in "transmit mode"...most likely...you will not get a "zero," just adjust for lowest reading.
>DO NOT USE A METAL TOOL FOR THIS!!! There is
enough RF energy/voltage here to make YOUR "TIMEX" cease ticking..if you happen to slip and "ground out"
>The "trimmer" caps are usually very stiff...so make sure the tool that you are using will not
>break under the torque required.
>
>
>
>
>73 Joe
>WB7UQU
>
>
>
>On Friday, October 11, 2013 12:24 PM, Mike <w5rkl@...> wrote:
>
>
>>You say there is no output. You also said you followed the manual's instruction.
>>
>>The transmitter has to be tuned for fully output first then the SG
switch is set to OFF then the neutralizing steps are performed. A
"T" connector at the 50 ohm dummy load will allow you to measure
the RF output with an RF probe and a VTVM, or scope, while

adjusting the neutralizing capacitor. The amplifier enclosure
cover must be in place to perform the adjustments.
>>
>>Are you using an RF probe with the VTVM? If not then you won't see
any indication on the VTVM connected to the rear SO-239 connector.
You can also use a scope, a 30Mhz or higher scope will work fine.
>>
>>Never mix 6146As with 6146Bs.
>>
>>73
>>Mike W5RKL
>>
>>
>>On 10/11/2013 6:36 AM, sw20plus@... wrote:
>>
>>
>>>Hi all,
>>>A cple of month ago I've been given a TS520S. IT was . on
the outside in much better cdx than my old TS520SE. But in
the PA I found a 6146A together with a 6146B.
>>>So I swapped my old tubes from the SE to theS. No problem.
>>>Aftter that I had to Neutralize it. Took the set to our
local club station and tried to to the job with the VTVM.
Tuned it for neutralization iaw the manual
>>>But no output at all was noticed on the VTVM. nothing at
all. So we guessed that it must be allright and no
neutralization was needed.
>>>But 2 days ago after some playing around with the rig and
have made a cple of nice QSO's with New York en Hongkong
(so it is working !!!)
>>>I noticed that the Ip-dip did NOT coincide with the
output-peak.
>>>So in my humble thoughts, the neut. is NOT correct.
>>>I build a simple RF probe like the one KEN K4EAA is
mentioning on his website.
>>>But again NO output detectable watsoever.....
>>>Checked the manual againm but I am sure that I'd followed
all the rules..
>>>I hope this is recognizable for and that someone can give
me a hint.
>>>The set has normal output on all the bands and I receive
good reports on CW and on SSB.
>>>
>>>Wally/ PA3BTT
>>
>>
>>
>
>
>

45261. RE: R-820 Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 20:50:14 UTC
From: <wagstw46@...>
Topic: 45251 Message: 45261

I am not a R820 "expert".

1. Peform coil pack alignment. If not entire alignment at minimum do 21.250 coils L6, L13, and L20. See Step 2.4 Table 10.

If no improvement then:
1. Check VCO level at TP-1 on the RF board. Should be approx 1.0 rms rf volts. If not adjust with T6. Service manual describes VCO adjusment.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hello- Any R-820 experts lurking here? I recently bought a very nice R-820 receiver. It seems to do OK on all bands except 15 meters, the sensitivity is down considerably.I get a noticeable peak on the preselector on 15 meters. With the receiver connected to an antenna, the calibrator signal reads as follows on S-Meter: 1.9 Mhz = S9+25, 3.9 Mhz= S9+22, 7.3 Mhz=S9+12, 14.3 Mhz=S9+7, 21.3Mhz=S-2, 28.3 Mhz= S-8. I carefully checked it over by unplugging/plugging back in connectors and very carefully cleaning switch contacts (no spray).This is my first experience with the R-820 and I am very excited to be able to use one. I do have the service manual and will be studying up. Thank you, Byron WA5THJ

45262. Re: [TS-520_820_530_830] MC-50 Connector Screw

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 01:57:53 UTC
From: Chris Maness
Topic: 45258 Message: 45262

Thanks for the tip.

Chris KQ6UP
On Oct 11, 2013 1:15 PM, "Joseph Stiles" <stilesjoseph@...> wrote:

>
>
> Chris,
>
> I think that the "eyeglass" screw will be a bit long. I have had good
> luck finding "off the wall,"
> and other hard to find stuff at my local Ace Hardware. They have a very
> large selection of SAE & metric screws...of dang near all sizes
>
>
> 73 Joe
> WB7UQU
>
>
> On Friday, October 11, 2013 12:56 PM, Chris Maness <
> chris@...> wrote:
>
>
> Anybody know where I can find the little screw that secures the plastic
> tip of the microphone and keeps it from rotating? Mine is missing its
> little screw. I am thinking a eyeglass repair kit might have a suitable
> replacement. Would hate to cannibalize a new connector.
> Regards,
> Chris Maness
>
>
>
>
>
>
>

45263. Re: [TS-520_820_530_830] RE: R-820 Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 00:34:33 UTC
From: Byron Tatum
Topic: 45251 Message: 45263

Thanks Terry!
  I will study on this, thank you.
   Byron WA5THJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 11, 2013 3:50 PM
Subject: [TS-520_820_530_830] RE: R-820 Question

I am not a R820 "expert".

1. Peform coil pack alignment. If not entire alignment at minimum do 21.250 coils L6, L13, and L20. See Step 2.4 Table 10.

If no improvement then:
1. Check VCO level at TP-1 on the RF board. Should be approx 1.0 rms rf volts. If not adjust with T6. Service manual describes VCO adjusment.

Terry K9TW
---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
Hello- Any R-820 experts lurking here? I recently bought a very nice R-820 receiver. It seems to do OK on all bands except 15 meters, the sensitivity is down considerably.I get a noticeable peak on the preselector on 15 meters. With the receiver connected to an antenna, the calibrator signal reads as follows on S-Meter: 1.9 Mhz = S9+25, 3.9 Mhz= S9+22, 7.3 Mhz=S9+12, 14.3 Mhz=S9+7, 21.3Mhz=S-2, 28.3 Mhz= S-8. I carefully checked it over by unplugging/plugging back in connectors and very carefully cleaning switch contacts (no spray).This is my first experience with the R-820 and I am very excited to be able to use one. I do have the service manual and will be studying up. Thank you, Byron WA5THJ

45264. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-11 22:18:41 UTC
From: clifford wright
Topic: 45255 Message: 45264

I wonder if you were using a VTVM which only apparently had an RF probe?
My old Voltohmyst put me crook when I reneutralised my TS 820 the other day.
The AC probe was NOT an RF one after all. So I made a simple diode and
capacitor
probe and fed it into my Digital Voltmeter. Worked fine done according
to the manual!
BUT DON"T use a conductive adjuster and use a strong hard plastic or
ceramic one.
The neut cap is often stiff as has been pointed out and there is 900
volts DC present
as well as RF so you might only try it once!!!
Zl1BDA

45265. TS 820 RX DEFAULT

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 09:30:20 UTC
From: <danilo.ik1xhn@...>
Topic: 45265 Message: 45265

I am used to use a TS-820 with a Shure microphone with satisfactory results. Days ago, while the rig was ON, I connected an MC-50 mike.
All of a sudden the s-meter stopped to deflect aand signals were no longer heard.
Absence of any signal!
Someone have a clue about troubleshooting?
73, Daniel IK1XHN

45266. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 10:03:22 UTC
From: Gordon JC Pearce
Topic: 45255 Message: 45266

On Fri, Oct 11, 2013 at 04:36:31AM -0700, sw20plus@... wrote:

> I hope this is recognizable for and that someone can give me a hint.

I just checked the neutralising on mine, following on from my post last week about the load tuning capacitor being all up one end - no-one has come back with any suggestions on that; I wonder if either my posts aren't making it to the list or if my problems are so off-the-wall no-one has ever encountered them before?

Here's what I did:

Let the radio warm up thoroughly - about ten minutes on receive with the heaters on
Disconnected the aerial and attached a dummy load with a short pigtail to go from the UHF socket on the radio to the N-type on the load
Loaded it up as per the manual on 28.5MHz, only transmitting in short bursts just in case
Switched the SG switch off (this turns off the Screen Grid supply to the PA valves, hence the name - the gain drops to not a kick in the backside off zero)
Switched to SEND just to prove that there was no deflection on the RF meter (there wasn't) - this proves that the screen grid supply is off
Connected a T-piece between the TX and the load, and attached my 'scope
Switched back to SEND and observed a few mV of RF, which only increased as I adjusted the neutralising capacitor with a specially-made perspex screwdriver fashioned out of a 6mm perspex knitting needle

So, my neutralising was perfectly okay and just where I left it.

When I got my TS-520 the neutralising capacitor was way too stiff to turn with a plastic screwdriver and I twisted the end off a couple of times. To free it up, I removed the lid of the PA cage, checked that the anode voltage was close to zero and clipped an earth lead on to ensure it didn't "float up" as HV capacitors are wont to do, and gently freed off the capacitor with a long metal screwdriver with a bit of heatshrink over it. This won't work for tuning the neutralising because the metal screwdriver will affect the tuning.

Be careful. You won't get a second chance with that HT supply.

--
Gordonjcp MM0YEQ

45267. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 12:21:21 UTC
From: Mike
Topic: 45255 Message: 45267

Gordon and others,

The SG switch does not remove the screen voltage from the final tubes
nor does it reduce the gain of the final tubes. See my video at the
following link that discusses what the SG Switch's function is and what
each position, ON and OFF, actually does:

http://www.n6wk.com/w5rkl/SG%20Switch/

73
Mike W5RKL

On 10/12/2013 5:03 AM, Gordon JC Pearce wrote:
>
> On Fri, Oct 11, 2013 at 04:36:31AM -0700, sw20plus@... wrote:
>
> > I hope this is recognizable for and that someone can give me a hint.
>
> I just checked the neutralising on mine, following on from my post
> last week about the load tuning capacitor being all up one end -
> no-one has come back with any suggestions on that; I wonder if either
> my posts aren't making it to the list or if my problems are so
> off-the-wall no-one has ever encountered them before?
>
> Here's what I did:
>
> Let the radio warm up thoroughly - about ten minutes on receive with
> the heaters on
> Disconnected the aerial and attached a dummy load with a short pigtail
> to go from the UHF socket on the radio to the N-type on the load
> Loaded it up as per the manual on 28.5MHz, only transmitting in short
> bursts just in case
> Switched the SG switch off (this turns off the Screen Grid supply to
> the PA valves, hence the name - the gain drops to not a kick in the
> backside off zero)
> Switched to SEND just to prove that there was no deflection on the RF
> meter (there wasn't) - this proves that the screen grid supply is off
> Connected a T-piece between the TX and the load, and attached my 'scope
> Switched back to SEND and observed a few mV of RF, which only
> increased as I adjusted the neutralising capacitor with a
> specially-made perspex screwdriver fashioned out of a 6mm perspex
> knitting needle
>
> So, my neutralising was perfectly okay and just where I left it.
>
> When I got my TS-520 the neutralising capacitor was way too stiff to

> turn with a plastic screwdriver and I twisted the end off a couple of
> times. To free it up, I removed the lid of the PA cage, checked that
> the anode voltage was close to zero and clipped an earth lead on to
> ensure it didn't "float up" as HV capacitors are wont to do, and
> gently freed off the capacitor with a long metal screwdriver with a
> bit of heatshrink over it. This won't work for tuning the neutralising
> because the metal screwdriver will affect the tuning.
>
> Be careful. You won't get a second chance with that HT supply.
>
> --
> Gordonjcp MM0YEQ
>
>

45268. Re: [TS-520_820_530_830] TS 820 RX DEFAULT

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 13:04:10 UTC
From: Mark Gilger
Topic: 45265 Message: 45268

You sure it did not go into transmit at that point?

Mark

At 05:30 AM 10/12/2013, danilo.ik1xhn@... wrote:
>
>
>I am used to use a TS-820 with a Shure microphone with satisfactory results.
>Days ago, while the rig was ON, I connected an MC-50 mike.
>All of a sudden the s-meter stopped to deflect
>aand signals were no longer heard.
>Absence of any signal!
>Someone have a clue about troubleshooting?
>73, Daniel IK1XHN
>

45269. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 13:43:02 UTC
From: Gordon JC Pearce
Topic: 45255 Message: 45269

On Sat, Oct 12, 2013 at 07:21:21AM -0500, Mike wrote:
> Gordon and others,
>
> The SG switch does not remove the screen voltage from the final
> tubes nor does it reduce the gain of the final tubes. See my video
> at the following link that discusses what the SG Switch's function
> is and what each position, ON and OFF, actually does:
>
> http://www.n6wk.com/w5rkl/SG%20Switch/

Hm, I can't open that, and I'm not very good with videos anyway.

I'm going by what I was told on this list a few years ago when I got the radio. Now I actually go to look at the diagram, I see it actually biases the screen grid somewhat negative.

--
Gordonjcp MM0YEQ

45270. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 14:16:34 UTC
From: Mike
Topic: 45255 Message: 45270

Gordon,

Try this link

http://www.n6wk.com/w5rkl/

Then click on the "SG Switch" link. That should take you to the SG Switch folder where you then click on "Function of the SG Switch.wmv" link.

The SG switch positions do not bias the final tube screens based on the SG switch position. The SG switch "positions" simply determines what the screen voltage "polarity" that is applied to the final tube screens. The SG switch has nothing to do with "biasing" the final tube screens so don't use and/or think it does. You will only confuse yourself and others by using that term/phrase.

Having an understanding of how a Pentode vacuum tube works will also help you understand what is taking place when the SG switch is set to either ON or OFF. The same effect can be accomplished by simply "removing" or, as you initially said, "disconnect" the screen voltage from the final tube's screen. If the screen voltage is "removed", no voltage is applied to the screens, regardless of the polarity, the screen will be "negative" in respects to the cathode and plate, preventing electrons from flowing pass the cathode to the screen and plate. However, KW does not do that, KW uses a switch that causes a change in the final tube's screen voltage "polarity". The SG switch is a SPDT switch in the 520, 530, and 820 transceiver. In the case of the 830, the SG switch is a simple SPST switch that grounds one lead of the Rectifier Unit's Relay, RL1, energizing the relay. The set of "SPDT" RL1 relay terminals controls the final tube screen voltage polarity in the same way as the SPDT SG switch in the 520, 530, and 820 does.

I don't know what you were told on this group about the SG switch but the video shows what the SG switch actually does. I did not shown the 830's Rectifier Unit Relay, RL1, circuit in the video, I said so in the video, but if you review the 830 schematic you will see how the 830's RL1 relay SPDT terminals controls the polarity of the 830 final tube screen voltage just as the SPDT SG switch does in the 520, 530, and 820.

73
Mike W5RKL

On 10/12/2013 8:43 AM, Gordon JC Pearce wrote:
>
> On Sat, Oct 12, 2013 at 07:21:21AM -0500, Mike wrote:
> > Gordon and others,
> >

> > The SG switch does not remove the screen voltage from the final
> > tubes nor does it reduce the gain of the final tubes. See my video
> > at the following link that discusses what the SG Switch's function
> > is and what each position, ON and OFF, actually does:
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>
> Hm, I can't open that, and I'm not very good with videos anyway.
>
> I'm going by what I was told on this list a few years ago when I got
> the radio. Now I actually go to look at the diagram, I see it actually
> biases the screen grid somewhat negative.
>
> --
> Gordonjcp MM0YEQ
>
>

45271. RE: Re: [TS-520_820_530_830] 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 14:24:08 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45271

i now have the radio all back together, 15 meters had a lower receive sig then the other bands, and no xmit. all other bands were good 100 watts out. i put the case back together (bottom half). now no transmit on the other the bands. My number one suspect at this point is the band switch. i deox it and worked it several times. if it is the bandswitch, which waffer board effects all bands, i figure there has to be a common point some where.
this is a 530s, where i just replaced the coupler on the band switch..i am pretty sure its indexing right.

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Although the quality is sometimes suspect, don't discount Harbor Freight for a source for tools that are not often used.

http://www.harborfreight.com/36-piece-sae-metric-hex-key-set-94725.html
http://www.harborfreight.com/36-piece-sae-metric-hex-key-set-94725.html

http://www.harborfreight.com/25-piece-extra-long-hex-key-set-5962.html
http://www.harborfreight.com/25-piece-extra-long-hex-key-set-5962.html

73
Don W9CW

On 10/8/2013 10:47 PM, Joseph Stiles wrote:

another place to find long tools...metric/sae... is the local hobby store...especially if they have a good sized RC car section

but, you'll pay more than 50cents hihi

73 Joe
WB7UQU

45272. Re: [TS-520_820_530_830] TS 820 RX DEFAULT

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 16:23:36 UTC
From: Danilo I.A.
Topic: 45265 Message: 45272

Indeed it goes into transmit but the problem is in RX as it's quite deaf.
I mean, I can hear voices and cw but very weak and the s-meter doesn't
deflect at all (I also tried to switch the AGC from fast to slow to off and
vice-versa, as well the af gain is fully clockwise, but no results).
Daniel, IK1XHN

2013/10/12 Mark Gilger <mgilger@...>

> **
>
>
> You sure it did not go into transmit at that point?
>
> Mark
>
>
> At 05:30 AM 10/12/2013, danilo.ik1xhn@... wrote:
>
>
>
> I am used to use a TS-820 with a Shure microphone with satisfactory
> results.
> Days ago, while the rig was ON, I connected an MC-50 mike.
> All of a sudden the s-meter stopped to deflect aand signals were no longer
> heard.
> Absence of any signal!
> Someone have a clue about troubleshooting?
> 73, Daniel IK1XHN
>
>
>
>

--
Danilo Imperatore-Antonucci IK1XHN (ex I1IMJ)

*http://www.qrz.com/db/ik1xhn
*
Member of:
* INORC* *# 582 Italian Naval Old Rhytmers Club
* ARMI # 169 Associazione Radioamatori Marinai Italiani
* SKCC # 4876 Straight Key Century Club
* NAQCC # 4878 North American Qrp Cw Club
* VCA # 048 Vibroplex Collector's Association

45273. OT: TS-50S Tips?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 17:18:56 UTC
From: Chris Maness
Topic: 45273 Message: 45273

If anyone is familiar with replacing caps on the TS-50S, I could use some help. Off list of course. Making a terrible screeching noise on power up. This is a known issue that requires replacing one or more caps. I do see one cap that has either leaked or was marked with white paint. That would be the first one I am going to replace. However, lifting that main board has me intimidated.

Thanks,
Chris Maness KQ6UP

45274. RE: Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 17:19:12 UTC
From: <wagstw46@...>
Topic: 45255 Message: 45274

Gordon:

It is common for people to say that the SG switch "removes" or "turns off" the normal positive screen grid voltage. If they stop with that statement then it is not accurate or complete. What Mike is saying it that it not only "removes" the normal SG voltage, but it "replaces" it with -100vdc. I suppose if you want to be really picky could argue it does remove it for a brief moment as the switch and relay contacts are SPDT that are break before make, but that isnt the point that Mike is trying to make. .

In order to cold neutralize the finals you would have to literally physically remove or determinate the SG voltage and the Anode voltage and that is not safe., We did that in the old boatanchor days. The reason for applying -100 vdc "bias" is because with the rig keyed the cutoff bias has been switched to operating bias on the control grid and if additional "bias" was not applied to the SG the tube would conduct. Cannot just remove the SG voltage. It is easier to apply this "bias" to the screen grid than to mess with operating bias on the control grid that is already being switched from -100vdc cutoff to -55vdc operating bias (Q point or zero signal point to set the Class of operation). .

Normally I dont like to think of the -100vdc as bias voltage as it might confuse people. I like to reserve bias voltage term for the control grid. Keeps things cleaner.

OK inquistive folks might ask then if I am seeing RF output at the SO-239 then removing the SG voltage and replacing it with -100vdc must allow some small amount of plate current to flow. If no plate current how would there be any RF output?

No there is Zero plate current with SG switch off and rig keyed. The finals are cut off. What you are seeing is the feed thru RF from the Driver tube applied to the 6146 control grids and passing thru the inter-electrode capacitance between the control grid and the anode. Look at the 6146B tube data sheet and you will see that Cgp is max of 0.22pf. That is 2/10th of a pico farad. A very small coupling capacitor.

OK then why neutralize on 10 meters? Look at the opposition that a 0.22pf cap presents to 28.5mhz and to 3.7mhz and you will have your answer. This is why Mike and I constantly harp about the importance of good fundamental electronics background.

Capacitive reactance is an inverse relationship to frequency. The higher the frequency the less reactance or AC resistance to the RF current.

.159/FC = .159/28.5mhz x 0.22pf = 25k ohms at 10 meters

.159/FC = .159/3.7mhz x 0.22pf = 196k ohms at 80 meters

So you can see that at 10 meters that Cgp offers lower resistance to RF current being fed back from the 6146 plate circuit to the grid circuit. Anytime you couple signal back from the plate to the control grid at sufficient level the amplifier tube can break into oscillation. We want it to amplify and not oscillate so we neutralize the affects of Cgp.

On the lower bands no reason to neutralize as the reactance of Cgp is too high to result in enough rf feedback for the tube to oscillate.

This is why when you neutralize on 10 meters the plate current dip typically will not precisely occur at maximum RF output on the lower bands. People needless fuss about this. Very difficult to make a broad banded neutralizing circuit. Some neutralize at 21 mhz in an attempt to get it to work somewhat across the bands.

All this means is that max RF output (max efficiency) does not occur at true resonance. Kenwood realized that and knew that dip and load was not the best way to load a Class AB1 SSB transmitter. So they provided us with the RF relative power meter and instructed us to simply load for max indication on the RF meter position without exceeding plate dissipation. Because we have ALC and RF negative feedback not loading to true resonance does not result in significantly less linearity or higher IMD products.

If you are interested you can read up on Tetrodes (beam power tubes as well) and learn that the screen grid not only serves as an electrostatic shield it also is the primary determinate for plate current at a given control grid bias voltage level.

Secondary emission, tetrode kink, positive and negative SG current, SG regulation, SG dissipation, etc is interesting reading that all applies to our hybrids Class AB1 SSB amplifier. Today we have gone to Grounded Grid so folks have forgotten or never knew how a grid driven final works or how to load one. SG current meter is the best but KW didnt spend the money for that. We have the RF voltage meter position.

Think about this for a minute. You have + 900vdc on the Anode and -100vdc on the SG and -55vdc on the control grid and the Anode can not produce any plate current.

This says something about the influence that the SG has on plate current and RF output power.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Sat, Oct 12, 2013 at 07:21:21AM -0500, Mike wrote:
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--
Gordonjcp MM0YEQ

45275. RE: TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 17:58:43 UTC
From: <paw_paw44036@...>
Topic: 45255 Message: 45275

According to my manual. attach the dummy load and tune the radio for max power output at 28.5mhz. slide the SG switch to off position. Attach the RF multi meter probe across the dummy load. Flip the stand-by switch to send and adjust TC-1 to min. RF output. Should be just a couple of millivolts at the most.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Gordon:

It is common for people to say that the SG switch "removes" or "turns off" the normal positive screen grid voltage. If they stop with that statement then it is not accurate or complete. What Mike is saying it that it not only "removes" the normal SG voltage, but it "replaces" it with -100vdc. I suppose if you want to be really picky could argue it does remove it for a brief moment as the switch and relay contacts are SPDT that are break before make, but that isnt the point that Mike is trying to make. .

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Normally I dont like to think of the -100vdc as bias voltage as it might confuse people. I like to reserve bias voltage term for the control grid. Keeps things cleaner.

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All this means is that max RF output (max efficiency) does not occur at true resonance. Kenwood realized that and knew that dip and load was not the best way to load a Class AB1 SSB transmitter. So they provided us with the RF relative power meter and instructed us to simply load for max indication on the RF meter position without exceeding plate dissipation. Because we have ALC and RF negative feedback not loading to true resonance does not result in significantly less linearity or higher IMD products.

If you are interested you can read up on Tetrodes (beam power tubes as well) and learn that the screen grid not only serves as an electrostatic shield it also is the primary determinate for plate current at a given control grid bias voltage level.

Secondary emission, tetrode kink, positive and negative SG current, SG regulation, SG dissipation, etc is interesting reading that all applies to our hybrids Class AB1 SSB amplifier. Today we have gone to Grounded Grid so folks have forgotten or never knew how a grid driven final works or how to load one. SG current meter is the best but KW didnt spend the money for that. We have the RF voltage meter position.

Think about this for a minute. You have + 900vdc on the Anode and -100vdc on the SG and -55vdc on the control grid and the Anode can not produce any plate current.

This says something about the influence that the SG has on plate current and RF output power.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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--
Gordonjcp MM0YEQ

45276. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 18:23:44 UTC
From: Mike
Topic: 45255 Message: 45276

Terry, if you don't mind, I'll add an additional comment about the
TS-830 SG switch.

I made a video that shows the difference between the TS-520, 530, and
820 SG switch circuit and the TS-830 SG switch circuit and how the
TS-830 SG Switch works.

The following link will take you to the w5rkl folder on Gordon's website:

www.n6wk.com/w5rkl/

Once there, click on the "SG Switch" folder link which will take you to
the SG switch video files. Click on the video file titled "Function of
the TS830 SG Switch.wmv" to view the video.

73
Mike W5RKL

On 10/12/2013 12:19 PM, wagstw46@... wrote:
>
> Gordon:
>
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45277. RE: Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 18:54:01 UTC
From: <wagstw46@...>
Topic: 45255 Message: 45277

I will take a look at it. I looked at the first one and it was good.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, if you don't mind, I'll add an additional comment about the TS-830 SG switch.

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This is why when you neutralize on 10 meters the plate current dip typically will not precisely occur at maximum RF output on the lower bands. People needless fuss about this. Very difficult to make a broad banded neutralizing circuit. Some neutralize at 21 mhz in an attempt to get it to work somewhat across the bands.

All this means is that max RF output (max efficiency) does not occur at true resonance. Kenwood realized that and knew that dip and load was not the best way to load a Class AB1 SSB transmitter. So they provided us with the RF relative power meter and instructed us to simply load for max indication on the RF meter position without exceeding plate dissipation. Because we have ALC and RF negative feedback not loading to true resonance does not result in significantly less linearity or higher IMD products.

If you are interested you can read up on Tetrodes (beam power tubes as well) and learn that the screen grid not only serves as an electrostatic shield it also is the primary determinate for plate current at a given control grid bias voltage level.

Secondary emission, tetrode kink, positive and negative SG current, SG regulation, SG dissipation, etc is interesting reading that all applies to our hybrids Class AB1 SSB amplifier. Today we have gone to Grounded Grid so folks have forgotten or never knew how a grid driven final works or how to load one. SG current meter is the best but KW didnt spend the money for that. We have the RF voltage meter position.

Think about this for a minute. You have + 900vdc on the Anode and -100vdc on the SG and -55vdc on the control grid and the Anode can not produce any plate current.

This says something about the influence that the SG has on plate current and RF output power.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> mailto:ts-520_820_530_830@yahoogroups.com wrote:

On Sat, Oct 12, 2013 at 07:21:21AM -0500, Mike wrote:
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Hm, I can't open that, and I'm not very good with videos anyway.

I'm going by what I was told on this list a few years ago when I got the radio. Now I actually go to look at the diagram, I see it actually biases the screen grid somewhat negative.

--
Gordonjcp MM0YEQ

45278. RE: RE: TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 19:17:59 UTC
From: <wagstw46@...>
Topic: 45255 Message: 45278

Most people cant get their RF probe across the dummy load. Some use a coax Tee and measure off the open Tee. Others including me use couple of 100 ohm 1/2 watt resistors in parallel soldered on a PL-259 that is then screwed on the SO-239 directly at rear of rig. Now measure the rf voltage across this mini-dummy load. This takes out long coax jumper and problem of getting on the dummy load resistor.

You need to add one additional step.

After getting the first null you should adjust the Plate Tune and Plate Load caps to see if you get another peak in rf voltage. Typically will. Then null again with the NC trimmer cap. I would adjust the tank caps one more time to see if you get another peak. Typically will but will be less pronounced this second time.

Not necessary to do this but will get a very good neutralization at 28.5mhz.

A good test is to connect RF millivolt meter across the 6146 control grid circuit and then tune the plate tank circuit thru resonance and see if the RF voltage changes. It should not if neutralization is effective. Dont know anyone who does this.

Lastly. some folks just use another receiver sitting close to the rig and adjust NC trimmer for lowest audio level in the speaker. This works well enough for neutralization and carrier null and side band balance if do not have any test gear.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

According to my manual. attach the dummy load and tune the radio for max power output at 28.5mhz. slide the SG switch to off position. Attach the RF multi meter probe across the dummy load. Flip the stand-by switch to send and adjust TC-1 to min. RF output. Should be just a couple of millivolts at the most.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Gordon:

It is common for people to say that the SG switch "removes" or "turns off" the normal positive screen grid voltage. If they stop with that statement then it is not accurate or complete. What Mike is saying it that it not only "removes" the normal SG voltage, but it "replaces" it with -100vdc. I suppose if you want to be really picky could argue it does remove it for a brief moment as the switch and relay contacts are SPDT that are break before make, but that isnt the point that Mike is trying to make. .

In order to cold neutralize the finals you would have to literally physically remove or determinate the SG voltage and the Anode voltage and that is not safe., We did that in the old boatanchor days. The reason for applying -100 vdc "bias" is because with the rig keyed the cutoff bias has been switched to operating bias on the control grid and if additional

"bias" was not applied to the SG the tube would conduct. Cannot just remove the SG voltage. It is easier to apply this "bias" to the screen grid than to mess with operating bias on the control grid that is already being switched from -100vdc cutoff to -55vdc operating bias (Q point or zero signal point to set the Class of operation). .

Normally I dont like to think of the -100vdc as bias voltage as it might confuse people. I like to reserve bias voltage term for the control grid. Keeps things cleaner.

OK inquistive folks might ask then if I am seeing RF output at the SO-239 then removing the SG voltage and replacing it with -100vdc must allow some small amount of plate current to flow. If no plate current how would there be any RF output?

No there is Zero plate current with SG switch off and rig keyed. The finals are cut off. What you are seeing is the feed thru RF from the Driver tube applied to the 6146 control grids and passing thru the inter-electrode capacitance between the control grid and the anode. Look at the 6146B tube data sheet and you will see that Cgp is max of 0.22pf. That is 2/10th of a pico farad. A very small coupling capacitor.

OK then why neutralize on 10 meters? Look at the opposition that a 0.22pf cap presents to 28.5mhz and to 3.7mhz and you will have your answer. This is why Mike and I constantly harp about the importance of good fundamental electronics background.

Capacitive reactance is an inverse relationship to frequency. The higher the frequency the less reactance or AC resistance to the RF current.

.159/FC = .159/28.5mhz x 0.22pf = 25k ohms at 10 meters

.159/FC = .159/3.7mhz x 0.22pf = 196k ohms at 80 meters

So you can see that at 10 meters that Cgp offers lower resistance to RF current being fed back from the 6146 plate circuit to the grid circuit. Anytime you couple signal back from the plate to the control grid at sufficient level the amplifier tube can break into oscillation. We want it to amplify and not oscillate so we neutralize the affects of Cgp.

On the lower bands no reason to neutralize as the reactance of Cgp is too high to result in enough rf feedback for the tube to oscillate.

This is why when you neutralize on 10 meters the plate current dip typically will not precisely occur at maximum RF output on the lower bands. People needless fuss about this. Very difficult to make a broad banded neutralizing circuit. Some neutralize at 21 mhz in an attempt to get it to work somewhat across the bands.

All this means is that max RF output (max efficiency) does not occur at true resonance. Kenwood realized that and knew that dip and load was not the best way to load a Class AB1 SSB transmitter. So they provided us with the RF relative power meter and instructed us to simply load for max indication on the RF meter position without exceeding plate dissipation. Because we have ALC and RF negative feedback not loading to true resonance does not result in significantly less linearity or higher IMD products.

If you are interested you can read up on Tetrodes (beam power tubes as well) and learn that the screen grid not only serves as an electrostatic shield it also is the primary determinate for plate current at a given control grid bias voltage level.

Secondary emission, tetrode kink, positive and negative SG current, SG regulation, SG dissipation, etc is interesting reading that all applies to our hybrids Class AB1 SSB amplifier. Today we have gone to Grounded Grid so folks have forgotten or never knew how a grid driven final works or how to load one. SG current meter is the best but KW didnt spend the money for that. We have the RF voltage meter position.

Think about this for a minute. You have + 900vdc on the Anode and -100vdc on the SG and -55vdc on the control grid and the Anode can not produce any plate current.

This says something about the influence that the SG has on plate current and RF output power.

Terry K9TW

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Hm, I can't open that, and I'm not very good with videos anyway.

I'm going by what I was told on this list a few years ago when I got the radio. Now I actually go to look at the diagram, I see it actually biases the screen grid somewhat negative.

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Gordonjcp MM0YEQ

45279. RE: Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 19:35:25 UTC
From: <wagstw46@...>
Topic: 45255 Message: 45279

Mike:

I forgot to mention that depending on what 830 schematic you have the switch and/or relay contacts are drawn wrong. To me "normal operation " is for the SG switch to be shown in the On position which means de-energized. Relays contacts should always be shown on any electrical print with the contacts in the de-energized state.

I have a schematic that shows the SG switch off or to ground position and the relay energized, but the contacts are shown in de-energized state.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, if you don't mind, I'll add an additional comment about the TS-830 SG switch.

I made a video that shows the difference between the TS-520, 530, and 820 SG switch circuit and the TS-830 SG switch circuit and how the TS-830 SG Switch works.

The following link will take you to the w5rkl folder on Gordon's website:

www.n6wk.com/w5rkl/ http://www.n6wk.com/w5rkl/

Once there, click on the "SG Switch" folder link which will take you to the SG switch video files. Click on the video file titled "Function of the TS830 SG Switch.wmv" to view the video.

73
Mike W5RKL

On 10/12/2013 12:19 PM, wagstw46@... mailto:wagstw46@... wrote:

Gordon:

It is common for people to say that the SG switch "removes" or "turns off" the normal positive screen grid voltage. If they stop with that statement then it is not accurate or complete. What Mike is saying it that it not only "removes" the normal SG voltage, but it "replaces" it with -100vdc. I suppose if you want to be really picky could argue it does remove it for a brief moment as the switch and relay contacts are SPDT that are break before make, but that isnt the point that Mike is trying to make. .

In order to cold neutralize the finals you would have to literally physically remove or determinate the SG voltage and the Anode voltage and that is not safe., We did that in the old boatanchor days. The reason for applying -100 vdc "bias" is because with the rig keyed the cutoff bias has been switched to operating bias on the control grid and if additional "bias" was not applied to the SG the tube would conduct. Cannot just remove the SG voltage. It is easier to apply this "bias" to the screen grid than to mess with operating bias on the control grid that is already being switched from -100vdc cutoff to -55vdc operating

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the money for that. We have the RF voltage meter position.

Think about this for a minute. You have + 900vdc on the Anode and -100vdc on the SG and -55vdc on the control grid and the Anode can not produce any plate current.

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Hm, I can't open that, and I'm not very good with videos anyway.

I'm going by what I was told on this list a few years ago when I got the radio. Now I actually go to look at the diagram, I see it actually biases the screen grid somewhat negative.

--
Gordonjcp MM0YEQ

45280. No 15m on the 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 19:51:25 UTC
From: <yioutta_99@...>
Topic: 45280 Message: 45280

I had replaced the bandswitch coupler, the resistors on the finals board and I thought i was good to go. Turns out i was able to only get some drive on some parts of each band. So I went ahead and adjusted the drive coils. They were WAY out. All of them adjusted up except for 15 meters. So I have no drive on 15 meters. I am suspecting the contact on the band switch, or something else in the line.
Any suggestions on this?
I am getting a soild 100 watts out now on 20 meters and getting drive on the other bands as well. i have not yet did a full tune up on all the bands, but its much better than it was before the drive adjustments on the RF board.

steve

45281. VR1 530s IF board??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 21:18:29 UTC
From: <yioutta_99@...>
Topic: 45281 Message: 45281

I have been looking for VR1 on the IF unit so I can zero the S meter. I havent found it yet. Can anyone point it out to me?

thanks

steve

45282. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 21:26:13 UTC
From: W5RKL
Topic: 45255 Message: 45282

Terry,

I have also run into those types of errors shown on schematics so I know what you mean.

As you saw in my video, I put the SG switch in the "Open" or "ON" position which indicates the relay is not energized. The 830 schematic I have is the high resolution copy from Gordon's website. The Rectifier Unit's relay contacts directly above the relay coil in the video are shown in the "de-energized" position (SG switch is set to ON), providing a positive voltage to the final tube screens. Closing the switch circuit completes the relay coil circuit, energizes the relay which pulls the relay contact down, changing the source and polarity of the screen voltage from Positive to Negative.

As long as the tech understands how this circuit works and that KW changed the SPDT slide switch to a relay switch and how the basic circuit works, he/she should have no trouble with it. I suspect KW changed the SG switch circuit in the 830 from a slide switch to a relay switch because of the voltages being switched.

73
Mike W5RKL

On 10/12/2013 2:35 PM, wagstw46@... wrote:
>
> Mike:
>
>
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> switch and/or relay contacts are drawn wrong. To me "normal operation
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>> We have the RF voltage meter position.
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>> Gordonjcp MM0YEQ
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>

45283. Re: [TS-520_820_530_830] VR1 530s IF board??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 21:32:58 UTC
From: W5RKL
Topic: 45281 Message: 45283

If you look at the center of the IF Unit board, you will find VR1 and VR2 close together.

Look at the 530 service manual, page 14. Rotate the pdf file clockwise "one click". Look to the right of the filters placement and you'll find VR1 and VR2, in the center of the board.

73
Mike W5RKL

On 10/12/2013 4:18 PM, yioutta_99@... wrote:
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> I have been looking for VR1 on the IF unit so I can zero the S meter.
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> thanks
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> steve
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45284. RE: VR1 530s IF board??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 22:14:23 UTC
From: <yioutta_99@...>
Topic: 45281 Message: 45284

thanks. If it were a snake, it would of bit me.

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

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steve

45285. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 22:28:15 UTC
From: Dave & Loraine
Topic: 45255 Message: 45285

Mike,
"Having an understanding of how a Pentode vacuum tube works will also help you understand what is taking place when the SG switch is set to either ON or OFF."

Tetrode?

73 Dave f4eyk

45286. RE: Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 23:34:58 UTC
From: <wagstw46@...>
Topic: 45255 Message: 45286

I was referring the folks to Tetrodes to understand a grid driven RF amp and the function of the screen grid. The Screen grid serves the same function whether in a Pentode or a Tetrode. If you want to understand the Screen grid and its effect on plate current my advice stands study a Tetrode.

The 6146 tubes in are rigs are more correctly referred to as Beam Power tubes or Beam Tetrodes as they have the beam forming plates to deal with secondary emission.

Yes adding the Suppressor grid converts the Tetrode to a Pentode if you are counting elements. Lots of arguments about naming convention. Even Eimac and Penta use different terms. I believe Eimac calls there 4-400A a radial beam power tetrode. There was also a patent issue between RCA and Phillips around the Pentode name.

So I suggest that if you want to learn how the Class AB1 SSB linear amps in our KW hybrids work and how to load one you will be better served to search on grid driven Tetrode RF amps.

First home brew RF amp I built used a 6L6. Some refer to it as a beam power pentode and some call it a beam tetrode.

Sorry for the confusion and not properly calling the 6146 tube a beam power tube or a beam power tetrode. I would have never thought to call it a Pentode.

Terry K9TW

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Mike,
"Having an understanding of how a Pentode vacuum tube works will also
help you understand what is taking place when the SG switch is set to
either ON or OFF."

Tetrode?

73 Dave f4eyk

45287. Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 02:23:02 UTC
From: Jim S
Topic: 44192 Message: 45287

How well did you hear him ? I would have been suspecting a bad
connection to the shield of your coax feedline!

Jim AG3Y

On 8/22/2013 2:16 PM, John Davidson wrote:
>
> Maybe not a dim bulb, but I did have a QSO with an aquaintence who
> lived a mile away when I was connected to a HeathKit Cantenna on 10M
> SSB once.
> I was tinkering with an audio compressor I built, hooked to my TS520,
> and got a call on the air from a guy who heard me at S5 a mile away.!
>
> _____
> From: Craig Roberts <crgrbrts@... <mailto:crgrbrts%40verizon.net>>
> To: TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830%40yahoogroups.com>
> Cc: Jeramy Ross <jeramy@... <mailto:jeramy%40w5xtl.org>>
> Sent: Wednesday, August 21, 2013 8:52 PM
> Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..
>
>
>
> Not only did I have a QSOs with a light bulb, I continue to have QSOs
> with a few dim bulbs.
>
> 73,
>
> Craig
> W3CRR
>
> [Non-text portions of this message have been removed]
>
>

45288. RE: 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 02:53:17 UTC
From: <yioutta_99@...>
Topic: 45055 Message: 45288

i see that there are 41 replys to this post, but i see only 3. whats up with that?

---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:

i now have the radio all back together, 15 meters had a lower receive sig then the other bands, and no xmit. all other bands were good 100 watts out. i put the case back together (bottom half). now no transmit on the other the bands. My number one suspect at this point is the band switch. i deox it and worked it several times. if it is the bandswitch, which waffer board effects all bands, i figure there has to be a common point some where.
this is a 530s, where i just replaced the coupler on the band switch..i am pretty sure its indexing right.

thanks

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Although the quality is sometimes suspect, don't discount Harbor Freight for a source for tools that are not often used.

http://www.harborfreight.com/36-piece-sae-metric-hex-key-set-94725.html
http://www.harborfreight.com/36-piece-sae-metric-hex-key-set-94725.html

http://www.harborfreight.com/25-piece-extra-long-hex-key-set-5962.html
http://www.harborfreight.com/25-piece-extra-long-hex-key-set-5962.html

73
Don W9CW

On 10/8/2013 10:47 PM, Joseph Stiles wrote:

another place to find long tools...metric/sae... is the local hobby store...especially if they have a good sized RC car section

but, you'll pay more than 50cents hihi

73 Joe
WB7UQU

45289. neutralizing a TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 03:58:09 UTC
From: <n0dks1@...>
Topic: 45289 Message: 45289

Hi everyone

I have a TS-520 that i brought back to life, my first radio i ever repaired. I have to neutralize the tubs. My question is can i use a analog meter? i have an old Micronta analog meter and i made a rf probe.
I have been watching a vtvm on ebay. also should i set the meter on it's lowest setting on dc volts or should it be on ohm's?

Thanks
Dave n0dks

45290. Re: [TS-520_820_530_830] RE: 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 03:58:06 UTC
From: Wes Will
Topic: 45055 Message: 45290

On 10/12/2013 09:53 PM, yioutta_99@... wrote:
>
>
> i see that there are 41 replys to this post, but i see only 3. whats up
> with that?

I suspect you're like me and don't use an idiotic web page thing, just an email client. I got three messages as well. I've been doing some inventory-taking the last several days, and it shows that I am getting roughtly one message of twelve sent.

Eight and a half percent.

Anyone want the use of a REAL mailing list server to relocate this bloody thing? This Wahoopie-doopie piece of excrement isn't doing me much good at all.

--
Wes Will
N9KDY

45291. Re: [TS-520_820_530_830] RE: 530s repost

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 07:20:19 UTC
From: Gordon JC Pearce
Topic: 45055 Message: 45291

On Sat, Oct 12, 2013 at 10:58:06PM -0500, Wes Will wrote:
> On 10/12/2013 09:53 PM, yioutta_99@... wrote:
> >
> >
> > i see that there are 41 replys to this post, but i see only 3. whats up
> > with that?
>
> I suspect you're like me and don't use an idiotic web page thing, just
> an email client. I got three messages as well. I've been doing some
> inventory-taking the last several days, and it shows that I am getting
> roughtly one message of twelve sent.
>
> Eight and a half percent.
>
> Anyone want the use of a REAL mailing list server to relocate this
> bloody thing? This Wahoopie-doopie piece of excrement isn't doing me
> much good at all.

I'm surprised that a list so orientated towards big old boatanchors like these is using such a newfangled contraption as a "mailing list". We should be using gopher and nntp ;-)

--
Gordonjcp MM0YEQ

45292. Re: [TS-520_820_530_830] neutralizing a TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 07:25:20 UTC
From: Gordon JC Pearce
Topic: 45289 Message: 45292

On Sat, Oct 12, 2013 at 08:58:09PM -0700, n0dks1@... wrote:
> Hi everyone
>
> I have a TS-520 that i brought back to life, my first radio i ever repaired. I
> have to neutralize the tubs. My question is can i use a analog meter? i have
> an old Micronta analog meter and i made a rf probe.
> I have been watching a vtvm on ebay. also should i set the meter on it's lowest
> setting on dc volts or should it be on ohm's?

It has to be a very high-impedance meter, hence "VTVM". A good digital multimeter presents a pretty high impedance, but doesn't respond particularly quickly and you'll miss the dip.

The easiest thing is to use an oscilloscope. It doesn't even need to be a particularly high frequency 'scope. If you use a 10MHz instrument it will not read the output voltage particularly accurately at 28.5MHz, but that doesn't matter because you don't need to know what the voltage is, just that you've found the minimum. It will be a few tens of mV at the peak and a few mV at the dip. If it's way, way higher - you need to put the 'scope on something other than 5mV/div - you likely have some sort of fault.

--
Gordonjcp MM0YEQ

45293. Re: Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 10:01:53 UTC
From: Dave & Loraine
Topic: 45255 Message: 45293

Terry,
I was pointing out a possible typo to Mike.
His piece on SG and finals said pentode not tetrode.
I should have been clearer.
Dave f4eyk

45294. Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 11:26:23 UTC
From: Mike
Topic: 45255 Message: 45294

I should have said Beam Power tube, my mistake.

73
Mike W5RKL

On 10/13/2013 5:01 AM, Dave & Loraine wrote:
>
> □
>
> Terry,
> I was pointing out a possible typo to Mike.
> His piece on SG and finals said pentode not tetrode.
> I should have been clearer.
> Dave f4eyk
>

45295. TS-511S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 13:09:00 UTC
From: <dlbowders@...>
Topic: 13947 Message: 45295

Hello Group,
I have begun a winter project with a TS-511S. I have 2 questions. #1 Can this rig be described as an early model Hybrid subject to discussion on this group? #2 Are there any members with experience on this rig in this group?
I have a lot of work to do to bring this radio back to book spec and I do have the op and service manuals. I have the equipment but what I do not have is any operating or tech experience with it.
I may from time to time have some questions and if this does not fit in this group I will have to keep researching on my own. So have a little pitty on me if I bring it up again. I think this group has a combined knowledge above all others so I am at yall's mercy. (I added that piece of puff to boost your desire to tolerate me, I have read some psych texts)
Best 73,
Don K5HFG

45296. RE: Re: Re: [TS-520_820_530_830] TS520S NEUTRALIZING problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 13:16:26 UTC
From: <wagstw46@...>
Topic: 45255 Message: 45296

OK I misread your post. Easy to do.

Just hope folks get the bug and want to learn more about how the KW Hybrid transmitter works. Over the years I built several grid driven tetrode amps. Dont see too many people playing with these beast today.

Most dont realize we have "mini-tetrode" amps under the hoods.We just dont have SG meter, SG shunt regulators, or SG protection circuits that the big boys have.

In my day were no mosfet shunt regulators and no mov or arc tube protection. We used gas tube regulators and perhaps a manual reset current relay in SG lead to trip the supply. In my homebrew amps I liked to have a zero center meter and it was the only game in town for loading the amp.

Of course easier to homebrew back then as hamfesting would produce the power supply and tank circuit parts you needed.

Sorry for my confusion.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Terry,
I was pointing out a possible typo to Mike.
His piece on SG and finals said pentode not tetrode.
I should have been clearer.
Dave f4eyk

45297. RE: TS-511S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 13:35:36 UTC
From: <dlbowders@...>
Topic: 13947 Message: 45297

Hello Gordon,
Yes it does have sweep tubes,6LQ6's I promise not to overdrive it. I need to work on the power supply before that. It is not collector quality although it is does not show any signs of abuse. HV needs some work, but over all it just shows signs of age. I plan to restore it to original. And keep it in the shack.

To the others who responded, it is rare and info is more rare so we can share what we find.

73, Don

---In ts-520_820_530_830@yahoogroups.com, <dlbowders@...> wrote:

Hello Group,
I have begun a winter project with a TS-511S. I have 2 questions. #1 Can this rig be described as an early model Hybrid subject to discussion on this group? #2 Are there any members with experience on this rig in this group?
I have a lot of work to do to bring this radio back to book spec and I do have the op and service manuals. I have the equipment but what I do not have is any operating or tech experience with it.
I may from time to time have some questions and if this does not fit in this group I will have to keep researching on my own. So have a little pitty on me if I bring it up again. I think this group has a combined knowledge above all others so I am at yall's mercy. (I added that piece of puff to boost your desire to tolerate me, I have read some psych texts)
Best 73,
Don K5HFG

45298. RE: OT: TS-50S Tips?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 13:47:30 UTC
From: <james27613@...>
Topic: 45273 Message: 45298

Hi Chris,

come on over to the TS-50 / -60 group

http://groups.yahoo.com/neo/groups/Kenwood_TS50/conversations/topics

73 James KE4DRN

---In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:

If anyone is familiar with replacing caps on the TS-50S, I could use some help. Off list of course. Making a terrible screeching noise on power up. This is a known issue that requires replacing one or more caps. I do see one cap that has either leaked or was marked with white paint. That would be the first one I am going to replace. However, lifting that main board has me intimidated.

Thanks,
Chris Maness KQ6UP

45299. Re: [TS-520_820_530_830] RE: OT: TS-50S Tips?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 13:58:11 UTC
From: Chris Maness
Topic: 45273 Message: 45299

Thanks, James. I did. I had posted a couple of days ago, but I thought
the group was dead. I am getting some response now.

Regards,
Chris KQ6UP
On Oct 13, 2013 6:47 AM, <james27613@...> wrote:

>
>
> Hi Chris,
>
> come on over to the TS-50 / -60 group
>
> http://groups.yahoo.com/neo/groups/Kenwood_TS50/conversations/topics
>
> 73 James KE4DRN
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <chris@...> wrote:
>
> If anyone is familiar with replacing caps on the TS-50S, I could use some
> help. Off list of course. Making a terrible screeching noise on power up.
> This is a known issue that requires replacing one or more caps. I do see
> one cap that has either leaked or was marked with white paint. That would
> be the first one I am going to replace. However, lifting that main board
> has me intimidated.
>
> Thanks,
> Chris Maness KQ6UP
>
>
>
>

45300. Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-13 21:00:00 UTC
From: John Davidson
Topic: 44192 Message: 45300

I made good , short coax jumpers out of RG8 , I didn't think silver plated, double shielded, teflon coax was necessary.
With antennas we were full scale on S-meters and with Cantennas no movement of S-meters and just above internally generated Rcvr noise level.
How many dB path loss over 1 mile of urban terrain and a dummy load, ? ? Who knows ?!
73, JD

From: Jim S <jimstan@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 12, 2013 10:23 PM
Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

How well did you hear him ? I would have been suspecting a bad connection to the shield of your coax feedline!

Jim AG3Y

To: TS-520_820_530_830@yahoogroups.com
>Cc: Jeramy Ross <jeramy@...>
>Sent: Wednesday, August 21, 2013 8:52 PM
>Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy
load memories..
>
>
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.

45301. Re: [TS-520_820_530_830] VR1 530s IF board??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-12 21:26:09 UTC
From: Ron
Topic: 45281 Message: 45301

It's on the tip left section on an 820

Sent from my iPhone

On Oct 12, 2013, at 5:18 PM, <yioutta_99@...> wrote:

>
>
> I have been looking for VR1 on the IF unit so I can zero the S meter. I havent found it yet. Can anyone point it out to me?
>
> thanks
>
> steve
>
>
>

45302. Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 03:29:16 UTC
From: Chris Maness
Topic: 44803 Message: 45302

Ok, I am back with this "problem". I will first admit that my reference radio is the top of the line flagship ICOM IC-761. This thing has a REALLY quiet and sensitive receiver. I LOVE my TS-520. I think it is a better radio for SSB. It is just wonderful to listen to, and I get complements about the transmit audio that I never get with the 761. It is a great armchair radio. However, this weekend I was chasing DX on the high bands, and this white noise problem was annoying enough to have me switch back to my 761 for the DX. I sent an email to a local ham friend to see if he has the CW filter installed so that I can listen to his receiver and compare it to another 520s. The white noise is still there even if I switch to FIX or a non existent EXT. VFO. This noise makes up about 50% of the noise floor on a very quiet band (like 10m when the band is barely open). However, again -- it is generated after the signal passes through the Narrow CW crystal lattice filter, but before the audio stage. It is reduced by decreasing the RF gain, but it is MUCH wider than the skirt of the filter. I am wondering if putting Schottky diodes in the balanced detector circuit might improve things -- or not.

Thoughts, opinions, flames? I might be just expecting too much from this old gal, but hopefully I can listen to someone else's radio before resigning myself to that.

Regards,
Chris Maness

On Wed, Sep 25, 2013 at 5:39 AM, Chris Maness <chris@...> wrote:
> Yes, I moved the brown lead.
>
> Chris KQ6UP
>
> On Sep 24, 2013 11:31 PM, "Osamu Hazawa" <pomerol@...> wrote:
>>
>> Hi Chris,
>>
>> Did you install the CW filter by yourself?
>> If so, did you complete a modification "Move the brown lead from the SSB
>> terminal to the CW terminal",
>> 35 of the manual?
>>
>> 73,
>> Osamu
>>

>>
>>
>> ----- Original Message -----
>> From: Chris Maness
>> To: TS-520_820_530_830@yahoogroups.com
>> Sent: Wednesday, September 25, 2013 1:47 PM
>> Subject: Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal
>> with the CW RX Filter installed?
>>
>>
>>
>> Ok anyone with a CW narrow filter in their TS-520 get this much wide band
>> white noise on a quiet band or dummy load?
>>
>> Video: http://youtu.be/Fv1RLn_Ws_I
>>
>> Thanks,
>> Chris KQ6UP
>>
>>
>> On Sun, Sep 22, 2013 at 7:41 PM, <wagstw46@...> wrote:
>>>
>>>
>>>
>>> Been a very long time since I have thought or read about Thermal or Shot
>>> noise. I think some guy Kelvin is involved too!
>>>
>>>
>>> Maybe a You tube video for the other TS520S owners with CW filters
>>> installed would help?
>>>
>>>
>>> Terry
>>>
>>> K9TW
>>>
>>>
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com, &l!
>>> t;ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>>
>>>
>>> On Sun, Sep 22, 2013 at 2:50 PM, <wagstw46@...> wrote:
>>>
>>>
>>>
>>> Some people call broad band noise as "hash" noise. I am not really sure
>>> what hash noise is or if I ever heard it. I suppose it would blanket the
>>> spectrum?

>>>
>>>
>>> If it is an external RFI source might look at computer and peripherals
>>> especially if any of them have a switcher supply in them.
>>>
>>>
>>> Definitely internal source because the noise is independent of
>>> antenna/dummy load configurations.
>>>
>>> Maybe generated by one of the new CFl lamps if you are using them.
>>>
>>> See above.
>>>
>>>
>>> When you remove antenna or put rig on dummy load does the S-meter drop to
>>> zero and if you run RF to max and turn of the AF gain do you hear a nice
>>> smooth hiss? That would be normal noise produced internally by the receiver.
>>>
>>> Yes, this is the hiss I am referring to. However, it is a bit more than
>>> I am used to on a typical radio even for its vintage. It is MUCH broader
>>> than the CW filter. There are two layers of this white noise (this is not
>>> the HF background noise on the band). The louder one is effected by the RF
>>> Gain/AGC and the audio gain. There is a much fainter one that seems to be
>>> due to the audio stage by itself. It is still present even if the RF GAIN
>>> is set to minimum (AGC Voltage Max). That tells me its origin is after the
>>> CW filter, but before the audio filter. If this is normal, I am not going
>>> to worry about it. However, reiterating -- it is much louder than many
>>> other radios I have used. However, when the wide filter is in line, it
>>> blends in with the HF background noise to the point I have not noticed it
>>> before. It is entirely possible that this is normal for the design. It
>>> just seems like the g! reatest noise would be generated at the stage of
>>> greatest gain. I would imagine this would be before that CW filter, and
>>> therefore the Nyquest/Shot noise would be shaped by the filter also. Just
>>> my book thoughts and observations speaking -- not from experience.
>>>
>>> The shape of the noise frequency response in relationship to the HF
>>> background noise makes it REALLY stand out on the high bands. An external
>>> audio band pass filter would cure this if I found it too annoying, but if
>>> there is something wrong inside I would like to fix it.
>>>
>>> Tnx es
>>> 73 de KQ6UP
>>>
>>>
>>> Terry K9TW
>>>
>>>
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com,
>>> <ts-520_820_530_830@yahoogroups.com> wrote:

>>>
>>> In SSB and CW for the lower bands the background HF noise covers over a
>>> background white noise on my radio. However, on the higher bands where the
>>> band is quieter,! I here white noise that is much broader than the 500Hz CW
>>> filter skirt. It is not from the AF stage because it decreases with the AF
>>> volume. Is this normal for this radio? Can anyone else verify this with a
>>> CW filter in the high bands?
>>>
>>> There is a mod bulletin/article floating around the net that suggests a
>>> hash noise may be due to a bad transistor. However, if everyone else hears
>>> the same noise, I am not going to worry about it. Moreover if there is a
>>> mod for this problem, I would definitely be interested in the details. The
>>> noise is tolerable, but I would much prefer it be lower.
>>>
>>> Here is the article in question:
>>>
>>> http://www.radiomods.co.nz/kenwood/kenwoodts520.html
>>>
>>> Thanks for the help guys. From this group I have received enough help to
>>> resurrect a nearly basket case TS-520S. I had fixed other problems back in
>>> 2009. Now I have a nearly perfectly working radio.
>>>
>>> Thanks,
>>> Chris Maness KQ6UP
>>>
>>>
>>>
>>>
>>>
>>
>>

45303. Ladder line with AT-230?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 14:20:56 UTC
From: Craig Roberts
Topic: 44803 Message: 45303

Over the weekend I constructed and erected a 65' doublet antenna fed by 600 ohm ladder line and energized by my TS-830S and TS-530S through at AT-230 antenna tuner.

At first, I employed a DX Engineering 1:1 current balun between the antenna and the tuner through a short (3') coax jumper hooked up to ANT 1 or ANT 2 on the Kenwood tuner. I was not able to achieve an SWR lower than about 3:1 on any band.

Then, I eliminated the balun and attached the ladder line directly to the tuner through the ANT 3 (feedthrough) and ground connections. I am now able to tune the antenna to an SWR reasonably close to 1:1 on most bands 80 - 10 (though 80 meters, as expected, is closer to 2:1).

So, to achieve feedline balance and eliminate (theoretically) feedline radiation, should I use a 4:1, 6:1 or even 9:1 balun instead of the seemingly useless 1:1 device? Or, should I just leave wel enough alone and not use a balun at all?

Does anyone else use ladder line with an AT-230 tuner?

Thanks and 73,

Craig
W3CRR

45304. Re: [TS-520_820_530_830] Ladder line with AT-230?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 14:49:37 UTC
From: Chris Maness
Topic: 44803 Message: 45304

Many baluns don't perform well in a bad SWR condition. I purposely
did not use a balun in my G5RV/Jr design.

Regards,
Chris Maness

On Mon, Oct 14, 2013 at 7:20 AM, Craig Roberts <crgrbrts@...> wrote:
> Over the weekend I constructed and erected a 65' doublet antenna fed by
> 600 ohm ladder line and energized by my TS-830S and TS-530S through at
> AT-230 antenna tuner.
>
> At first, I employed a DX Engineering 1:1 current balun between the
> antenna and the tuner through a short (3') coax jumper hooked up to ANT
> 1 or ANT 2 on the Kenwood tuner. I was not able to achieve an SWR lower
> than about 3:1 on any band.
>
> Then, I eliminated the balun and attached the ladder line directly to
> the tuner through the ANT 3 (feedthrough) and ground connections. I am
> now able to tune the antenna to an SWR reasonably close to 1:1 on most
> bands 80 - 10 (though 80 meters, as expected, is closer to 2:1).
>
> So, to achieve feedline balance and eliminate (theoretically) feedline
> radiation, should I use a 4:1, 6:1 or even 9:1 balun instead of the
> seemingly useless 1:1 device? Or, should I just leave wel enough alone
> and not use a balun at all?
>
> Does anyone else use ladder line with an AT-230 tuner?
>
> Thanks and 73,
>
> Craig
> W3CRR
>
>
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>

45305. Re: [TS-520_820_530_830] Ladder line with AT-230?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 16:19:23 UTC
From: John Davidson
Topic: 44803 Message: 45305

Hooking the ladder line side to a ground upsets the balance for the whole antenna
Connecting a fixed ratio BalUn will not have the right ratio for most of the bands if you band hop.
A 1:1 BalUn Will be lossy where there is a high SWR.
I highly recommend a true balanced input tuner like the (obsolete) Johnson matchbox, or a MFJ974-HB.
 Many other tuners with a balanced input have an internal 4:1 BalUn and this fixed ratio will be lossy at many higher or lower input Z values where the operating freq is not an odd multiple of the resonant (half wave) length of the antenna wires.

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, October 14, 2013 10:20 AM

At first, I employed a DX Engineering 1:1 current balun between the antenna and the tuner through a short (3') coax jumper hooked up to ANT 1 or ANT 2 on the Kenwood tuner. I was not able to achieve an SWR lower than about 3:1 on any band.

Then, I eliminated the balun and attached the ladder line directly to the tuner through the ANT 3 (feedthrough) and ground connections. I am now able to tune the antenna to an SWR reasonably close to 1:1 on most bands 80 - 10 (though 80 meters, as expected, is closer to 2:1).

So, to achieve feedline balance and eliminate (theoretically) feedline radiation, should I use a 4:1, 6:1 or even 9:1 balun instead of the seemingly useless 1:1 device? Or, should I just leave wel enough alone and not use a balun at all?

Does anyone else use ladder line with an AT-230 tuner?

Thanks and 73,

Craig
W3CRR

45306. RE: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 18:14:30 UTC
From: <paw_paw44036@...>
Topic: 44192 Message: 45306

My cantennas had a port on the top to measure rf voltage. I found out if you don't use shielded cables for the connection to the voltmeter it is an antenna and there for will transmit. Depending on the meter used, it can transmit as well. The cheaper ones make good antennas.
Bill WD8OSJ

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I made good , short coax jumpers out of RG8 , I didn't think silver plated, double shielded, teflon coax was necessary.
With antennas we were full scale on S-meters and with Cantennas no movement of S-meters and just above internally generated Rcvr noise level.
How many dB path loss over 1 mile of urban terrain and a dummy load, ? ? Who knows ?!
73, JD
From: Jim S <jimstan@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 12, 2013 10:23 PM
Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

How well did you hear him ? I would have been suspecting a bad connection to the shield of your coax feedline! Jim AG3Y
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830%40yahoogroups.com Cc: Jeramy Ross <jeramy@... mailto:jeramy%40w5xtl.org> Sent: Wednesday, August 21, 2013 8:52 PM Subject: Re: [TS-520_820_530_830] Re: Light bulb dummy load memories..

Visit Your Group http://groups.yahoo.com/group/TS-520_820_530_830;_ylc=X3oDMTJlNzhxZmNoBF9TAzk3MzU5NzE0BGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwN2dGwEc2xrA3ZnaHAEc3RpbWUDMTM4MTYzMDkwNA--

http://groups.yahoo.com/;_ylc=X3oDMTJkNHN1MTdjBF9TAzk3NDc2NTkwBGdycElkAzc1MjUwMjEEZ3Jwc3BJZAMxNzA1MDYzMTA4BHNlYwNmdHIEc2xrA2dmcARzdGltZQMxMzgxNjMwOTA0 Switch to: Text-Only mailto:TS-520_820_530_830-traditional@yahoogroups.com?subject=Change%20Delivery%20Format:%20Traditional, Daily Digest
mailto:TS-520_820_530_830-digest@yahoogroups.com?subject=Email%20Delivery:%20Digest • Unsubscribe mailto:TS-520_820_530_830-unsubscribe@yahoogroups.com?subject=Unsubscribe • Terms of Use http://info.yahoo.com/legal/us/yahoo/utos/terms/ • Send us Feedback mailto:ygroupsnotifications@yahoogroups.com?subject=Feedback%20on%20the%20redesigned%20individual%20mail%20v1

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45307. Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 22:11:25 UTC
From: <paw_paw44036@...>
Topic: 45307 Message: 45307

I am looking for a circuit board for the notch unit used in the TS-530 SP/D.
The unit number is X51-1310-10. I don't suppose that someone would happen to have one hid in a drawer somewhere that you could send me, or a copy of the negative that I could reproduce one?
Even if you had a GOOD picture or scan of the foil side of the board I could make the board from that. You can fax the later to 440-830-2077.
I have all the other parts to build one.
Thank you for your time.
Bill WD8OSJ

45308. Re: [TS-520_820_530_830] Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 22:31:20 UTC
From: Joseph Stiles
Topic: 45307 Message: 45308

Bill,

  In the "service manual" on pg's 53 & 54 shows the "notch" board schematic & x-ray view. They may not suit your needs.

  Try Bob Mansker-ke5ftf at: ke5ftf@...   he has LOTS of good working parts for reasonable prices for most KW hybrids,

73 Joe
WB7UQU

On Monday, October 14, 2013 3:11 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

>I am looking for a circuit board for the notch unit used
in the TS-530 SP/D.
>The unit number is X51-1310-10. I don't suppose that
someone would happen to have one hid in a drawer somewhere that you could send
me, or a copy of the negative that I could reproduce one?
>Even if you had a GOOD picture or scan of the foil side of the
board I could make the board from that. You can fax the later to 440-830-2077.
>I have all the other parts to build one.
>Thank you for your time.
>Bill WD8OSJ
>
>
>
>

45309. RE: Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 23:44:39 UTC
From: <paw_paw44036@...>
Topic: 45307 Message: 45309

I just sent him an e-mail as to my needs.
Yes, I have that manual but the x-ray is very light and hard to see.
If you have a dark x-ray of it please fax it to me and I will see if I can do something with it if Bob doesn't come up with something.
Bill WD8OSJ. God Bless.

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bill, In the "service manual" on pg's 53 & 54 shows the "notch" board schematic & x-ray view. They may not suit your needs. Try Bob Mansker-ke5ftf at: ke5ftf@... he has LOTS of good working parts for reasonable prices for most KW hybrids,

73 Joe WB7UQU
On Monday, October 14, 2013 3:11 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

I am looking for a circuit board for the notch unit used in the TS-530 SP/D.
The unit number is X51-1310-10. I don't suppose that someone would happen to have one hid in a drawer somewhere that you could send me, or a copy of the negative that I could reproduce one?
Even if you had a GOOD picture or scan of the foil side of the board I could make the board from that. You can fax the later to 440-830-2077.
I have all the other parts to build one.
Thank you for your time.
Bill WD8OSJ

45310. plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 00:00:24 UTC
From: <yioutta_99@...>
Topic: 45310 Message: 45310

Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for 20m, but not so good for the other bands. I searched the users manual and didnt find this in it.

thanks

steve

45311. RE: Re: [TS-520_820_530_830] VR1 530s IF board??

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 00:05:22 UTC
From: <yioutta_99@...>
Topic: 45281 Message: 45311

thanks ron, buts more in the center of the board on the 530. BTW your reply was not under my post thats has another reply. Strange happenings here on the groups page.

steve

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

It's on the tip left section on an 820

Sent from my iPhone

On Oct 12, 2013, at 5:18 PM, <yioutta_99@... mailto:yioutta_99@...> wrote:

I have been looking for VR1 on the IF unit so I can zero the S meter. I havent found it yet. Can anyone point it out to me?

thanks

steve

45312. 520 Carrier control

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-14 23:34:48 UTC
From: Lee Br
Topic: 45312 Message: 45312

Hi Guys, Thanks for letting in the group, I'm Lee, I like running these old radios and working on them. Every now and then I get lucky and get one repaired though mine is getting kind cranky Hi! The carrier control pot wont vary the carrier anymore in cw mode don't know what happened,it just stopped working, the pot seems to be ok. I have 110 watts on ssb with abt 210 ma also the meter function in alc mode stopped working even with advancing the mike gain. You can see a slight meter movement in alc. The alc seams to be doing its job but somethings going on with the metering. All other meter modes work. The alc meter function stopped some time back ,I ran across some info on troubleshooting this circuit but haven't found the problem yet. Thanks Again,Lee

45313. RE: [TS-520_820_530_830] plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 01:35:47 UTC
From: fpath fpath
Topic: 45310 Message: 45313

Steve,

In relation to your pointer problem. Has this changed recently? Where did it point on the lower bands before you adjusted it, specifically 1.8, 3.5 and 7.0 Mhz? Don't forget that the pointer may not directly point at the number on the front panel, there are raise painted areas that covers the band, some are small others are larger it should be within the raised painted area. Please advise and we can go from there.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...m
Date: Mon, 14 Oct 2013 17:00:24 -0700
Subject: [TS-520_820_530_830] plate knob/pointer adjustment 530s

Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for 20m, but not so good for the other bands. I searched the users manual and didnt find this in it.

thanks

steve

45314. RE: plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 02:04:39 UTC
From: <yioutta_99@...>
Topic: 45310 Message: 45314

thanks Dave,
I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down. I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.

My Histiory to date with this rig so far: I have replaced the band switch and the load couplers, the cathode and screen resistors and cleaned all the band-switches, neutralized the finals, adjust the drive coils and did a receiver alignment. All on air reports have been very good audio and signal.

thanks

steve
N7LWF

---In ts-520_820_530_830@yahoogroups.com, <fpath@...> wrote:

Steve,

In relation to your pointer problem. Has this changed recently? Where did it point on the lower bands before you adjusted it, specifically 1.8, 3.5 and 7.0 Mhz? Don't forget that the pointer may not directly point at the number on the front panel, there are raise painted areas that covers the band, some are small others are larger it should be within the raised painted area. Please advise and we can go from there.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Mon, 14 Oct 2013 17:00:24 -0700
Subject: [TS-520_820_530_830] plate knob/pointer adjustment 530s

Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for 20m, but not so good for the other bands. I searched the users manual and didnt find this in it.

thanks

steve

45315. RE: plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 04:09:58 UTC
From: <yioutta_99@...>
Topic: 45310 Message: 45315

thanks Dave,
I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down. I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.

My Histiory to date with this rig so far: I have replaced the band switch and the load couplers, the cathode and screen resistors and cleaned all the band-switches, neutralized the finals, adjust the drive coils and did a receiver alignment. All on air reports have been very good audio and signal.

thanks

steve
N7LWF

---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:

thanks Dave,
I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down. I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.

My Histiory to date with this rig so far: I have replaced the band switch and the load couplers, the cathode and screen resistors and cleaned all the band-switches, neutralized the finals, adjust the drive coils and did a receiver alignment. All on air reports have been very good audio and signal.

thanks

steve
N7LWF

---In ts-520_820_530_830@yahoogroups.com, <fpath@...> wrote:

Steve,

In relation to your pointer problem. Has this changed recently? Where did it point on the lower bands before you adjusted it, specifically 1.8, 3.5 and 7.0 Mhz? Don't forget that the pointer may not directly point at the number on the front panel, there are raise painted areas that covers the band, some are small others are larger it should be within the raised painted area. Please advise and we can go from there.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Mon, 14 Oct 2013 17:00:24 -0700
Subject: [TS-520_820_530_830] plate knob/pointer adjustment 530s

Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for 20m, but not so good for the other bands. I searched the users manual and didnt find this in it.

thanks

steve

45316. Re: [TS-520_820_530_830] RE: plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 04:42:47 UTC
From: Joseph Stiles
Topic: 45310 Message: 45316

Steve,

The "pointer" position is an approximate indication...NOT exact...as you noticed and stated about your 520.

With the plates of the "air variable" capacitor in the final cage 50% un-meshed (should look like a "pac man" with the mouth facing to the right....the pointer should be "around" the "14"

With the plates fully "un-meshed" the pointer should be at or possibly just past "28"

With the plates "fully meshed"..the pointer should be at/around the start of the arc for 3.5mhz.

Don't over analyze it...it's a guide...and MAY NOT be exact!
If however, that you "load up" and the plates are way off...that may be cause for concern.

73 Joe
WB7UQU

On Monday, October 14, 2013 9:10 PM, "yioutta_99@..." <yioutta_99@...> wrote:

>thanks Dave,
>I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down.   I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.
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>
>
>thanks
>
>
>steve
>N7LWF
>
>
>---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:
>
>

>thanks Dave,
>I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down.   I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.
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>
>
>thanks
>
>
>steve
>N7LWF
>
>
>---In ts-520_820_530_830@yahoogroups.com, <fpath@...> wrote:
>
>
>Steve,
>
>In relation to your pointer problem. Has this changed recently? Where did it point on the lower bands before you adjusted it, specifically 1.8, 3.5 and 7.0 Mhz? Don't forget that the pointer may not directly point at the number on the front panel, there are raise painted areas that covers the band, some are small others are larger it should be within the raised painted area. Please advise and we can go from there.
>
>73's
>Dave
>VK5PDL
>
>
>
>_________________________________
> To: TS-520_820_530_830@yahoogroups.com
>From: yioutta_99@...
>Date: Mon, 14 Oct 2013 17:00:24 -0700
>Subject: [TS-520_820_530_830] plate knob/pointer adjustment 530s
>
>
>Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for

20m, but not so good for the other bands. I searched the users manual and didnt find this in it.
>
>
>thanks
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>
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>steve
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45317. Re: [TS-520_820_530_830] RE: Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 04:46:57 UTC
From: Joseph Stiles
Topic: 45307 Message: 45317

Bill,

My x-ray view is also very light..sorry.

73 Joe
WB7UQU

On Monday, October 14, 2013 4:48 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

>I just sent him an e-mail as to my needs.
>Yes, I have that manual but the x-ray is very light and hard to see.
>If you have a dark x-ray of it please fax it to me and I will see if I can do something with it if Bob doesn't come up with something.
>Bill WD8OSJ. God Bless.
>
>
>---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:
>
>
>Bill,
>
> In the "service manual" on pg's 53 & 54 shows the "notch" board schematic & x-ray view. They may not suit your needs.
>
> Try Bob Mansker-ke5ftf at: ke5ftf@...   he has LOTS of good working parts for reasonable prices for most KW hybrids,
>
>
>
>
>
>
>73 Joe
>WB7UQU
>
>
>
>On Monday, October 14, 2013 3:11 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:
>
>
>
>>>I am looking for a circuit board for the notch unit used
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>>>The unit number is X51-1310-10. I don't suppose that
someone would happen to have one hid in a drawer somewhere that you could send
me, or a copy of the negative that I could reproduce one?
>>>Even if you had a GOOD picture or scan of the foil side of the
board I could make the board from that. You can fax the later to 440-830-2077.

>>>I have all the other parts to build one.
>>>Thank you for your time.
>>>Bill WD8OSJ
>>>
>>>
>>>
>
>
>

45318. RE: Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 11:12:25 UTC
From: <paw_paw44036@...>
Topic: 45307 Message: 45318

Thanks. Bob contacted me this morning and he is looking into the matter.
Thank you and God Bless.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bill,

My x-ray view is also very light..sorry.

73 Joe
WB7UQU

On Monday, October 14, 2013 4:48 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

I just sent him an e-mail as to my needs.
Yes, I have that manual but the x-ray is very light and hard to see.
If you have a dark x-ray of it please fax it to me and I will see if I can do something with it if Bob doesn't come up with something.
Bill WD8OSJ. God Bless.
---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote: Bill, In the "service manual" on pg's 53 & 54 shows the "notch" board schematic & x-ray view. They may not suit your needs. Try Bob Mansker-ke5ftf at: ke5ftf@... he has LOTS of good working parts for reasonable prices for most KW hybrids,

73 Joe WB7UQU
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The unit number is X51-1310-10. I don't suppose that someone would happen to have one hid in a drawer somewhere that you could send me, or a copy of the negative that I could reproduce one?
Even if you had a GOOD picture or scan of the foil side of the board I could make the board from that. You can fax the later to 440-830-2077.
I have all the other parts to build one.
Thank you for your time.
Bill WD8OSJ

45319. RE: [TS-520_820_530_830] RE: plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 12:38:18 UTC
From: fpath fpath
Topic: 45310 Message: 45319

Steve let me known if you would like some photos taken and sent to you for setting up the meshing and alignment of pointer. Once the pointer has been realigned then you can check on the tuning for all bands. I have two 530s here, both are within a bee's whisker of each other. I'm thinking about installing the digital hold function on both my 530s, I find it very good when chasing DX

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Mon, 14 Oct 2013 21:09:58 -0700
Subject: [TS-520_820_530_830] RE: plate knob/pointer adjustment 530s

thanks Dave,

I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down. I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.

My Histiory to date with this rig so far: I have replaced the band switch and the load couplers, the cathode and screen resistors and cleaned all the band-switches, neutralized the finals, adjust the drive coils and did a receiver alignment. All on air reports have been very good audio and signal.

thanks

steve
N7LWF

---In ts-520_820_530_830@yahoogroups.com, <yioutta_99@...> wrote:

thanks Dave,

I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down. I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.

My Histiory to date with this rig so far: I have replaced the band switch and the load couplers, the cathode and screen resistors and cleaned all the band-switches, neutralized the finals, adjust the drive coils and did a receiver alignment. All on air reports have been very good audio and signal.

thanks

steve
N7LWF

---In ts-520_820_530_830@yahoogroups.com, <fpath@...> wrote:

Steve,

In relation to your pointer problem. Has this changed recently? Where did it point on the lower bands before you adjusted it, specifically 1.8, 3.5 and 7.0 Mhz? Don't forget that the pointer may not directly point at the number on the front panel, there are raise painted areas that covers the band, some are small others are larger it should be within the raised painted area. Please advise and we can go from there.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Mon, 14 Oct 2013 17:00:24 -0700
Subject: [TS-520_820_530_830] plate knob/pointer adjustment 530s

Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for 20m, but not so good for the other bands. I searched the users manual and didnt find this in it.

thanks

steve

45320. TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 14:31:27 UTC
From: Mike
Topic: 45320 Message: 45320

There's an error in the TS-830 schematics that shows the SG switch set to the "OFF" position yet the Rectifier Unit's relay, RL1, it is shown in the "non-energized" state. If the 830 SG switch is in the "OFF" position, as shown in the 830 schematic, the Rectifier Unit relay, RL1, would be "energized" changing the screen voltage from positive to negative. That is not how the Rectifier Unit relay is shown on the 830 schematic with the SG switch shown in the OFF position. My video on the 830 SG switch shows the correct placement of the SG switch in the ON and OFF position and how each position controls the Rectifier Unit relay RL1 and how RL1 controls the "Positive" voltage to the screens (SG ON) and the "Negative" voltage to the screens (SG OFF).

I have found this error to exist on every TS-830 schematic I have downloaded. Therefore, when you are studying/troubleshooting the SG switch circuit, ensure you understand this error exist on the 830 schematics.

73
Mike W5RKL

45321. RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 15:30:23 UTC
From: <paw_paw44036@...>
Topic: 45320 Message: 45321

Mike,

Terry and I were just discussing this last week. I understand there are some other errors as well with this schematic of the TS-830S. Might want to talk to Terry.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

There's an error in the TS-830 schematics that shows the SG switch set to the "OFF" position yet the Rectifier Unit's relay, RL1, it is shown in the "non-energized" state. If the 830 SG switch is in the "OFF" position, as shown in the 830 schematic, the Rectifier Unit relay, RL1, would be "energized" changing the screen voltage from positive to negative. That is not how the Rectifier Unit relay is shown on the 830 schematic with the SG switch shown in the OFF position. My video on the 830 SG switch shows the correct placement of the SG switch in the ON and OFF position and how each position controls the Rectifier Unit relay RL1 and how RL1 controls the "Positive" voltage to the screens (SG ON) and the "Negative" voltage to the screens (SG OFF).

I have found this error to exist on every TS-830 schematic I have downloaded. Therefore, when you are studying/troubleshooting the SG switch circuit, ensure you understand this error exist on the 830 schematics.

73
Mike W5RKL

45322. Re: [TS-520_820_530_830] RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 16:33:21 UTC
From: W5RKL
Topic: 45320 Message: 45322

Terry and I have already discussed this issue many times. I simply was informing members that the 830 SG switch setting on the 830 schematic (SG switch set to OFF) is wrong based on the Rectifier Unit's relay, RL1, state.

73
Mike W5RKL

On 10/15/2013 10:30 AM, paw_paw44036@... wrote:
>
> Mike,
>
> Terry and I were just discussing this last week. I understand there
> are some other errors as well with this schematic of
> the TS-830S. Might want to talk to Terry.
>
> Bill WD8OSJ
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:
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> position, as shown in the 830 schematic, the Rectifier Unit relay,
> RL1, would be "energized" changing the screen voltage from positive to
> negative. That is not how the Rectifier Unit relay is shown on the 830
> schematic with the SG switch shown in the OFF position. My video on
> the 830 SG switch shows the correct placement of the SG switch in the
> ON and OFF position and how each position controls the Rectifier Unit
> relay RL1 and how RL1 controls the "Positive" voltage to the screens
> (SG ON) and the "Negative" voltage to the screens (SG OFF).
>
> I have found this error to exist on every TS-830 schematic I have
> downloaded. Therefore, when you are studying/troubleshooting the SG
> switch circuit, ensure you understand this error exist on the 830
> schematics.
>
> 73
> Mike W5RKL
>
>

45323. ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 15:30:28 UTC
From: Bryan Mbryan
Topic: 45323 Message: 45323

First thank you to everyone who has posted both questions and answers, being a new operator I've already learned a lot from previous messages and files. I'm still learning and very green (i'm not the quickest at dipping and peaking yet or even finding all the knobs) but my question is with a 10 meter dipole I have, I read a higher SWR on the 28.5 band switch settings, and much lower SWR's on the 28 band and 29.1 band. If I understand everything I've learned so far, this is opposite of what I would expect. I.e., I should be reading one low SWR somewhere, and increasingly higher SWR's. Since to me it seems inverted of what is should be, what should I be focusing on? Also possibly related if i'm not consistently doing it, is the need to dip and peak when changing "bands" related to the band switch on the radio or just the general ham band, meaning that you only dip and peak once for 10 meter instead of each of the three 10 meter band switch settings.

45324. Re: [TS-520_820_530_830] ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 17:39:41 UTC
From: John Davidson
Topic: 45323 Message: 45324

First, it is good form to sign your posts with your first name and callsign.
You should retune the final slightly when you go form you go from one end of a band to the other. SWR changes when you change frequency away from the antennas resonant point

If the SWR is higher on the low end , it means your longer than optimum, when it is low on the high end it is longer than optimum length.
7j, John...K8JD

From: Bryan Mbryan <kb3ybu@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 15, 2013 11:30 AM
Subject: [TS-520_820_530_830] ts-520 10 meter question general question

First thank you to everyone who has posted both questions and answers, being a new operator I've already learned a lot from previous messages and files. I'm still learning and very green (i'm not the quickest at dipping and peaking yet or even finding all the knobs) but my question is with a 10 meter dipole I have, I read a higher SWR on the 28.5 band switch settings, and much lower SWR's on the 28 band and 29.1 band. If I understand everything I've learned so far, this is opposite of what I would expect. I.e., I should be reading one low SWR somewhere, and increasingly higher SWR's. Since to me it seems inverted of what is should be, what should I be focusing on? Also possibly related if i'm not consistently doing it, is the need to dip and peak when changing "bands" related to the band switch on the radio or just the general ham band, meaning that you only dip and peak once for 10 meter instead of each of the three 10 meter band switch settings.

45325. Re: [TS-520_820_530_830] ts-520 10 meter dipole

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 17:46:51 UTC
From: John Davidson
Topic: 45323 Message: 45325

From: John Davidson <k8jd@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@...m>
Sent: Tuesday, October 15, 2013 1:39 PM
Subject: Re: [TS-520_820_530_830] ts-520 10 meter question general question

First, it is good form to sign your posts with your first name and callsign.
You should retune the final slightly when you go form you go from one end of a band to the other. SWR changes when you change frequency away from the antennas resonant point
CORRECTION !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! i WAS TYPING FASTER THAN I WAS THINKING ON THE [PREVIOUS ANSWER !!!
If the SWR is higher on the low end , it means your longer than optimum, when it is higher on the high end it is shorter than optimum length.
73, John...K8JD

From: Bryan Mbryan <kb3ybu@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 15, 2013 11:30 AM
Subject: [TS-520_820_530_830] ts-520 10 meter question general question

First thank you to everyone who has posted both questions and answers, being a new operator I've already learned a lot from previous messages and files. I'm still learning and very green

45326. RE: Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 21:02:15 UTC
From: <paw_paw44036@...>
Topic: 45307 Message: 45326

Bob contacted me this afternoon and said he didn't have any parts for the SP's. Back to square one.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

Thanks. Bob contacted me this morning and he is looking into the matter.
Thank you and God Bless.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bill,

My x-ray view is also very light..sorry.

73 Joe
WB7UQU

On Monday, October 14, 2013 4:48 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

I just sent him an e-mail as to my needs.
Yes, I have that manual but the x-ray is very light and hard to see.
If you have a dark x-ray of it please fax it to me and I will see if I can do something with it if Bob doesn't come up with something.
Bill WD8OSJ. God Bless.
---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote: Bill, In the "service manual" on pg's 53 & 54 shows the "notch" board schematic & x-ray view. They may not suit your needs. Try Bob Mansker-ke5ftf at: ke5ftf@... he has LOTS of good working parts for reasonable prices for most KW hybrids,

73 Joe WB7UQU
On Monday, October 14, 2013 3:11 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

I am looking for a circuit board for the notch unit used in the TS-530 SP/D.
The unit number is X51-1310-10. I don't suppose that someone would happen to have one hid in a drawer somewhere that you could send me, or a copy of the negative that I could reproduce one?
Even if you had a GOOD picture or scan of the foil side of the board I could make the board from that. You can fax the later to 440-830-2077.
I have all the other parts to build one.
Thank you for your time.
Bill WD8OSJ

45327. RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 21:24:51 UTC
From: <paw_paw44036@...>
Topic: 45320 Message: 45327

I also noticed that all the other switches were in the off/stby modes. Could it be that it was customary to show the switches in the off position?
I understand that the SG switch must be on to transmit, but nothing on the schematic shows that it is in rec or trans. In fact looking at the 530 and the 820 they show the SG switch in the off position as well. The 520 shows it in the on position. Just food for thought and my opinion. I know when I was in engineering school, Many Moons ago, we had symbols that were standard practice to use in drafting. This could be the case here.
Bill WD8OSJ.

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Terry and I have already discussed this issue many times. I simply was informing members that the 830 SG switch setting on the 830 schematic (SG switch set to OFF) is wrong based on the Rectifier Unit's relay, RL1, state.

73
Mike W5RKL

On 10/15/2013 10:30 AM, paw_paw44036@... mailto:paw_paw44036@... wrote:

Mike,

Terry and I were just discussing this last week. I understand there are some other errors as well with this schematic of the TS-830S. Might want to talk to Terry.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com, <w5rkl@...> mailto:w5rkl@... wrote:

There's an error in the TS-830 schematics that shows the SG switch set to the "OFF" position yet the Rectifier Unit's relay, RL1, it is shown in the "non-energized" state. If the 830 SG switch is in the "OFF" position, as shown in the 830 schematic, the Rectifier Unit relay, RL1, would be "energized" changing the screen voltage from positive to negative. That is not how the Rectifier Unit relay is shown on the 830 schematic with the SG switch shown in the OFF position. My video on the 830 SG switch shows the correct placement of the SG switch in the ON and OFF position and how each position controls the Rectifier Unit relay RL1 and how RL1 controls the "Positive" voltage to the screens (SG ON) and the "Negative" voltage to the screens (SG OFF).

I have found this error to exist on every TS-830 schematic I have downloaded. Therefore, when you are studying/troubleshooting the SG switch circuit, ensure you understand this error exist on the 830 schematics.

73
Mike W5RKL

45328. Re: [TS-520_820_530_830] ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 22:00:11 UTC
From: William Houghton
Topic: 45323 Message: 45328

Bryan,

You need to tune the finals at every frequency you transmit on. If I move more than about 20kHz from where Iast tuned up, I tune up again.

If you tuned your finals at 28MHz then switched bands to 28.5MHz and made an SWR measurement without tuning again the results are likely to be meaningless.

73,

Bill

From: Bryan Mbryan <kb3ybu@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 15, 2013 8:30 AM
Subject: [TS-520_820_530_830] ts-520 10 meter question general question

First thank you to everyone who has posted both questions and answers, being a new operator I've already learned a lot from previous messages and files. I'm still learning and very green (i'm not the quickest at dipping and peaking yet or even finding all the knobs) but my question is with a 10 meter dipole I have, I read a higher SWR on the 28.5 band switch settings, and much lower SWR's on the 28 band and 29.1 band. If I understand everything I've learned so far, this is opposite of what I would expect. I.e., I should be reading one low SWR somewhere, and increasingly higher SWR's. Since to me it seems inverted of what is should be, what should I be focusing on? Also possibly related if i'm not consistently doing it, is the need to dip and peak when changing "bands" related to the band switch on the radio or just the general ham band, meaning that you only dip and peak once for 10 meter instead of each of the three 10 meter band switch settings.

45329. Re: [TS-520_820_530_830] RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 22:06:02 UTC
From: Mike
Topic: 45320 Message: 45329

Bill, I can't speak for Kenwood engineers on whether their use of schematic symbols are, as you referred to them as, "standard practice to use in drafting".

This error appears on all TS-830 schematics I have downloaded/found, including the schematics in the operator and service manuals.

I am sure there are other errors but this post was about the SG switch error only.

73
Mike W5RKL

On 10/15/2013 4:24 PM, paw_paw44036@... wrote:
>
> I also noticed that all the other switches were in the off/stby modes.
> Could it be that it was customary to show the switches in the off
> position?
>
> I understand that the SG switch must be on to transmit, but nothing on
> the schematic shows that it is in rec or trans. In fact looking at the
> 530 and the 820 they show the SG switch in the off position as well.
> The 520 shows it in the on position. Just food for thought and my
> opinion. I know when I was in engineering school, Many Moons ago, we
> had symbols that were standard practice to use in drafting. This could
> be the case here.
>
> Bill WD8OSJ.
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:
>
> Terry and I have already discussed this issue many times. I simply was
> informing members that the 830 SG switch setting on the 830 schematic
> (SG switch set to OFF) is wrong based on the Rectifier Unit's relay,
> RL1, state.
>
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> 73
> Mike W5RKL
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> On 10/15/2013 10:30 AM, paw_paw44036@... <mailto:paw_paw44036@...> wrote:

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>> Terry and I were just discussing this last week. I understand
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>> Bill WD8OSJ
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>> ---In ts-520_820_530_830@yahoogroups.com
>> <mailto:ts-520_820_530_830@yahoogroups.com>, <w5rkl@...>
>> <mailto:w5rkl@...> wrote:
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>> There's an error in the TS-830 schematics that shows the SG
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>> the Rectifier Unit relay, RL1, would be "energized" changing the
>> screen voltage from positive to negative. That is not how the
>> Rectifier Unit relay is shown on the 830 schematic with the SG
>> switch shown in the OFF position. My video on the 830 SG switch
>> shows the correct placement of the SG switch in the ON and OFF
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>> RL1 and how RL1 controls the "Positive" voltage to the screens
>> (SG ON) and the "Negative" voltage to the screens (SG OFF).
>>
>> I have found this error to exist on every TS-830 schematic I have
>> downloaded. Therefore, when you are studying/troubleshooting the
>> SG switch circuit, ensure you understand this error exist on the
>> 830 schematics.
>>
>> 73
>> Mike W5RKL
>>
>
>

45330. RE: RE: [TS-520_820_530_830] RE: plate knob/pointer adjustment 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 22:30:05 UTC
From: <yioutta_99@...>
Topic: 45310 Message: 45330

Dave,

That would be a great help. Thanks!

steve

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve let me known if you would like some photos taken and sent to you for setting up the meshing and alignment of pointer. Once the pointer has been realigned then you can check on the tuning for all bands. I have two 530s here, both are within a bee's whisker of each other. I'm thinking about installing the digital hold function on both my 530s, I find it very good when chasing DX

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Mon, 14 Oct 2013 21:09:58 -0700
Subject: [TS-520_820_530_830] RE: plate knob/pointer adjustment 530s

thanks Dave,

I just got this radio about 2 weeks ago. My main rig is a 520. The pointer on that has always been close,but not exact, so i am not expecting to be to close, just nearby would be good I think. Some bands its pointing down. I dont think it ever was close to a band where I was operating...in fact now that i think about it, it wasnt dipping at all when i first put it on the air. It was loose in the coupler so it was just spinning around, not turning the cap at all. So it has no real home and it should be set from scratch.

My Histiory to date with this rig so far: I have replaced the band switch and the load couplers, the cathode and screen resistors and cleaned all the band-switches, neutralized the finals, adjust the drive coils and did a receiver alignment. All on air reports have been very good audio and signal.

thanks

steve
N7LWF

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thanks

steve
N7LWF

---In ts-520_820_530_830@yahoogroups.com, <fpath@...> wrote:

Steve,

In relation to your pointer problem. Has this changed recently? Where did it point on the lower bands before you adjusted it, specifically 1.8, 3.5 and 7.0 Mhz? Don't forget that the pointer may not directly point at the number on the front panel, there are raise painted areas that covers the band, some are small others are larger it should be within the raised painted area. Please advise and we can go from there.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Mon, 14 Oct 2013 17:00:24 -0700
Subject: [TS-520_820_530_830] plate knob/pointer adjustment 530s

Anybody know how to adjust the pointer so that its somewhat close to which band i am operating? It was was off (maybe this means there is another problem) but what I did was dipped for 20 meters. Powered down and loosened the rear coupler, I held the coupler and rotated the pointer to 20m and tightened the coupler back up. Now the pointer is fine for 20m, but not so good for the other bands. I searched the users manual and didnt find this in it.

thanks

steve

45331. meter peg on power up 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 22:43:13 UTC
From: <yioutta_99@...>
Topic: 45331 Message: 45331

I notice this sometimes happens on my 520s as well as the 530s. The meter pegs for a second on power up. Could this be a cap, or perhaps a bleeder resistor on a cap going bad some place?

steve

45332. RE: RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 22:44:24 UTC
From: <wagstw46@...>
Topic: 45320 Message: 45332

Well certainly not radio and electronic industry standard. Perhaps KW standard, but I doubt it. Most transceiver mfg. schematics I am familiar with show the radio in Rx mode with no off air signal applied. All relay contacts in de-energized state. When a radio mfg depicts relay contacts in energized state that is not industry convention and can cause you to chase your tail.

Look at lower right hand legend on the Large Hi Res TS-830 Schematic and you will see the voltage levels noted are for the rig in RX mode 14.175mhz no signal. Yet it shows the mode switch in Tune, the bandswitch at 1.5mhz. Tune wouldnt be a "normal" position for RX mode.

So plenty of apples and oranges depicted on KW schematics.

Just no way to know what KW had in mind and why so many errors in the documentation. Goes way beyond translation.

When what is depicted doesnt make sense have to put on the thinking cap.

The fellows doing wholesale capacitor change out better do that as there are more than one electrolytic filter caps that are installed reverse polarity. Can you assume that the drawings and board silk screening are correct and the as-built is wrong? Better not do that without some circuit analysis. I know the answer for a few of these and suggest you take a hard look at the as-built.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I also noticed that all the other switches were in the off/stby modes. Could it be that it was customary to show the switches in the off position?
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---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

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Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com, <w5rkl@...> mailto:w5rkl@... wrote:

There's an error in the TS-830 schematics that shows the SG switch set to the "OFF" position yet the Rectifier Unit's relay, RL1, it is shown in the "non-energized" state. If the 830 SG switch is in the "OFF" position, as shown in the 830 schematic, the Rectifier Unit relay, RL1, would be "energized" changing the screen voltage from positive to negative. That is not how the Rectifier Unit relay is shown on the 830 schematic with the SG switch shown in the OFF position. My video on the 830 SG switch shows the correct placement of the SG switch in the ON and OFF position and how each position controls the Rectifier Unit relay RL1 and how RL1 controls the "Positive" voltage to the screens (SG ON) and the "Negative" voltage to the screens (SG OFF).

I have found this error to exist on every TS-830 schematic I have downloaded. Therefore, when you are studying/troubleshooting the SG switch circuit, ensure you understand this error exist on the 830 schematics.

73
Mike W5RKL

45333. RE: [TS-520_820_530_830] meter peg on power up 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-15 22:53:18 UTC
From: fpath fpath
Topic: 45331 Message: 45333

Steve,

Will get you the pictures today. In relation to your panel meter pegging (going FSD) on power up, this is very common and usually related to have an antenna connected on power up. I like most others who have experienced this have found that disconnecting the antenna or switching antenna to ground when radio is not in use prevents this problem. I make a habit of prior to connecting radios to patch panel to earth out the antenna, only to find the antenna has a static build up on occasions.

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Tue, 15 Oct 2013 15:43:13 -0700
Subject: [TS-520_820_530_830] meter peg on power up 530s

I notice this sometimes happens on my 520s as well as the 530s. The meter pegs for a second on power up. Could this be a cap, or perhaps a bleeder resistor on a cap going bad some place?

steve

45334. VFO capacitor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 01:47:37 UTC
From: <rcbuckiii@...>
Topic: 45334 Message: 45334

Does anyone know the value of the VFO tuning capacitor in the 520 or 820? Also, the capacitor labeled TC1 on the schematic? I don't want to take my 820 VFO out of the radio just to measure the cap.

I'm thinking about duplicating the VFO circuit for a receiver I'm building and Kenwood doesn't give the value in the parts list. If I knew the value of the tuning inductor I could calculate the capacitor, but they don't give that in the parts list either.

45335. Re: [TS-520_820_530_830] VFO capacitor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 02:32:25 UTC
From: K5MYJ
Topic: 45334 Message: 45335

Buy a 520 or 820 VFO on eBay and use it for the parts.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----
From: rcbuckiii@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 15, 2013 6:47 PM
Subject: [TS-520_820_530_830] VFO capacitor

Does anyone know the value of the VFO tuning capacitor in the 520 or 820? Also, the capacitor labeled TC1 on the schematic? I don't want to take my 820 VFO out of the radio just to measure the cap.

I'm thinking about duplicating the VFO circuit for a receiver I'm building and Kenwood doesn't give the value in the parts list. If I knew the value of the tuning inductor I could calculate the capacitor, but they don't give that in the parts list either.

45336. RE: RE: [TS-520_820_530_830] meter peg on power up 530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 03:28:19 UTC
From: <yioutta_99@...>
Topic: 45331 Message: 45336

Ill have to try that. I have a loop antenna. I usually just unhook it from the Low Pass Filter when I am out of the shack in case of lighting. But I will try grounding it to see if that helps out next time.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Steve,

Will get you the pictures today. In relation to your panel meter pegging (going FSD) on power up, this is very common and usually related to have an antenna connected on power up. I like most others who have experienced this have found that disconnecting the antenna or switching antenna to ground when radio is not in use prevents this problem. I make a habit of prior to connecting radios to patch panel to earth out the antenna, only to find the antenna has a static build up on occasions.

Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: yioutta_99@...
Date: Tue, 15 Oct 2013 15:43:13 -0700
Subject: [TS-520_820_530_830] meter peg on power up 530s

I notice this sometimes happens on my 520s as well as the 530s. The meter pegs for a second on power up. Could this be a cap, or perhaps a bleeder resistor on a cap going bad some place?

steve

45337. RE: RE: Kenwood TS-530 SP/D Notch Unit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 04:36:27 UTC
From: <stilesjoseph@...>
Topic: 45307 Message: 45337

Bill,

I have access to a 530SP...I can take a very good digital picture of the foil and component side and email it to you. Do you think that would work? I don't have a fax
Contact me "off list"

73 Joe
wb7uqu

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Bob contacted me this afternoon and said he didn't have any parts for the SP's. Back to square one.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

Thanks. Bob contacted me this morning and he is looking into the matter.
Thank you and God Bless.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bill,

My x-ray view is also very light..sorry.

73 Joe
WB7UQU

On Monday, October 14, 2013 4:48 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

I just sent him an e-mail as to my needs.
Yes, I have that manual but the x-ray is very light and hard to see.
If you have a dark x-ray of it please fax it to me and I will see if I can do something with it if Bob doesn't come up with something.
Bill WD8OSJ. God Bless.
---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote: Bill, In the "service manual" on pg's 53 & 54 shows the "notch" board schematic & x-ray view. They may not suit your needs. Try Bob Mansker-ke5ftf at: ke5ftf@... he has LOTS of good working parts for reasonable prices for most KW hybrids,

73 Joe WB7UQU
On Monday, October 14, 2013 3:11 PM, "paw_paw44036@..." <paw_paw44036@...> wrote:

I am looking for a circuit board for the notch unit used in the TS-530 SP/D.
The unit number is X51-1310-10. I don't suppose that someone would happen to have one hid in a drawer somewhere that you could send me, or a copy of the negative that I could

reproduce one?
Even if you had a GOOD picture or scan of the foil side of the board I could make the board from that. You can fax the later to 440-830-2077.
I have all the other parts to build one.
Thank you for your time.
Bill WD8OSJ

45338. Re: [TS-520_820_530_830] VFO capacitor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 08:59:02 UTC
From: Gordon JC Pearce
Topic: 45334 Message: 45338

On Tue, Oct 15, 2013 at 06:47:37PM -0700, rcbuckiii@... wrote:
> Does anyone know the value of the VFO tuning capacitor in the 520 or 820? Also, the capacitor labeled TC1 on the schematic? I don't want to take my 820 VFO out of the radio just to measure the cap.
>
> I'm thinking about duplicating the VFO circuit for a receiver I'm building and Kenwood doesn't give the value in the parts list. If I knew the value of the tuning inductor I could calculate the capacitor, but they don't give that in the parts list either.

Is this the little trimmer cap, or the actual VFO tuner? For the trimmer 22pF would be a good starting point. Have a look at other similar designs and see what they use.

--
Gordonjcp MM0YEQ

45339. RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 11:45:53 UTC
From: <paw_paw44036@...>
Topic: 45320 Message: 45339

You should not have to ASSUME anything on any paper work for any Radio. If you want to really get down to it, all the voltage readings are false as well as the signal paths. If you look at the power switch and the heater switch, they are in the OFF position. That means that there is NO way any voltage can be anywhere in the rig.
I have worked on Radios and TVS for most of my life and would never start to work on one without at lease the schematic. All of the SAM Photofacts I have seen over the years for radio and TV ALWAYS show switches in the OFF mode and Relays in the NC position. I don't know what the big deal is over the SG switch is anyway. If you are a Ham or a service man you should that the SG switch needs to be ON to transmit as well as the power and heaters. There are other schematic's of other radios out there that show this SG switch OFF. Why pick on the 830 as the 820 and the 530 also show the SG switch OFF. Look for yourself. Bill WD8OSJ The End For Me.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Well certainly not radio and electronic industry standard. Perhaps KW standard, but I doubt it. Most transceiver mfg. schematics I am familiar with show the radio in Rx mode with no off air signal applied. All relay contacts in de-energized state. When a radio mfg depicts relay contacts in energized state that is not industry convention and can cause you to chase your tail.

Look at lower right hand legend on the Large Hi Res TS-830 Schematic and you will see the voltage levels noted are for the rig in RX mode 14.175mhz no signal. Yet it shows the mode switch in Tune, the bandswitch at 1.5mhz. Tune wouldnt be a "normal" position for RX mode.

So plenty of apples and oranges depicted on KW schematics.

Just no way to know what KW had in mind and why so many errors in the documentation. Goes way beyond translation.

When what is depicted doesnt make sense have to put on the thinking cap.

The fellows doing wholesale capacitor change out better do that as there are more than one electrolytic filter caps that are installed reverse polarity. Can you assume that the drawings and board silk screening are correct and the as-built is wrong? Better not do that without some circuit analysis. I know the answer for a few of these and suggest you take a hard look at the as-built.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I also noticed that all the other switches were in the off/stby modes. Could it be that it was customary to show the switches in the off position?
I understand that the SG switch must be on to transmit, but nothing on the schematic shows that it is in rec or trans. In fact looking at the 530 and the 820 they show the SG switch in the off position as well. The 520 shows it in the on position. Just food for thought and

my opinion. I know when I was in engineering school, Many Moons ago, we had symbols that were standard practice to use in drafting. This could be the case here.
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Terry and I have already discussed this issue many times. I simply was informing members that the 830 SG switch setting on the 830 schematic (SG switch set to OFF) is wrong based on the Rectifier Unit's relay, RL1, state.

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Mike W5RKL

45340. RE: RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 12:57:56 UTC
From: <wagstw46@...>
Topic: 45320 Message: 45340

The SG switch is a big deal because with it off the contacts cannot be as depicted showing 250 vdc applied to the Screen grids of the finals. It is a big deal as it confuses people trying to troubleshoot a radio. The question is which is correct the relay contacts or the SG switch?

Sadly few would even recognize there was a question unless a student of rig.

If it was such a none issue and it made sense why then did you write me and ask how it worked?

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We are not picking on the TS830. We are simply trying to help people when errors are uncovered in any of the documentation and there is plenty to go around across all the rigs.

I cant wait until you start working on a TS820 and the wrong test point, wrong adjustment trimmer, and wrong acceptance criteria are all called out in the same step. You will need all those years of experience to figure it out. Typically after you have already adjusted the wrong trimmer and messed up another function.

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45341. RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 14:23:30 UTC
From: <paw_paw44036@...>
Topic: 45320 Message: 45341

Been there and done that on the 820.I know what you mean. I corrected my paper work. Terry, please look at the paper work for the 530, 820 and as you know the 830, the SG switch is off in all of them. he 530 is the only one that shows it in the on position. I wrote you before as the schematic I had at the time did not have the lines drawn in the right places. After I saw Kens Hi Res schematic I could see where it went and what it did. I thank you or that help. I still think in my opinion that it may be standard practice for Kenwood to draw these schematics this way. We will never know for sure. Bill WD8OSJ

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Mike W5RKL

45342. RE: RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 17:14:10 UTC
From: <wagstw46@...>
Topic: 45320 Message: 45342

Bill:

I am aware of that the other rigs show the SG switch in both positions. I wish they were all depicted in the On or Operational position and not in the Off or Service position, but it is not a major obstacle if you consider normal to be On which would then align with the 6146 screen grid voltages shown and you understand in On there will be approx +250vdc applied to the screen grids.

What makes the TS-830 SG switch different than the others is you cannot look at it in isolation or compare it to an On Off switch. If it was simply an On Off switch it would be easy to debate whether On or Off is the normal position. Hopefully we could agree that On or the operational position would be the normal position. Assumes your rig is configured for operation more than it is for service. I know where my SG switch is at 99.99% of the time. As you say then no big deal.

However, it is not that simple. The SG switch must be looked at in concert with the relay coil that it controls. As drawn they do not align and begs the question which is correct. The switch or the relay contacts? The convention I prefer to see is relays in the de-energized state.

So just annotate your TS-830 schematics to show the SG switch to the ON position and it will align with the relay contacts as shown.

On June 30 of 2011 I brought this issue to this esteemed body along with problems with Gate 1 of Q1 RF amp and was essentially told these schematic errors were old news and that I should check subsequent revisions. I have yet to find those revisions.

Sorry it keeps coming back. I promise you wont hear it from me again. In my zeal to help I sometimes go overboard. Its all Mikes fault for making his SG switch video!

We can debate what is normal convention all day long. Nothing to gain by that.

Point of all of this protracted discussion is I am trying to help new folks who intend to repair and maintain a KW hybrid. They all need a "4 legged" stool. 1. Fundamental electronics and basic understanding of how a SSB transmitter and receiver works 2. Minimum amount of modest test gear and how to use it 3. Accurate rig specific documentation ie instruction manual, service manual, schematics etc 4. Experience.

They cannot get 1 and 4 overnite, but 3 should be relatively easy to get. I know those who have purchased 2 but struggle with how to use it. That hopefully will come with time.

This is why I am a stickler for full and accurate documentation.

Absent any of these 4 and you come to this forum for help.

Terry K9TW

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Been there and done that on the 820.I know what you mean. I corrected my paper work. Terry, please look at the paper work for the 530, 820 and as you know the 830, the SG switch is off in all of them. he 530 is the only one that shows it in the on position. I wrote you before as the schematic I had at the time did not have the lines drawn in the right places. After I saw Kens Hi Res schematic I could see where it went and what it did. I thank you or that help. I still think in my opinion that it may be standard practice for Kenwood to draw these schematics this way. We will never know for sure. Bill WD8OSJ

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Mike W5RKL

45343. RE: Manual and/or information, TRIO TS-900S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 17:14:01 UTC
From: <janbak3@...>
Topic: 34373 Message: 45343

Hello!
I also have one of these. As far as I know there was produced 4 versions of these radios. They were produced in the period from 1972 to about 1975. The versions are: TS-900 with 6LQ6 finals, TS-900D with 6146B finals, TS-900X with one 6146B final QRP version for the japanese market and the TS-900S with the 4X150A final.
My PS-900S power supply is marked 100VAC but runs on 240VAC. I guess it have taps for 240VAC or maybe the transformer is changed. It looks original. My radio is produced in 1974 I think, because the power cable is marked "1974". But I'm not shure about this...
I have not found any service manual for the S-version yet. Mine is dead on 15m and the HV reading don't work, so I would like to have a manual. But it seems impossible I'm afraid...

73 de LA3WMA, Jan in Norway

---In ts-520_820_530_830@yahoogroups.com, <nilsonrussell@...> wrote:

Good day all,

I am trying to locate anything that I can on the TRIO TS-900S hybrid radio that I operate here as my main radio. This radio is the 300 watt, tetrode, forerunner to the Kenwood TS-900. I have full documentation for the TS-900, and the radios are all but identical (except for the final section.)

The TRIO radio was not sold in the U. S., and perhaps not in Europe either (the power supply transformer came wired standard for 100vac, fortunately has taps for 120vac, but supports no other input voltage.)

I would appreciate anything that you can point me toward.

Incidentally, I have available a Kenwood VFO-900 and a Kenwood PS-900 should anyone need one.

73,

Russell
ae5uu

45344. RE: RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 16:10:47 UTC
From: <rrmvargo@...>
Topic: 45320 Message: 45344

The problem so many engineering companies have is with: Change Control. Having retired from the Engineering environment, it is a PITA. So often, the original engineer is now working on another project and the novice gets the old stuff. Then things don't get updated or copy & pasted, thereby carrying over the old mistake. We put a lot of emphasis on correct documentation where I worked. The engineer had to sign off on all technical documents. Updates were issued. It was very uninteresting work, that had to be done.

Have you looked at the documentation of a new Kenwood MC-60 mic? Kenwood still includes a schematic that has the mic & shield ground switched! Fortunately, they don't make them that way anymore. They must have printed a million copies of that manual & keep using them.

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45345. RE: RE: RE: TS-830 SG switch position on the 830 schematics

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 18:52:03 UTC
From: <wagstw46@...>
Topic: 45320 Message: 45345

Nuclear power spoiled me. Maintaining design basis douments as you say is not too glamorous for any engineer, but a must. With all the modifications over the years plants can get in trouble if they dont have a rigorous program and adequate stafffing to keep all the documents updated in timely manner. Still possible today to find as-built condition in the plant not matching the latest rev or approved drawings. Now the design engineers earn their keep as it may mean a call to the NRC and bringing the plant down.

Some Nuke plants are their own architect engineering firm and others utilize recognized design firms. In either case as you note it can be a challenge if a good system hasnt been implemented. Cant be one based on the engineer that was on site when they were digging the hole. He has retired or been "right sized" out the door.

NRC wont be very understanding if you tell them that back in the day we used "fat pencils" for design calcs or we lost all the tribal knowledge. Very good way to get them to ask you to hand over the keys. That can be very painful at million dollars a day or more from lost electric power generation and it may even affect your attendance when the new management team comes on board.

I wish we could contact KW engineers and have access to design basis documents. Whenever I call KW East or West I get the same response..."that model no longer supported": For most part I think the design has stood the test of time.

But still wouldnt it be nice to find a garage in Japan full of design basis documents! Hopefully not on the back of stained cocktail napkins! I dont think so. Of course a lot of what they did was a direct copy from Collins and they just solid stated it. Nothing wrong with imitating what works.

If you dont believe that look at the TS-830S Q-multiplier and Bridged Tee Notch Filter in the IF chain. It is an exact copy of the Collins 75A4 receiver circuit down to same values for the Tee inductor and capacitors. Only difference is a 121AX7 for the differential amp and not transistors. I just stumbled across that one day and smiled.

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45346. RE: VFO capacitor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 17:59:08 UTC
From: <rcbuckiii@...>
Topic: 45334 Message: 45346

I am referring to the actual VFO tuner cap. My guess is the trimmer is probably in the 20-50pF range. With the side plate off of the VFO, the main cap looks like it may be in the 240pF area. I guess I can start with that value and perform the calculations. I was just hoping someone was aware of the value of the cap. The tuning for the VFO is very linear compared to a typical 5.0-5.5 MHz VFO.

Buying a VFO on Ebay and using it for parts is not the answer. That would cost more than the receiver I am building and the reduction drive assembly is not suitable for my case size. I can duplicate the VFO for less than $20 as I have most of the parts on hand.

---In ts-520_820_530_830@yahoogroups.com, <gordon@...> wrote:

On Tue, Oct 15, 2013 at 06:47:37PM -0700, rcbuckiii@... mailto:rcbuckiii@... wrote:
> Does anyone know the value of the VFO tuning capacitor in the 520 or 820? Also, the capacitor labeled TC1 on the schematic? I don't want to take my 820 VFO out of the radio just to measure the cap.
>
> I'm thinking about duplicating the VFO circuit for a receiver I'm building and Kenwood doesn't give the value in the parts list. If I knew the value of the tuning inductor I could calculate the capacitor, but they don't give that in the parts list either.

Is this the little trimmer cap, or the actual VFO tuner? For the trimmer 22pF would be a good starting point. Have a look at other similar designs and see what they use.

--
Gordonjcp MM0YEQ

45347. transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 17:34:44 UTC
From: <bozo231@...>
Topic: 45347 Message: 45347

does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF

45348. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 21:03:52 UTC
From: Mike
Topic: 45347 Message: 45348

Have you tried Bob, KE5FTF, at the following:

ke5ftf@...

73
Mike W5RKL

On 10/16/2013 12:34 PM, bozo231@... wrote:
>
> does anyone know where to find a 520 power transformer thanks in
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45349. RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-16 22:53:27 UTC
From: <wagstw46@...>
Topic: 45347 Message: 45349

Hi Ron:

Just curious what makes you think you need a replacement power transformer?

Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.

Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.

I dont understand how bad transformer could cause smoking R6?

Terry K9TW

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45350. RE: Re: [TS-520_820_530_830] VFO capacitor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 00:54:56 UTC
From: <wagstw46@...>
Topic: 45334 Message: 45350

I dont know the value but have built a couple of 5mhz VFOs.

I used a very good quality 100pf air variable. I got a surplus one with good bearings and heavy brass plates.

At 100pf you need approx 11uhy tank coil. I have not had good luck using toroids as some designs recommend. I used a 5/8 inch ceramic form and wound approx 32 turns of #28 magnet wire. I did not use slug tuned core just air core. I coated windings with home made Q dope by melting styrofoam packing peanuts in acetone. I would not use a phenolic form.

For trimmer cap I would not use a compression trimmer. I used glass piston trimmers. One of the hardest things to find today are good selection of NPO, N and P temp compensating capacitors. You will need them for drift compensation. Use to find them at hamfest, but eBay is about best source now.

Today cheaper to build a DDS VFO unless you have a good junk box. Mike W5RKL has recent experience with this.

Here is very good article on building LC type VFOs

http://www.qrparci.org/wa0itp/chap10.pdf http://www.qrparci.org/wa0itp/chap10.pdf

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--
Gordonjcp MM0YEQ

45351. Kenwood Net Update (November 13, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 02:05:43 UTC
From: Mark Gilger
Topic: 45351 Message: 45351

There was no net Saturday. Both myself and Jimmy had other commitments.

The Sunday□s 20 meter net had 25 stations
checking in under excellent band conditions. Out of those, there was:

3 running TS-520(x)
0 running TS-530(x)
4 running TS-820(x)
3 running TS-830S

I was running my TS-820. It was the first time
I□ve run the 820 on the net and I think the first
time it□s ever been on 20 meters.

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 □ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday□s, net total = 47, Sundays total = 20
December 2012, Saturday□s, net total = 74, Sunday□s total = 70
January 2013, Saturday□s, net total = 93, Sunday□s total = 87

February 2013, Saturday□s net total = 103, Sundays total = 87
March 2013, Saturday□s, net total = 112, Sunday□s total =39
April 2013, Saturday□s net total = 52, Sunday□s total = 29
May 2013, Saturday□s net total = 45, Sunday□s total = 50
June 2013, Saturday□s net total = 30, Sunday□s total = 27
July 2013, Saturday□s net total = 63, Sunday□s total = 41
August 2013, Saturday□s net total = 82, Sunday□s total = 50
September 2013, Saturday□s net total = 66, Sunday□s total = 54
October 2013, Saturday□s net total = 25, Sunday□s total = 35 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

45352. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 12:05:44 UTC
From: Mike
Topic: 45347 Message: 45352

If I may ask, how did you come to the conclusion the power transformer
is bad? What symptoms and troubleshooting steps have you taken that
clearly indicate you need a new/replacement power transformer for your 520?

Mike W5RKL

On 10/16/2013 12:34 PM, bozo231@... wrote:
>
> does anyone know where to find a 520 power transformer thanks in
> advance Ron KK4PWF
>
>

45353. Moving to Wichita Falls, TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 12:24:36 UTC
From: <ke5ftf@...>
Topic: 45353 Message: 45353

Thought I would let everyone know that we are moving from Bastrop, TX to Wichita Falls, TX...
Going up to be with the grandkids before they turn into teenagers.. :)
I will continue doing the Kenwood hybrid part as they are loaded into the Penske...
I plan on thinning out the parts on the 520 & 520S...
Many Thanks,
Bob

45354. RE: RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 14:43:51 UTC
From: <wagstw46@...>
Topic: 45347 Message: 45354

Ron: To tag on to your phone call last evening as I am not sure if you take notes or not.

1. Can leave 210 secondary of transformer disconnected temporarily.
2. Since R6 is literally showing color measure the resistance cold to ensure it remains at 470 ohms and check forward and reverse resistance on new Diode D6 to ensure it is not shorted.
3. If you have to replace either carefully inspect the board to ensure no carbon track at the 210A output terminal post
4. Measure resistance at 210A post to chassis ground to confirm approx 70k ohms (it is most likely a very low value) and if low value remove the top lead from the post. Measure that lead and the post to ground to see if fault is on one or both leads. Should be an orange and yellow lead wire wrapped on the post. Do not try to reuse the wire wraps as they have work hardened and will fracture. Will have to skin back to fresh tinned lead and solder to the post when ready to restore.
5. Look at schematic and determine what likely contributors would be. You will see several voltage dividers including 100k resistors that feed for Side Tone osc, 56k resistors that feed Tune function, R70/R71 on the RF board for Driver tube SG, and the feed to the 6146 tube socket for the screen grids. This includes a series choke, 100 ohm grid stopper resistors, SG bypass capacitors, and possible but not likely carbon track from SG pin across the phenolic socket. I understand you replaced the 6146 finals so not likely internal short inside a tube. Have never seen a shorted SG bypass cap, but again possible. Have seen on phenolic tube socket carbon path.
6. Lastly it could be a pinched lead but not likely. Also, I have seen the foil side of the RF board at R70/R71 have a pretty bad carbon path. Save this for last.

A reminder.The markings on the terminal post of the Rect Board are not voltage levels. They are labels for the various power supplies and the busses or rails they feed. So 210 at the secondary of the transformer is not a voltage. As we discussed the DC voltage of a lightly loaded 1/2 wave rectifier with capacitor filter will be the peak of the AC. 260vdc/1.414 = 184 vac. So when you determ the transformer secondary you cannot expect to measure 210vac it will be something close to 184vac depending on line voltage.

Same for the 800 terminal. If you determ it you will measure approx 330vac and not 800vac. The HV supply is a doubler. 925vdc/2.828 = 327vac.

Report back the resistance values that you read from the yellow and orange wires to chassis ground. Hopefully the fault will appear on just one leg.

Last think make sure that 210 and 300 are not jumpered. This is common hot rod mod. If it is you must remove. If it is then the 300 filter caps could be the problem.

If you dont mind respond back here with resistance readings so other 520 owners who are following this thread can learn from your troubleshooting.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Ron:

Just curious what makes you think you need a replacement power transformer?

Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.

Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.

I dont understand how bad transformer could cause smoking R6?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF

45355. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 17:20:24 UTC
From: Ron
Topic: 45347 Message: 45355

Mike my lack of electrical knowledge is what pointed me in that direction it it is not needed at this point thanks , more testing is on going before and Bob has one if needed after talking with Terry on the phone which I must say has been my Elmer taking time with me and explaining to me about the inner workings on circuits . I have a thirst for knowledge of these old radios and electrical circuits so in advance thanks for all the support I am getting I'll be posting my findings on this issue Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 7:05 AM, Mike <w5rkl@...> wrote:

>
>
> If I may ask, how did you come to the conclusion the power transformer is bad? What symptoms and troubleshooting steps have you taken that clearly indicate you need a new/replacement power transformer for your 520?
>
> Mike W5RKL
>
>
> On 10/16/2013 12:34 PM, bozo231@... wrote:
>> does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF
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45356. Re: [TS-520_820_530_830] RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 19:08:55 UTC
From: Ron
Topic: 45347 Message: 45356

Hey Terry as per our phone conversation after replacing c27/28 and R6 no red light today , yellow wire to ground. Resistance is 198 ohms , orange wire 110k ohms. That's as far as I made it today will go further a s time permits. Thanks Ron kk4 pwf Ps: bob keep the 520 parts I may need some before this is over !!

Sent from my iPhone

On Oct 16, 2013, at 5:53 PM, <wagstw46@...> wrote:

>
>
> Hi Ron:
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>
> Just curious what makes you think you need a replacement power transformer?
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>
> Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.
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>
> Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.
>
>
>
> I dont understand how bad transformer could cause smoking R6?
>
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF
>
>
>

45357. RE: Re: [TS-520_820_530_830] RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 21:01:01 UTC
From: <wagstw46@...>
Topic: 45347 Message: 45357

OK lets work on the yellow wire first. It is a very short run from the 210A wire wrap post to a phenolic terminal strip. Not likely it is shorted to the chassis.

It goes from the HV rect board to a 5 terminal phenolic terminal strip near 6146 tube socket. Should see two 110k resistors mounted on the strip. This divides the SG voltage in half to supply the STB terminal on the Audio board. The STB voltage leaves the terminal strip on a brown wire. (just be careful and not trust these colors that I am giving you. I am pretty confident these are correct but you need to confirm for your radio).

Take a good look at the two 100k resistors. Even if they do not look overheated and discolored you need to measure both of them. If one is bad replace both. Look at the terminal strip to make sure no carbon path.

If they are good then you have to go to the AF board and lift the STB lead and see if the 198 ohms to chassis ground is cleared. If it is this means the brown wire isnt pinched and the fault is on the Audio board.

If you still read 198 ohms go back and look at the yellow wire to see if it is pinched or insulation cut. Then you can lift the brown wire off the phenolic terminal strip and measure it. It should read infinite. If not it is cut or pinched and you will have to trace it to the Audio board and inspect its length.

I am not sure what the resistance to ground is for the Orange wire. I need to look at that but for now lets assume at 100k that it is OK.

Report back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey Terry as per our phone conversation after replacing c27/28 and R6 no red light today , yellow wire to ground. Resistance is 198 ohms , orange wire 110k ohms. That's as far as I made it today will go further a s time permits. Thanks Ron kk4 pwf Ps: bob keep the 520 parts I may need some before this is over !!

Sent from my iPhone

On Oct 16, 2013, at 5:53 PM, <wagstw46@... mailto:wagstw46@...> wrote:

Hi Ron:

Just curious what makes you think you need a replacement power transformer?

Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.

Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.

I dont understand how bad transformer could cause smoking R6?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF

45358. Re: [TS-520_820_530_830] RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 21:44:12 UTC
From: Ron
Topic: 45347 Message: 45358

Ok yellow circuit thru resistors all ok on to the circuit to run down an check other end thanks Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 4:01 PM, <wagstw46@...> wrote:

>
>
> OK lets work on the yellow wire first. It is a very short run from the 210A wire wrap post to a phenolic terminal strip. Not likely it is shorted to the chassis.
>
>
>
> It goes from the HV rect board to a 5 terminal phenolic terminal strip near 6146 tube socket. Should see two 110k resistors mounted on the strip. This divides the SG voltage in half to supply the STB terminal on the Audio board. The STB voltage leaves the terminal strip on a brown wire. (just be careful and not trust these colors that I am giving you. I am pretty confident these are correct but you need to confirm for your radio).
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> Take a good look at the two 100k resistors. Even if they do not look overheated and discolored you need to measure both of them. If one is bad replace both. Look at the terminal strip to make sure no carbon path.
>
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>
> If they are good then you have to go to the AF board and lift the STB lead and see if the 198 ohms to chassis ground is cleared. If it is this means the brown wire isnt pinched and the fault is on the Audio board.
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>
> If you still read 198 ohms go back and look at the yellow wire to see if it is pinched or insulation cut. Then you can lift the brown wire off the phenolic terminal strip and measure it. It should read infinite. If not it is cut or pinched and you will have to trace it to the Audio board and inspect its length.
>
>
>
> I am not sure what the resistance to ground is for the Orange wire. I need to look at that but for now lets assume at 100k that it is OK.
>
>
>

> Report back.
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>
> Terry K9TW
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>
> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Hey Terry as per our phone conversation after replacing c27/28 and R6 no red light today , yellow wire to ground. Resistance is 198 ohms , orange wire 110k ohms. That's as far as I made it today will go further a s time permits. Thanks Ron kk4 pwf Ps: bob keep the 520 parts I may need some before this is over !!
>
> Sent from my iPhone
>
> On Oct 16, 2013, at 5:53 PM, <wagstw46@...> wrote:
>
>> Hi Ron:
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>>
>>
>> Just curious what makes you think you need a replacement power transformer?
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>> Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.
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>>
>> Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.
>>
>>
>>
>> I dont understand how bad transformer could cause smoking R6?
>>
>>
>>
>> Terry K9TW
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

>>
>> does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF
>
>
>

45359. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 20:35:42 UTC
From: Mike
Topic: 45347 Message: 45359

Okay, I'll bow out and let you continue with Terry.

73
Mike W5RKL

On 10/17/2013 12:20 PM, Ron wrote:
> Mike my lack of electrical knowledge is what pointed me in that
> direction it it is not needed at this point thanks , more testing is
> on going before and Bob has one if needed after talking with Terry
> on the phone which I must say has been my Elmer taking time with me
> and explaining to me about the inner workings on circuits . I have a
> thirst for knowledge of these old radios and electrical circuits so in
> advance thanks for all the support I am getting I'll be posting my
> findings on this issue Ron kk4 pwf
>
> Sent from my iPhone
>
> On Oct 17, 2013, at 7:05 AM, Mike <w5rkl@...
> <mailto:w5rkl@...>> wrote:
>
>> If I may ask, how did you come to the conclusion the power
>> transformer is bad? What symptoms and troubleshooting steps have you
>> taken that clearly indicate you need a new/replacement power
>> transformer for your 520?
>>
>> Mike W5RKL
>>
>>
>> On 10/16/2013 12:34 PM, bozo231@... wrote:
>>>
>>> does anyone know where to find a 520 power transformer thanks in
>>> advance Ron KK4PWF
>>>
>>
>
>

45360. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-17 23:06:58 UTC
From: Ron
Topic: 45347 Message: 45360

Hey Mike if u see something and want to comment I am open to learn thanks Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 3:35 PM, Mike <w5rkl@yahoo.com> wrote:

>
>
> Okay, I'll bow out and let you continue with Terry.
>
> 73
> Mike W5RKL
>
>
> On 10/17/2013 12:20 PM, Ron wrote:
>> Mike my lack of electrical knowledge is what pointed me in that direction it it is not needed at this point thanks , more testing is on going before and Bob has one if needed after talking with Terry on the phone which I must say has been my Elmer taking time with me and explaining to me about the inner workings on circuits . I have a thirst for knowledge of these old radios and electrical circuits so in advance thanks for all the support I am getting I'll be posting my findings on this issue Ron kk4 pwf
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>> Sent from my iPhone
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>>> Mike W5RKL
>>>
>>>
>>> On 10/16/2013 12:34 PM, bozo231@... wrote:
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>>>> does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF
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45361. RE: Re: [TS-520_820_530_830] RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 00:06:41 UTC
From: <wagstw46@...>
Topic: 45347 Message: 45361

Ron:

I think you are saying that the Yellow lead from 210A to the phenolic terminal strip and the two 100k ohm divider resistors are good and no carbon path to ground at the terminal strip and you are on to lifting the Brown lead off the STB terminal at the AF board? Is this correct?

Let us know if lifting the Brown wire off STB clears the 198 ohms to chassis ground when reading from the lifted Yellow wire at the Rect board 210A post. Should now have approx 175k ohm to ground.

I would not understand how lifting STB off the AF board could clear a 198 ohm fault as the path on the board has a 1 meg resistor one way and a 470k the other and there is no real current in this part to the Side Tone Osc circuit to cause them to fail.

When I look at the STB circuit I would expect that the Yellow wire lifted at 210A should read approx 175k ohm.

When I look at the Orange wire I see approx 120k to ground.

I dont have these values logged, but I do have 210A to ground logged in my notes more than once and it should be approx 71k ohms.

I think you said that Orange reads approx 110k to ground so that is close and probably indicates no problem with the divider resistors and loads on that bus.

I will look at STB some more but it is just not jumping out at me how it is possible to read 198 ohms to ground on STB.

Terry .

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ok yellow circuit thru resistors all ok on to the circuit to run down an check other end thanks Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 4:01 PM, <wagstw46@... mailto:wagstw46@...> wrote:

OK lets work on the yellow wire first. It is a very short run from the 210A wire wrap post to a phenolic terminal strip. Not likely it is shorted to the chassis.

It goes from the HV rect board to a 5 terminal phenolic terminal strip near 6146 tube socket. Should see two 110k resistors mounted on the strip. This divides the SG voltage in half to supply the STB terminal on the Audio board. The STB voltage leaves the terminal strip on a brown wire. (just be careful and not trust these colors that I am giving you. I am pretty confident these are correct but you need to confirm for your radio).

Take a good look at the two 100k resistors. Even if they do not look overheated and discolored you need to measure both of them. If one is bad replace both. Look at the terminal strip to make sure no carbon path.

If they are good then you have to go to the AF board and lift the STB lead and see if the 198 ohms to chassis ground is cleared. If it is this means the brown wire isnt pinched and the fault is on the Audio board.

If you still read 198 ohms go back and look at the yellow wire to see if it is pinched or insulation cut. Then you can lift the brown wire off the phenolic terminal strip and measure it. It should read infinite. If not it is cut or pinched and you will have to trace it to the Audio board and inspect its length.

I am not sure what the resistance to ground is for the Orange wire. I need to look at that but for now lets assume at 100k that it is OK.

Report back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

Hey Terry as per our phone conversation after replacing c27/28 and R6 no red light today , yellow wire to ground. Resistance is 198 ohms , orange wire 110k ohms. That's as far as I made it today will go further a s time permits. Thanks Ron kk4 pwf Ps: bob keep the 520 parts I may need some before this is over !!

Sent from my iPhone

On Oct 16, 2013, at 5:53 PM, <wagstw46@... mailto:wagstw46@...> wrote:

Hi Ron:

Just curious what makes you think you need a replacement power transformer?

Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.

Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.

I dont understand how bad transformer could cause smoking R6?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF

45362. Re: [TS-520_820_530_830] RE: transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 00:14:08 UTC
From: Ron
Topic: 45347 Message: 45362

Yes Terry u are correct ill get back with results in the am thanks Ron kk4pwf

Sent from my iPhone

On Oct 17, 2013, at 7:06 PM, <wagstw46@...> wrote:

>
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> Ron:
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>
> I think you are saying that the Yellow lead from 210A to the phenolic terminal strip and the two 100k ohm divider resistors are good and no carbon path to ground at the terminal strip and you are on to lifting the Brown lead off the STB terminal at the AF board? Is this correct?
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> I think you said that Orange reads approx 110k to ground so that is close and probably

indicates no problem with the divider resistors and loads on that bus.
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> I will look at STB some more but it is just not jumping out at me how it is possible to read 198 ohms to ground on STB.
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> Terry .
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> ---In TS-520_820_530_830@...m, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Ok yellow circuit thru resistors all ok on to the circuit to run down an check other end thanks Ron kk4 pwf
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>> It goes from the HV rect board to a 5 terminal phenolic terminal strip near 6146 tube socket. Should see two 110k resistors mounted on the strip. This divides the SG voltage in half to supply the STB terminal on the Audio board. The STB voltage leaves the terminal strip on a brown wire. (just be careful and not trust these colors that I am giving you. I am pretty confident these are correct but you need to confirm for your radio).
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>> If they are good then you have to go to the AF board and lift the STB lead and see if the 198 ohms to chassis ground is cleared. If it is this means the brown wire isnt pinched and the fault is on the Audio board.
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>> Report back.
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>> Terry K9TW
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>> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> Hey Terry as per our phone conversation after replacing c27/28 and R6 no red light today , yellow wire to ground. Resistance is 198 ohms , orange wire 110k ohms. That's as far as I made it today will go further a s time permits. Thanks Ron kk4 pwf Ps: bob keep the 520 parts I may need some before this is over !!
>>
>> Sent from my iPhone
>>
>> On Oct 16, 2013, at 5:53 PM, <wagstw46@...> wrote:
>>
>>> Hi Ron:
>>>
>>>
>>>
>>> Just curious what makes you think you need a replacement power transformer?
>>>
>>>
>>>
>>> Last I knew you had a smoking R6 resistor that feeds 210A and you had replaced the filter caps.
>>>
>>>
>>>
>>> Did you measure the resistance from 210A terminal post to chassis ground after replacing the filter caps? Should be approx 70k ohms.
>>>
>>>
>>>
>>> I dont understand how bad transformer could cause smoking R6?

>>>
>>>
>>>
>>> Terry K9TW
>>>
>>>
>>>
>>> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>> does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF
>
>
>

45363. RE: Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 00:24:44 UTC
From: <wagstw46@...>
Topic: 45347 Message: 45363

Hi Mike:

I have no objection if you follow this thread and help keep me straight.

I did back of envelope calcs on R6 current and if 198 ohms is actual value to ground then we have 470 + 198 limiting the current or 668 ohms. If we assume a 210A voltage of 260vdc then 260/668 = .389 or 390 ma of current. I suspect not this high as the voltage of 1/2 wave rectifier with capacitor filter will pull down with this level of load current. So if we assume 210vdc then 210/668 = .314 or 314ma. P= I squared R or P = .314 x .314 x 470 = 46 watts.

Pretty easy to see why R6 470 ohm 2 watt resistor is smoking dissipating nearly 50 watts.

This small dose of Ohms law is the piece I left out of my response to Ron. I know he would be disappointed if he didnt get his daily dose of fundamentals from me. I have also encouraged him to buy a 1970s ARRL handbook. Beating the same old dead horse.

I recently had a fellow ask me a question off list and he told me if I wanted to give a brief explanation along with the answer he guessed it would be OK. I thanked him for giving me permission to put some Castor Oil in his orange juice! It was not Ron.

I trust you will check the calcs. Always easy to make an error when you start typing calcs.in a response. Of course I am not there with eyes on this rig so have to make assumptions rather than measurements.

Thanks
Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Okay, I'll bow out and let you continue with Terry.

73
Mike W5RKL

On 10/17/2013 12:20 PM, Ron wrote:

Mike my lack of electrical knowledge is what pointed me in that direction it it is not needed at this point thanks , more testing is on going before and Bob has one if needed after talking with Terry on the phone which I must say has been my Elmer taking time with me and explaining to me about the inner workings on circuits . I have a thirst for knowledge of these old radios and electrical circuits so in advance thanks for all the support I am getting I'll be posting my findings on this issue Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 7:05 AM, Mike <w5rkl@... mailto:w5rkl@...> wrote:

If I may ask, how did you come to the conclusion the power transformer is bad? What symptoms and troubleshooting steps have you taken that clearly indicate you need a new/replacement power transformer for your 520?

Mike W5RKL

On 10/16/2013 12:34 PM, bozo231@... mailto:bozo231@... wrote:

does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF

45364. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 01:02:30 UTC
From: Ron
Topic: 45347 Message: 45364

Terry using actual figures of 189 x1.4 = 265 v /668=396ma so 396x396x470=73.7 watts if I am correct or 74 watts , still toooo much. No wonder I had red lights for resistor Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 7:24 PM, <wagstw46@...> wrote:

>
>
> Hi Mike:
>
>
>
> I have no objection if you follow this thread and help keep me straight.
>
>
>
> I did back of envelope calcs on R6 current and if 198 ohms is actual value to ground then we have 470 + 198 limiting the current or 668 ohms. If we assume a 210A voltage of 260vdc then 260/668 = .389 or 390 ma of current. I suspect not this high as the voltage of 1/2 wave rectifier with capacitor filter will pull down with this level of load current. So if we assume 210vdc then 210/668 = .314 or 314ma. P= I squared R or P = .314 x .314 x 470 = 46 watts.
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> Pretty easy to see why R6 470 ohm 2 watt resistor is smoking dissipating nearly 50 watts.
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> This small dose of Ohms law is the piece I left out of my response to Ron. I know he would be disappointed if he didnt get his daily dose of fundamentals from me. I have also encouraged him to buy a 1970s ARRL handbook. Beating the same old dead horse.
>
>
>
> I recently had a fellow ask me a question off list and he told me if I wanted to give a brief explanation along with the answer he guessed it would be OK. I thanked him for giving me permission to put some Castor Oil in his orange juice! It was not Ron.
>
>
>
> I trust you will check the calcs. Always easy to make an error when you start typing calcs.in a response. Of course I am not there with eyes on this rig so have to make assumptions rather than measurements.
>

>
>
> Thanks
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@...m, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Okay, I'll bow out and let you continue with Terry.
>
> 73
> Mike W5RKL
>
>
> On 10/17/2013 12:20 PM, Ron wrote:
>> Mike my lack of electrical knowledge is what pointed me in that direction it it is not needed at this point thanks , more testing is on going before and Bob has one if needed after talking with Terry on the phone which I must say has been my Elmer taking time with me and explaining to me about the inner workings on circuits . I have a thirst for knowledge of these old radios and electrical circuits so in advance thanks for all the support I am getting I'll be posting my findings on this issue Ron kk4 pwf
>>
>> Sent from my iPhone
>>
>> On Oct 17, 2013, at 7:05 AM, Mike <w5rkl@...> wrote:
>>
>>> If I may ask, how did you come to the conclusion the power transformer is bad? What symptoms and troubleshooting steps have you taken that clearly indicate you need a new/replacement power transformer for your 520?
>>>
>>> Mike W5RKL
>>>
>>>
>>> On 10/16/2013 12:34 PM, bozo231@... wrote:
>>>>
>>>> does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF
>>>>
>
>
>
>

45365. RE: Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 12:17:21 UTC
From: <wagstw46@...>
Topic: 45347 Message: 45365

Ron:

I applaud your efforts but not quite correct. Really no need dwell on this much longer other than to understand a little more how transformers and dc power supplies work.

189vac is not the "actual" value. It is the open circuit voltage of the secondary winding of the transformer. You will never see 189vac in operation other than when in the determed state. All transformers have voltage sag when load is applied. I mentioned in my calc that you cannot use 265vdc to determine that wattage that R6 must dissipate.

I also told you that a 1/2 wave power supply with a CRC (Pi) filter will have a dc output voltage of 1.4 x sec vac (189v) only when it is very lightly loaded. The SG supply is not a regulated supply. So you will only see 265vdc in RX mode when there is approx 5ma of load current. Any additional current and the voltage will drop.

Look at your manuals/schematics and you will see SG voltage listed for RX and TX modes as:
TS520 RX = 246 and TX = 208
TS520S RX = 258 and TX = 231 (I question this as being accurate)
TS820 RX = 255 and TX = 210
TS830 RX = 264 and TX = 222

189vac is only there with no load on the winding. The secondary winding of a transformer has resistance and leakage reactance or impedance (Z). Too much typing to explain and calc here. This impedance is sometimes referred to as equivalent secondary resistance or ESR. When load is applied this "resistance" causes IR drop. You wont have 189vac secondary voltage under full load.

What is normal SG load in TX mode?

It is 70k ohm plus screen grid current contribution from the 6146 tubes and the 12BY7A tube. In RX mode normal load will be approx 265/70k = 4ma . In TX normal load will be that 4ma + 12BY7A 5ma + 6146 20 ma = approx 29 ma SG current. So call it 30 ma SG current key down at 100 watts. With Yellow and Orange wires lifted you could get your dc ma meter in series and measure it when you get the fault cleared.

There are two places that you will see voltage drop. 1. Xfmr secondary sag due to ESR and 2. The IR drop across R6.

E= IR or E = 30ma x 470 ohms = 14vdc being dropped across R6 at full load. This means R6 sees approx 14 x 30ma or approx 0.4 watts. So a 2 watt R6 has adequate margin and should never overheat.

With 30 ma load the 265vdc is reduced approx 40vdc because of 14vdc across R6 and 26/1.4= 18.6 vac across xfmr ESR. So in TX mode the 189vac will be approx 170vac.

That 30 ma of normal full load current pulls the 265vdc down as you see above for each rig. A 40 volt drop is normal.

If 30 ma SG load pulls the voltage down 40 plus volts where do you think the voltage goes with 10X or 300ma of short circuit current ?

I was being optimistic when I used 210vdc for the wattage calc.

You could put an analog meter on 210A with this 198 ohm fault on it and power the rig on and quickly read the voltage and down power before R6 begins to smoke. I submit it will be very low.

When you get the rig fixed you can load to 100 watts out and carefully measure 210A ac input and dc output voltages to see the effect of load on the Yellow and Orange busses.

The above are rough calcs to give you an idea of how it works so dont give me an F on my report card if you measure the IR drop across good R6 and find it to be 12vdc and not 14vdc! I am trying to help you understand how SG power supply works.

One take away for you is that I suggest that you make it a practice when repairing these rigs to take measurements and take good notes on as many normal operating voltages and currents as you can. If you develop this practice it will greatly aid you with any future troubleshooting.

Keep us posted on your progress and dont get careless as you have 900vdc in close proximity to where you are working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry using actual figures of 189 x1.4 = 265 v /668=396ma so 396x396x470=73.7 watts if I am correct or 74 watts , still toooo much. No wonder I had red lights for resistor Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 7:24 PM, <wagstw46@... mailto:wagstw46@...> wrote:

Hi Mike:

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I did back of envelope calcs on R6 current and if 198 ohms is actual value to ground then we have 470 + 198 limiting the current or 668 ohms. If we assume a 210A voltage of 260vdc then 260/668 = .389 or 390 ma of current. I suspect not this high as the voltage of 1/2 wave rectifier with capacitor filter will pull down with this level of load current. So if we assume 210vdc then 210/668 = .314 or 314ma. P= I squared R or P = .314 x .314 x 470 = 46 watts.

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Thanks
Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

Okay, I'll bow out and let you continue with Terry.

73
Mike W5RKL

On 10/17/2013 12:20 PM, Ron wrote:

Mike my lack of electrical knowledge is what pointed me in that direction it it is not needed at this point thanks , more testing is on going before and Bob has one if needed after talking with Terry on the phone which I must say has been my Elmer taking time with me and explaining to me about the inner workings on circuits . I have a thirst for knowledge of these old radios and electrical circuits so in advance thanks for all the support I am getting I'll be posting my findings on this issue Ron kk4 pwf

Sent from my iPhone

On Oct 17, 2013, at 7:05 AM, Mike <w5rkl@... mailto:w5rkl@...> wrote:

If I may ask, how did you come to the conclusion the power transformer is bad? What symptoms and troubleshooting steps have you taken that clearly indicate you need a new/replacement power transformer for your 520?

Mike W5RKL

On 10/16/2013 12:34 PM, bozo231@... mailto:bozo231@... wrote:

does anyone know where to find a 520 power transformer thanks in advance Ron KK4PWF

45366. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 13:17:44 UTC
From: Mike
Topic: 45347 Message: 45366

Terry and Ron,

Terry, your calcs are correct.

This example shows the importance in the use of Ohms Law in
troubleshooting an actual hybrid problem. This example should also be a
"wake up call" to some group members who are servicing their KW hybrids
that clearly indicates that it is NOT a waste of time learning Ohms Law!!!

I'll continue following along the thread. I would suggest leaving the
entire thread intact so it shows progress that others can "read and study".

73
Mike W5RKL

On 10/17/2013 8:02 PM, Ron wrote:
> Terry using actual figures of 189 x1.4 = 265 v /668=396ma so
> 396x396x470=73.7 watts if I am correct or 74 watts , still toooo much.
> No wonder I had red lights for resistor Ron kk4 pwf
>
> Sent from my iPhone
>
> On Oct 17, 2013, at 7:24 PM, <wagstw46@...
> <mailto:wagstw46@...>> wrote:
>
>> Hi Mike:
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>> I have no objection if you follow this thread and help keep me straight.
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>> load current. So if we assume 210vdc then 210/668 = .314 or 314ma.
>> P= I squared R or P = .314 x .314 x 470 = 46 watts.
>>
>>
>> Pretty easy to see why R6 470 ohm 2 watt resistor is smoking
>> dissipating nearly 50 watts.
>>
>>
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>> Ron. I know he would be disappointed if he didnt get his daily dose

>> of fundamentals from me. I have also encouraged him to buy a 1970s
>> ARRL handbook. Beating the same old dead horse.
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>> I wanted to give a brief explanation along with the answer he guessed
>> it would be OK. I thanked him for giving me permission to put some
>> Castor Oil in his orange juice! It was not Ron.
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>> I trust you will check the calcs. Always easy to make an error when
>> you start typing calcs.in a response. Of course I am not there with
>> eyes on this rig so have to make assumptions rather than measurements.
>>
>>
>> Thanks
>>
>> Terry K9TW
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com
>> <mailto:ts-520_820_530_830@yahoogroups.com>> wrote:
>>
>> Okay, I'll bow out and let you continue with Terry.
>>
>> 73
>> Mike W5RKL
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>> On 10/17/2013 12:20 PM, Ron wrote:
>>> Mike my lack of electrical knowledge is what pointed me in that
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>>> talking with Terry on the phone which I must say has been my
>>> Elmer taking time with me and explaining to me about the inner
>>> workings on circuits . I have a thirst for knowledge of these
>>> old radios and electrical circuits so in advance thanks for all
>>> the support I am getting I'll be posting my findings on this
>>> issue Ron kk4 pwf
>>>
>>> Sent from my iPhone
>>>
>>> On Oct 17, 2013, at 7:05 AM, Mike <w5rkl@... <mailto:w5rkl@...>>
>>> wrote:
>>>
>>>> If I may ask, how did you come to the conclusion the power
>>>> transformer is bad? What symptoms and troubleshooting steps

>>>> have you taken that clearly indicate you need a new/replacement
>>>> power transformer for your 520?
>>>>
>>>> Mike W5RKL
>>>>
>>>>
>>>> On 10/16/2013 12:34 PM, bozo231@... <mailto:bozo231@...> wrote:
>>>>>
>>>>> does anyone know where to find a 520 power transformer thanks
>>>>> in advance Ron KK4PWF
>>>>>
>>>>
>>
>

45367. Freq. Counter on High Tension Test Points?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 16:26:48 UTC
From: Chris Maness
Topic: 45367 Message: 45367

I have a general question pertaining to working on tube gear. I am working on a DX-40 that is giving me fits. Is it safe to use a Oscilloscope probe with a frequency counter? I am thinking of using my probe to make sure the CG is receiving the correct frequency and not an overtone. I was thinking +70V should be ok into the freq. counter if I use the 10X (or 100X I can't remember) selector in the scope probe. I would tape it the 10X position to make sure it stays that way. What do you guys think?

Thanks,
Chris KQ6UP

45368. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 16:29:38 UTC
From: Mike
Topic: 45347 Message: 45368

Ron,

I don't want to take away any of what Terry is telling you. However, once you have solved and fixed your problem, with Terry's help, may I suggest taking some time and watch the 3 videos I made using Ohms Law with series, parallel, and series parallel resistor circuits. Use the following link:

www.n6wk.com/w5rkl/

Once there, click on the "Basic ohms law" folder then select the desired video. I recommend starting with the series resistors video first, then the parallel resistors video, then finally parallel series resistors video.

I recommend you draw the circuits shown in the video and use a calculator to perform the math calculations so you get some practice. You can change resistor values then repeat the math calculations so you see how the current, resistance, and voltage changes. This is how you learn by doing it yourself.

73
Mike W5RKL

45369. Top and Bottom covers for TS820S - I want to sell them off cheap

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 15:23:21 UTC
From: <earlinclayton@...>
Topic: 45369 Message: 45369

Trying to make room in my shack/workshop. I have what Iam pretty sure is the top and bottom covers for a ts820. Im thinking of selling each for $5 plus postage. I have pictures. I tried them on ebay but no luck. Im in Canada here. They are in not bad condition with no major scratches ect. ..email me via my private email which is easy enough to find on the web. Just do a web search for VE3AB and my web site will come up and get my email from there. tnx es 73 earl ..PS..I have a TS780 2m/440 rig that Ihave parted out partially as well..if anyone needs some circuit board or maybe the covers.

45370. Re: [TS-520_820_530_830] transformer

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 17:00:12 UTC
From: Don
Topic: 45347 Message: 45370

Other good ohms law video's to watch

http://www.youtube.com/watch?v=d34-VKc2cyY

http://www.youtube.com/watch?v=bHV7FCShdic

http://www.youtube.com/watch?v=dQcHMsKCCCg

http://www.youtube.com/watch?v=WLK8zgpixDY

http://www.youtube.com/watch?v=vEoOrxsCN78

Don

On 18/10/2013 12:29 PM, Mike wrote:
> Ron,
>
> I don't want to take away any of what Terry is telling you. However,
> once you have solved and fixed your problem, with Terry's help, may I
> suggest taking some time and watch the 3 videos I made using Ohms Law
> with series, parallel, and series parallel resistor circuits. Use the
> following link:
>
> www.n6wk.com/w5rkl/
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> Once there, click on the "Basic ohms law" folder then select the desired
> video. I recommend starting with the series resistors video first, then
> the parallel resistors video, then finally parallel series resistors video.
>
> I recommend you draw the circuits shown in the video and use a
> calculator to perform the math calculations so you get some practice.
> You can change resistor values then repeat the math calculations so you
> see how the current, resistance, and voltage changes. This is how you
> learn by doing it yourself.
>
> 73
> Mike W5RKL
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
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>

45371. Re: [TS-520_820_530_830] Freq. Counter on High Tension Test Points?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 19:54:00 UTC
From: William Houghton
Topic: 45367 Message: 45371

Chris,

I have used a 10X scope probe with my freq counter. You should look at the specs on your freq counter's input and see what is the max voltage it can take. My counter has a 1M input but can only take a signal of 5Vrms max. If I'm not looking at digital logic I measure the signal amplitude with my scope first with the 10X probe.

Something else you could try is wrapping a few turns of wire around the lead going to the control grid. I haven't tried this on a CG but I have done this with the coil on a grid dip meter to measure its freq and it worked very well.

Another thought is that if you are concerned with an overtone, you don't need to use the counter at all. Just measure the signal with a scope. Measure the time between one cycle. The freq is the reciprocal of the period. You don't need freq counter precision as a 2X overtone will be 1/2 the correct period, a 3X overtone 1/3, etc.

73,

Bill

From: Chris Maness <chris@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, October 18, 2013 9:26 AM
Subject: [TS-520_820_530_830] Freq. Counter on High Tension Test Points?

I have a general question pertaining to working on tube gear. I am working on a DX-40 that is giving me fits. Is it safe to use a Oscilloscope probe with a frequency counter? I am thinking of using my probe to make sure the CG is receiving the correct frequency and not an overtone. I was thinking +70V should be ok into the freq. counter if I use the 10X (or 100X I can't remember) selector in the scope probe. I would tape it the 10X position to make sure it stays that way. What do you guys think?

Thanks,
Chris KQ6UP

45372. Re: [TS-520_820_530_830] Freq. Counter on High Tension Test Points?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 20:47:54 UTC
From: Chris Maness
Topic: 45367 Message: 45372

Yes, thanks Bill. I was thinking about using a scope. It would be safer
at least. F=1/T where T=the number of divsions x time/div.

Thanks,
Chris Maness KQ6UP

On Fri, Oct 18, 2013 at 12:54 PM, William Houghton <rdrbill@...>wrote:

>
>
> Chris,
>
> I have used a 10X scope probe with my freq counter. You should look at the
> specs on your freq counter's input and see what is the max voltage it can
> take. My counter has a 1M input but can only take a signal of 5Vrms max. If
> I'm not looking at digital logic I measure the signal amplitude with my
> scope first with the 10X probe.
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> Something else you could try is wrapping a few turns of wire around the
> lead going to the control grid. I haven't tried this on a CG but I have
> done this with the coil on a grid dip meter to measure its freq and it
> worked very well.
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> period. You don't need freq counter precision as a 2X overtone will be 1/2
> the correct period, a 3X overtone 1/3, etc.
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>
>
> 73,
>
> Bill
>
> ----------
> *From:* Chris Maness <chris@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, October 18, 2013 9:26 AM
> *Subject:* [TS-520_820_530_830] Freq. Counter on High Tension Test Points?
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> I have a general question pertaining to working on tube gear. I am
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45373. Re: [TS-520_820_530_830] Freq. Counter on High Tension Test Points?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 21:20:54 UTC
From: Jim S
Topic: 45367 Message: 45373

You might also consider using a loop pickup device so you would not have
to be concerned with a direct contact with the high voltage that might
be in that area!

Jim AG3Y

On 10/18/2013 4:47 PM, Chris Maness wrote:
> Yes, thanks Bill. I was thinking about using a scope. It would be
> safer at least. F=1/T where T=the number of divsions x time/div.
>
> Thanks,
> Chris Maness KQ6UP
>
>
> On Fri, Oct 18, 2013 at 12:54 PM, William Houghton
> <rdrbill@... <mailto:rdrbill@...>> wrote:
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> Chris,
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> I have used a 10X scope probe with my freq counter. You should
> look at the specs on your freq counter's input and see what is the
> max voltage it can take.
>

45374. Re: [TS-520_820_530_830] Freq. Counter on High Tension Test Points?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-18 23:33:15 UTC
From: Chris Maness
Topic: 45367 Message: 45374

I just ended up using a scope since I only needed ballpark figures. It worked really well, and the P2P voltages would have been 15V which is too much for the counter.

Thanks,
Chris KQ6UP

On Fri, Oct 18, 2013 at 2:20 PM, Jim S <jimstan@...> wrote:

>
>
> You might also consider using a loop pickup device so you would not have
> to be concerned with a direct contact with the high voltage that might be
> in that area!
>
> Jim AG3Y
>
>
> On 10/18/2013 4:47 PM, Chris Maness wrote:
>
>
> Yes, thanks Bill. I was thinking about using a scope. It would be safer
> at least. F=1/T where T=the number of divsions x time/div.
>
> Thanks,
> Chris Maness KQ6UP
>
>
> On Fri, Oct 18, 2013 at 12:54 PM, William Houghton <rdrbill@...>wrote:
>
>>
>>
>> Chris,
>>
>> I have used a 10X scope probe with my freq counter. You should look at
>> the specs on your freq counter's input and see what is the max voltage it
>> can take.
>>
>
>
>
>
>
>

45375. TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-19 02:49:21 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45375

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45376. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-19 13:53:29 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45376

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

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Ray,
AB7HE

45377. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-19 12:51:20 UTC
From: <glene77is@...>
Topic: 45375 Message: 45377

Ray, AB7HE,
My TS-830 is a bugger to get going on 14MHz
because the Band Select switch contacts are fussy.
I am suggesting that there may be other contacts involved in your problem.
Can you use an insulated probe to touch/jar the contacts ?

I only use mine at 3 to 5 W EPO,
so don't have any worries about burning anything.

Glen, KK4LPG.

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Ray,
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45378. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-19 19:34:03 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45378

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

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5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

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Ray,
AB7HE

45379. Top and bottom covers for the 820 are sold. tnx to the group.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 00:59:13 UTC
From: <earlinclayton@...>
Topic: 45379 Message: 45379

Top and bottom covers for the 820 are sold. tnx to the group

45380. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 03:16:42 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45380

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

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45381. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 03:19:18 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45381

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

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45382. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 05:39:34 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45382

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

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45383. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 11:48:24 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45383

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

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45384. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 12:50:54 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45384

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

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45385. RE: Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 14:57:21 UTC
From: <wagstw46@...>
Topic: 44803 Message: 45385

Chris:

Havent see any responses? Apologize in advance to all for length of this.

I previously responded regards my experience with installing 1N5711/1N6263 diodes in TS-830 Product Detectors and how I matched them. I related that I did not perform any before and after testing and could only relate subjective results based on my ear. I noticed no striking difference. I think we also talked about external DSP audio filters and DSP speakers.

I am not sure why others are not responding regards their experience with replacing germanium ring diodes with hot carrier diodes in whatever KW hybrid model they operate. I suspect you would be interested in hearing results anecdotal or otherwise. This was a hot topic on this and most of the other major ham radio forums not too long ago and I am quite sure others did this mod on their Hybrids. I know they did on their Heathkit transceivers as well.

Come on fellows speak up here and help out this member!

Another contributor to your high noise floor may be harmonic content of the LO getting past the CRC Low Pass Filter at the output of the Product Detector. If this constant “hiss” is covering up S2 signals then clearly a problem. It would be interesting to measure the MDS and the AGC threshold, but suspect you don’t have the test gear to do that..

I am not sure how familiar you are with ring diode product detectors or the audio Low Pass Filter that follows them, so this may be old news for you but may help another. The LO that feeds the Product Detector is pretty high level. Approx 1.0 rms rf volts or +13dBm. You want this high injection level to ensure that the LO is switching the ring diodes and not the IF so that IMD will be lower. Since the LO level determines the diode current (typically less than 10ma) then having ring diodes with closely matched junction capacitance and forward voltage is important for optimum performance.

I am no hot carrier diode expert but I believe that they should be speced for what they refer to as Barrier Height or Drive Level. Will see it listed on data sheets commonly as Low, Medium, and High. I am guessing that a Medium drive level diode is what you would need for a +13dBm LO?

You could try suspending a monolithic quad package above the board, but I don’t think there would be much advantage? For a first attempt it would simply be easier to hand select individual Schottky diodes and see what noise reduction your ear detects. You also might want to measure LO signal level. Just don’t want it so low that the IF signal is switching the diodes.

Diode selection is not the only thing that contributes to the noise floor. The C-R-C Low Pass Filter at output of the detector is a critical component as well. Take a look at your schematic and your X-ray views of the Gen Board. The board may show a 1K resistor and

.001uf output cap. If these values are installed then the LPF would have a corner frequency of approx 159khz which would not work. The filter should be designed to have a corner frequency of no more than approx 3khz. I know this from limited testing. If you have a good audio sine wave generator with constant output and a AC millivolt meter you can inject approx 15 mv at the junction of D5/D6 and measure the filter output voltage at DET terminal and slowly sweep up in frequency from approx 2khz and log the frequency at 1dB, 2dB, and 3 dB to see where the corner is at. Here are my tests results on two TS-520 rigs and one TS-520S:
-1dB = 2300 hz
-2dB = 2650 hz
-3dB = 3075 hz (0.707 x input voltage level)

Part of the problem with the high LO injection level can be harmonic content ending up mixing and being present at the output of the Product Detector. If LPF is not designed properly or the RC values have changed then possible to have 5khz, 10khz, 10khz content in the DET audio output. The LPF RC constants are selected to address this. So it is possible that your LPF components are wrong or may have drifted in value. This is not very likely, but possible. It would be good to measure the LPF response if you could. I don’t measure it as matter of routine when I align a hybrid unless some performance issue.

If you look at this audio LPF in the TS520, TS820, and TS830 you will see different values for the capacitors and resistors. KW does not use a high Q inductor for the series R element. I think it would be better, but chokes cost more than resistors. KW messed with the LPF CRC values and the AGC RC time constant component values over time in the hybrids. Even made changes from the 1 million series TS-830 to the 4 million series. Not sure they ever got either where they really wanted.

TS-520 R = 6.8k and C = .047uf
TS-820 R = 4.7k and C = .022uf
TS-530 R = 6.8k and C = .033uf
TS-830 R = 2.7k and C = .022uf

So you can see KW has been messing with Product Detector LPF CRC values since day one.

If you are good with Op amps perhaps could experiment with something like a Sallen Active LPF in lieu of the CRC filter?

Not much practical help for you in this response. Just wanted to make sure you know that noise floor can be affected by the ring diodes, the LO injection level, the IF chain, and the performance of the audio Low Pass Filter at the Product Detector output.

I think if you cannot get any help from the TS520 owners who have the CW filter installed and/or have installed the 1N5711 diodes you could do this:

1. Inspect your LPF and make sure the CRC values are not as shown on the Xray view.
2. Measure LO injection level at the Gen Board. It should be close to 1.0 rms rf volts. Could experiment with the level.
3. Measure response of your Low Pass Filter if possible.
4. Try installing individual Schottky 1N5711 or similar diodes that you can match forward voltage as close as you can.
5. Try suspending a monolithic quad package in lieu of individual diodes.(a Mod)
6. Try different values for LPF CRC (use poly or mylar for the output cap)
7. Try suspending an active LPF in lieu of the CRC filter. (a Mod)

8. Try an outboard DSP audio filter. Might find a good used Idiom Press SCAF-1. Might ask on the forum if anyone is using DSP filters or DSP speakers with their TS-520 rigs.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ok, I am back with this "problem". I will first admit that my reference radio is the top of the line flagship ICOM IC-761. This thing has a REALLY quiet and sensitive receiver. I LOVE my TS-520. I think it is a better radio for SSB. It is just wonderful to listen to, and I get complements about the transmit audio that I never get with the 761. It is a great armchair radio. However, this weekend I was chasing DX on the high bands, and this white noise problem was annoying enough to have me switch back to my 761 for the DX. I sent an email to a local ham friend to see if he has the CW filter installed so that I can listen to his receiver and compare it to another 520s. The white noise is still there even if I switch to FIX or a non existent EXT. VFO. This noise makes up about 50% of the noise floor on a very quiet band (like 10m when the band is barely open). However, again -- it is generated after the signal passes through the Narrow CW crystal lattice filter, but before the audio stage. It is reduced by decreasing the RF gain, but it is MUCH wider than the skirt of the filter. I am wondering if putting Schottky diodes in the balanced detector circuit might improve things -- or not.

Thoughts, opinions, flames? I might be just expecting too much from this old gal, but hopefully I can listen to someone else's radio before resigning myself to that.

Regards,
Chris Maness

On Wed, Sep 25, 2013 at 5:39 AM, Chris Maness <chris@... mailto:chris@...> wrote:
> Yes, I moved the brown lead.
>
> Chris KQ6UP
>
> On Sep 24, 2013 11:31 PM, "Osamu Hazawa" <pomerol@... mailto:pomerol@...> wrote:
>>
>> Hi Chris,
>>
>> Did you install the CW filter by yourself?
>> If so, did you complete a modification "Move the brown lead from the SSB
>> terminal to the CW terminal",
>> 35 of the manual?
>>
>> 73,
>> Osamu
>>
>>

>>
>> ----- Original Message -----
>> From: Chris Maness
>> To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
>> Sent: Wednesday, September 25, 2013 1:47 PM
>> Subject: Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal
>> with the CW RX Filter installed?
>>
>>
>>
>> Ok anyone with a CW narrow filter in their TS-520 get this much wide band
>> white noise on a quiet band or dummy load?
>>
>> Video: http://youtu.be/Fv1RLn_Ws_I http://youtu.be/Fv1RLn_Ws_I
>>
>> Thanks,
>> Chris KQ6UP
>>
>>
>> On Sun, Sep 22, 2013 at 7:41 PM, <wagstw46@... mailto:wagstw46@...> wrote:
>>>
>>>
>>>
>>> Been a very long time since I have thought or read about Thermal or Shot
>>> noise. I think some guy Kelvin is involved too!
>>>
>>>
>>> Maybe a You tube video for the other TS520S owners with CW filters
>>> installed would help?
>>>
>>>
>>> Terry
>>>
>>> K9TW
>>>
>>>
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
&l!
>>> t;ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>>
>>>
>>>
>>> On Sun, Sep 22, 2013 at 2:50 PM, <wagstw46@...> wrote:
>>>
>>>
>>>
>>> Some people call broad band noise as "hash" noise. I am not really sure
>>> what hash noise is or if I ever heard it. I suppose it would blanket the
>>> spectrum?

>>>
>>>
>>> If it is an external RFI source might look at computer and peripherals
>>> especially if any of them have a switcher supply in them.
>>>
>>>
>>> Definitely internal source because the noise is independent of
>>> antenna/dummy load configurations.
>>>
>>> Maybe generated by one of the new CFl lamps if you are using them.
>>>
>>> See above.
>>>
>>>
>>> When you remove antenna or put rig on dummy load does the S-meter drop to
>>> zero and if you run RF to max and turn of the AF gain do you hear a nice
>>> smooth hiss? That would be normal noise produced internally by the receiver.
>>>
>>> Yes, this is the hiss I am referring to. However, it is a bit more than
>>> I am used to on a typical radio even for its vintage. It is MUCH broader
>>> than the CW filter. There are two layers of this white noise (this is not
>>> the HF background noise on the band). The louder one is effected by the RF
>>> Gain/AGC and the audio gain. There is a much fainter one that seems to be
>>> due to the audio stage by itself. It is still present even if the RF GAIN
>>> is set to minimum (AGC Voltage Max). That tells me its origin is after the
>>> CW filter, but before the audio filter. If this is normal, I am not going
>>> to worry about it. However, reiterating -- it is much louder than many
>>> other radios I have used. However, when the wide filter is in line, it
>>> blends in with the HF background noise to the point I have not noticed it
>>> before. It is entirely possible that this is normal for the design. It
>>> just seems like the g! reatest noise would be generated at the stage of
>>> greatest gain. I would imagine this would be before that CW filter, and
>>> therefore the Nyquest/Shot noise would be shaped by the filter also. Just
>>> my book thoughts and observations speaking -- not from experience.
>>>
>>> The shape of the noise frequency response in relationship to the HF
>>> background noise makes it REALLY stand out on the high bands. An external
>>> audio band pass filter would cure this if I found it too annoying, but if
>>> there is something wrong inside I would like to fix it.
>>>
>>> Tnx es
>>> 73 de KQ6UP
>>>
>>>
>>> Terry K9TW
>>>
>>>
>>>
>>> --- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
>>> <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

>>>
>>> In SSB and CW for the lower bands the background HF noise covers over a
>>> background white noise on my radio. However, on the higher bands where the
>>> band is quieter,! I here white noise that is much broader than the 500Hz CW
>>> filter skirt. It is not from the AF stage because it decreases with the AF
>>> volume. Is this normal for this radio? Can anyone else verify this with a
>>> CW filter in the high bands?
>>>
>>> There is a mod bulletin/article floating around the net that suggests a
>>> hash noise may be due to a bad transistor. However, if everyone else hears
>>> the same noise, I am not going to worry about it. Moreover if there is a
>>> mod for this problem, I would definitely be interested in the details. The
>>> noise is tolerable, but I would much prefer it be lower.
>>>
>>> Here is the article in question:
>>>
>>> http://www.radiomods.co.nz/kenwood/kenwoodts520.html
http://www.radiomods.co.nz/kenwood/kenwoodts520.html
>>>
>>> Thanks for the help guys. From this group I have received enough help to
>>> resurrect a nearly basket case TS-520S. I had fixed other problems back in
>>> 2009. Now I have a nearly perfectly working radio.
>>>
>>> Thanks,
>>> Chris Maness KQ6UP
>>>
>>>
>>>
>>>
>>>
>>
>>

45386. Kenwood Net Update (October 20, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 19:03:02 UTC
From: Mark Gilger
Topic: 45386 Message: 45386

The Saturday net we had 20 check-in with
excellent band conditions. Jimmy, was supposed to
run the net, but had difficulties with his radio,
so I ran it with my TS-940S. W4OP checked in
running his TS-900. There are not a lot of those
radios around any more, so it□s good to hear one
check in every once in a while.

```
5 running TS-520(x)
3 running TS-530(x)
2 running TS-820(x)
3 running TS-830S
1 running TS-900

I was running my TS-940s.
```

The Sunday□s 20 meter net had 12 stations
checking in under good band conditions. Out of those, there was:

```
4 running TS-520(x)
1 running TS-530(x)
0 running TS-820(x)
1 running TS-830S

I was running my TS-820s.
```

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

```
If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.
```

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54
October 2013, Saturday☐s net total = 45, Sunday☐s total = 47 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

45387. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-20 21:09:19 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45387

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a

FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45388. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 00:21:39 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45388

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

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Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control

grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45389. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 03:14:40 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45389

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode

D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

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Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45390. RE: Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal with the CW RX Filter installed?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 07:13:37 UTC
From: Chris Maness
Topic: 44803 Message: 45390

I will have to put this on my winter project list. The white noise is not so bad it drowns S2 signals, just makes it a strain to listen to the faint ones on low noise floor bands like 15 and 10m when the band is barely open. There is no S meter deflection. In my opinion there is a lot of white noise when a dummy load is connected. More than there should be on such an otherwise wonderful radio. I have been working on my DXCC, so my go for blood radio is in the shack now. It is a IC-761. The noise floor on that radio is phenomenal. It is nearly the same receiver as the 751A. However it is no where near as fun to use as my 520s. The Kenwood has better SSB audio on transmit and receive. Heck I even get many complements on the 120s with both the MC-30s and the MC-50. They say it is broadcast quality. Kenwood had the SSB sound quality nailed. The 520s really shines in armchair QSOs. Just wonderful.

Thanks,
Chris KQ6UP
On Oct 20, 2013 7:57 AM, <wagstw46@...> wrote:

>
>
> Chris:
>
>
>
> Havent see any responses? Apologize in advance to all for length of this.
>
>
>
> I previously responded regards my experience with installing 1N5711/1N6263
> diodes in TS-830 Product Detectors and how I matched them. I related that I
> did not perform any before and after testing and could only relate
> subjective results based on my ear. I noticed no striking difference. I
> think we also talked about external DSP audio filters and DSP speakers.
>
>
>
> I am not sure why others are not responding regards their experience with
> replacing germanium ring diodes with hot carrier diodes in whatever KW
> hybrid model they operate. I suspect you would be interested in hearing
> results anecdotal or otherwise. This was a hot topic on this and most of
> the other major ham radio forums not too long ago and I am quite sure
> others did this mod on their Hybrids. I know they did on their Heathkit
> transceivers as well.
>

>
>
> Come on fellows speak up here and help out this member!
>
>
>
> Another contributor to your high noise floor may be harmonic content of
> the LO getting past the CRC Low Pass Filter at the output of the Product
> Detector. If this constant “hiss” is covering up S2 signals then clearly a
> problem. It would be interesting to measure the MDS and the AGC threshold,
> but suspect you don’t have the test gear to do that..
>
>
>
> I am not sure how familiar you are with ring diode product detectors or
> the audio Low Pass Filter that follows them, so this may be old news for
> you but may help another. The LO that feeds the Product Detector is pretty
> high level. Approx 1.0 rms rf volts or +13dBm. You want this high injection
> level to ensure that the LO is switching the ring diodes and not the IF so
> that IMD will be lower. Since the LO level determines the diode current
> (typically less than 10ma) then having ring diodes with closely matched
> junction capacitance and forward voltage is important for optimum
> performance.
>
>
>
> I am no hot carrier diode expert but I believe that they should be speced
> for what they refer to as Barrier Height or Drive Level. Will see it listed
> on data sheets commonly as Low, Medium, and High. I am guessing that a
> Medium drive level diode is what you would need for a +13dBm LO?
>
>
>
> You could try suspending a monolithic quad package above the board, but I
> don’t think there would be much advantage? For a first attempt it would
> simply be easier to hand select individual Schottky diodes and see what
> noise reduction your ear detects. You also might want to measure LO signal
> level. Just don’t want it so low that the IF signal is switching the
> diodes.
>
>
>
> Diode selection is not the only thing that contributes to the noise floor.
> The C-R-C Low Pass Filter at output of the detector is a critical component
> as well. Take a look at your schematic and your X-ray views of the Gen
> Board. The board may show a 1K resistor and .001uf output cap. If these
> values are installed then the LPF would have a corner frequency of approx
> 159khz which would not work. The filter should be designed to have a corner
> frequency of no more than approx 3khz. I know this from limited testing. If
> you have a good audio sine wave generator with constant output and a AC

> millivolt meter you can inject approx 15 mv at the junction of D5/D6 and
> measure the filter output voltage at DET terminal and slowly sweep up in
> frequency from approx 2khz and log the frequency at 1dB, 2dB, and 3 dB to
> see where the corner is at. Here are my tests results on two TS-520 rigs
> and one TS-520S:
>
> -1dB = 2300 hz
>
> -2dB = 2650 hz
>
> -3dB = 3075 hz (0.707 x input voltage level)
>
>
>
> Part of the problem with the high LO injection level can be harmonic
> content ending up mixing and being present at the output of the Product
> Detector. If LPF is not designed properly or the RC values have changed
> then possible to have 5khz, 10khz, 10khz content in the DET audio output.
> The LPF RC constants are selected to address this. So it is possible that
> your LPF components are wrong or may have drifted in value. This is not
> very likely, but possible. It would be good to measure the LPF response if
> you could. I don’t measure it as matter of routine when I align a hybrid
> unless some performance issue.
>
>
> If you look at this audio LPF in the TS520, TS820, and TS830 you will see
> different values for the capacitors and resistors. KW does not use a high Q
> inductor for the series R element. I think it would be better, but chokes
> cost more than resistors. KW messed with the LPF CRC values and the AGC RC
> time constant component values over time in the hybrids. Even made changes
> from the 1 million series TS-830 to the 4 million series. Not sure they
> ever got either where they really wanted.
>
>
>
> TS-520 R = 6.8k and C = .047uf
>
> TS-820 R = 4.7k and C = .022uf
>
> TS-530 R = 6.8k and C = .033uf
>
> TS-830 R = 2.7k and C = .022uf
>
>
>
> So you can see KW has been messing with Product Detector LPF CRC values
> since day one.
>
>
>

> If you are good with Op amps perhaps could experiment with something like
> a Sallen Active LPF in lieu of the CRC filter?
>
>
>
> Not much practical help for you in this response. Just wanted to make sure
> you know that noise floor can be affected by the ring diodes, the LO
> injection level, the IF chain, and the performance of the audio Low Pass
> Filter at the Product Detector output.
>
>
>
> I think if you cannot get any help from the TS520 owners who have the CW
> filter installed and/or have installed the 1N5711 diodes you could do this:
>
>
>
>
>
> 1. Inspect your LPF and make sure the CRC values are not as shown on
> the Xray view.
>
> 2. Measure LO injection level at the Gen Board. It should be close to
> 1.0 rms rf volts. Could experiment with the level.
>
> 3. Measure response of your Low Pass Filter if possible.
>
> 4. Try installing individual Schottky 1N5711 or similar diodes that
> you can match forward voltage as close as you can.
>
> 5. Try suspending a monolithic quad package in lieu of individual
> diodes.(a Mod)
>
> 6. Try different values for LPF CRC (use poly or mylar for the output
> cap)
>
> 7. Try suspending an active LPF in lieu of the CRC filter. (a Mod)
>
> 8. Try an outboard DSP audio filter. Might find a good used Idiom
> Press SCAF-1. Might ask on the forum if anyone is using DSP filters or DSP
> speakers with their TS-520 rigs.
>
>
>
>
>
> Terry K9TW
>
>
>

>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> Ok, I am back with this "problem". I will first admit that my
> reference radio is the top of the line flagship ICOM IC-761. This
> thing has a REALLY quiet and sensitive receiver. I LOVE my TS-520. I
> think it is a better radio for SSB. It is just wonderful to listen
> to, and I get complements about the transmit audio that I never get
> with the 761. It is a great armchair radio. However, this weekend I
> was chasing DX on the high bands, and this white noise problem was
> annoying enough to have me switch back to my 761 for the DX. I sent
> an email to a local ham friend to see if he has the CW filter
> installed so that I can listen to his receiver and compare it to
> another 520s. The white noise is still there even if I switch to FIX
> or a non existent EXT. VFO. This noise makes up about 50% of the
> noise floor on a very quiet band (like 10m when the band is barely
> open). However, again -- it is generated after the signal passes
> through the Narrow CW crystal lattice filter, but before the audio
> stage. It is reduced by decreasing the RF gain, but it is MUCH wider
> than the skirt of the filter. I am wondering if putting Schottky
> diodes in the balanced detector circuit might improve things -- or
> not.
>
> Thoughts, opinions, flames? I might be just expecting too much from
> this old gal, but hopefully I can listen to someone else's radio
> before resigning myself to that.
>
> Regards,
> Chris Maness
>
> On Wed, Sep 25, 2013 at 5:39 AM, Chris Maness <chris@...> wrote:
> > Yes, I moved the brown lead.
> >
> > Chris KQ6UP
> >
> > On Sep 24, 2013 11:31 PM, "Osamu Hazawa" <pomerol@...> wrote:
> >>
> >> Hi Chris,
> >>
> >> Did you install the CW filter by yourself?
> >> If so, did you complete a modification "Move the brown lead from the SSB
> >> terminal to the CW terminal",
> >> 35 of the manual?
> >>
> >> 73,
> >> Osamu
> >>

> >>
> >>
> >> ----- Original Message -----
> >> From: Chris Maness
> >> To: TS-520_820_530_830@yahoogroups.com
> >> Sent: Wednesday, September 25, 2013 1:47 PM
> >> Subject: Re: Re: [TS-520_820_530_830] RE: Is a lot of White Noise normal
> >> with the CW RX Filter installed?
> >>
> >>
> >>
> >> Ok anyone with a CW narrow filter in their TS-520 get this much wide
> band
> >> white noise on a quiet band or dummy load?
> >>
> >> Video: http://youtu.be/Fv1RLn_Ws_I
> >>
> >> Thanks,
> >> Chris KQ6UP
> >>
> >>
> >> On Sun, Sep 22, 2013 at 7:41 PM, <wagstw46@...> wrote:
> >>>
> >>>
> >>>
> >>> Been a very long time since I have thought or read about Thermal or
> Shot
> >>> noise. I think some guy Kelvin is involved too!
> >>>
> >>>
> >>> Maybe a You tube video for the other TS520S owners with CW filters
> >>> installed would help?
> >>>
> >>>
> >>> Terry
> >>>
> >>> K9TW
> >>>
> >>>
> >>>
> >>> --- In TS-520_820_530_830@yahoogroups.com, &l!
> >>> t;ts-520_820_530_830@yahoogroups.com> wrote:
> >>>
> >>>
> >>>
> >>> On Sun, Sep 22, 2013 at 2:50 PM, <wagstw46@...> wrote:
> >>>
> >>>
> >>>
> >>> Some people call broad band noise as "hash" noise. I am not really sure

> >>> what hash noise is or if I ever heard it. I suppose it would blanket
> the
> >>> spectrum?
> >>>
> >>>
> >>> If it is an external RFI source might look at computer and peripherals
> >>> especially if any of them have a switcher supply in them.
> >>>
> >>>
> >>> Definitely internal source because the noise is independent of
> >>> antenna/dummy load configurations.
> >>>
> >>> Maybe generated by one of the new CFl lamps if you are using them.
> >>>
> >>> See above.
> >>>
> >>>
> >>> When you remove antenna or put rig on dummy load does the S-meter drop
> to
> >>> zero and if you run RF to max and turn of the AF gain do you hear a
> nice
> >>> smooth hiss? That would be normal noise produced internally by the
> receiver.
> >>>
> >>> Yes, this is the hiss I am referring to. However, it is a bit more than
> >>> I am used to on a typical radio even for its vintage. It is MUCH
> broader
> >>> than the CW filter. There are two layers of this white noise (this is
> not
> >>> the HF background noise on the band). The louder one is effected by
> the RF
> >>> Gain/AGC and the audio gain. There is a much fainter one that seems to
> be
> >>> due to the audio stage by itself. It is still present even if the RF
> GAIN
> >>> is set to minimum (AGC Voltage Max). That tells me its origin is after
> the
> >>> CW filter, but before the audio filter. If this is normal, I am not
> going
> >>> to worry about it. However, reiterating -- it is much louder than many
> >>> other radios I have used. However, when the wide filter is in line, it
> >>> blends in with the HF background noise to the point I have not noticed
> it
> >>> before. It is entirely possible that this is normal for the design. It
> >>> just seems like the g! reatest noise would be generated at the stage of
> >>> greatest gain. I would imagine this would be before that CW filter, and
> >>> therefore the Nyquest/Shot noise would be shaped by the filter also.
> Just
> >>> my book thoughts and observations speaking -- not from experience.
> >>>

> >>> The shape of the noise frequency response in relationship to the HF
> >>> background noise makes it REALLY stand out on the high bands. An
> external
> >>> audio band pass filter would cure this if I found it too annoying, but
> if
> >>> there is something wrong inside I would like to fix it.
> >>>
> >>> Tnx es
> >>> 73 de KQ6UP
> >>>
> >>>
> >>> Terry K9TW
> >>>
> >>>
> >>>
> >>> --- In TS-520_820_530_830@yahoogroups.com,
> >>> <ts-520_820_530_830@yahoogroups.com> wrote:
> >>>
> >>> In SSB and CW for the lower bands the background HF noise covers over a
> >>> background white noise on my radio. However, on the higher bands where
> the
> >>> band is quieter,! I here white noise that is much broader than the
> 500Hz CW
> >>> filter skirt. It is not from the AF stage because it decreases with
> the AF
> >>> volume. Is this normal for this radio? Can anyone else verify this
> with a
> >>> CW filter in the high bands?
> >>>
> >>> There is a mod bulletin/article floating around the net that suggests a
> >>> hash noise may be due to a bad transistor. However, if everyone else
> hears
> >>> the same noise, I am not going to worry about it. Moreover if there is
> a
> >>> mod for this problem, I would definitely be interested in the details.
> The
> >>> noise is tolerable, but I would much prefer it be lower.
> >>>
> >>> Here is the article in question:
> >>>
> >>> http://www.radiomods.co.nz/kenwood/kenwoodts520.html
> >>>
> >>> Thanks for the help guys. From this group I have received enough help
> to
> >>> resurrect a nearly basket case TS-520S. I had fixed other problems
> back in
> >>> 2009. Now I have a nearly perfectly working radio.
> >>>
> >>> Thanks,
> >>> Chris Maness KQ6UP

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45391. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 11:50:21 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45391

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

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Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

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I have cleaned the contacts on the Mode switch and checked for broken wires.

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I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

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I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

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We can talk about plate dip not occurring at right place when we get CW working.

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1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45392. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 11:58:46 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45392

I forgot to mention if you want to see with your test gear what a "normal" TX Carrier Osc signal looks like at TP-5 place mode switch to FSK and flip to send. If FSK is working in TX mode as you previously described you will have approx 850mv P-P at 8830.7 mhz at TP-5.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

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You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

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2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

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3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45393. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 14:23:40 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45393

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is

in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf

output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45394. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 00:29:28 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45394

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

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Ray

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Terry K9TW

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When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

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Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

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Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

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Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

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AB7HE

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3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45395. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 01:34:41 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45395

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read

that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

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Ray,
AB7HE

45396. FS: SP-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 03:02:12 UTC
From: <stg57@...>
Topic: 45396 Message: 45396

Hi Group,

I have a SP-520 for sale, hate for it just to sit around and collect dust here, as it does not fit on the shack desk any more after adding my vintage AM station last year to the desk line up. If any one is looking for one to complete their station looking to get $60.00 delivered. Would ship by USPS well packed.

If you need photos, please contact me direct at Stg57@yahoo.com not to tie up bandwidth.

73

James WS4JH

45397. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 04:05:06 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45397

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

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TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
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RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block

on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low

end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They

also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45398. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 10:47:08 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45398

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

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Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

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Hopefully we are making progress.

Ray AB7HE

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Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No

TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

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That should be enough for now.

Terry K9TW

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RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is

in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf

output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45399. Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-21 20:22:39 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45399

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? External VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45400. Re: [TS-520_820_530_830] Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 22:19:37 UTC
From: Mike
Topic: 45399 Message: 45400

The HEATER switch should be set to ON after you power up the 820.

The filament voltage on the final unit's "H" pin and chassis ground
should be 12VAC with the HEATER switch ON. The final tube filaments are
wired in "series" so if one filament is open, both final tube filaments
will not light. Check the driver tube filaments, it should be lit with
the HEATER switch ON. If it is but the final tube filaments are not lit,
most likely one of the final tube filaments is OPEN.

There will be no ALC indication in TUNE mode and the IP meter indication
will remain at zero (transmitter keyed) during transmitter tune up
attempts as long as the final tube filaments are not lit even though the
HV meter (transmitter keyed) indicates 900VDC.

The SG switch should also be set to ON for normal operation BUT the SG
switch has nothing to do with the final tube filaments.

73
Mike W5RKL

On 10/21/2013 3:22 PM, bvelasquez@... wrote:
>
> Hello, recently acquired a TS-820. The receive works great.
>
>
> However, when attempting the Tuning procedure (Checking that all
> controls are set according to the manual), the ALC meter did not move
> at the first step. I checked the Idling current and it stays at zero.
> Removing the cover, I checked to see if the filaments on the 6164B's
> light up with the H. Switch on. They do not light up.
>
> With HV set on the meter, I do read a little over 9 on the scale.
>
> Where are some common places that would exhibit these symptoms in the
> transmitter portion of the radio so that I have a starting point on
> what to check. Do I check if the SG switch is functional, H. Switch?
> External VFO cable is good. I checked that and all pins have continuity.
>
> Any other starting bases begin troubleshooting?
>
> Thank you!
>
>

45401. Re: [TS-520_820_530_830] Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 23:14:09 UTC
From: Michael George
Topic: 45399 Message: 45401

Just stay away from the plate voltage. If you don't, you may have the taste of copper pennies in your mouth.

Love the hobby as I do Enjoy, but be safe, Remember if in doubt - DON"T.

73,

Mike/K3MG

45402. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 01:11:51 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45402

Ray:

I forgot to mention the best place to get on MD to measure the output of the TX Mixer is on the wiper of the first bandswitch deck switch on the Coil Pack board. First deck from the front panel. These are reddish brown vertical boards. Looking down on the vertical board you will see the bronze hair pin loop of the wiper at approx 1230 position. Toward right side of bandswitch shaft. Easy to touch here or clip a short mini-grabber test lead on to the window cut in the loop. You can also access MD by reaching thru VC-1 Air Variable cap chain drive and touch the foil trace, but so much easier to connect at the wiper of the bandswitch with a mini-grabber for hands free measurement. I have couple of 8 inch mini-grabber test leads that do not impact the readings very much so I use them to connect my Boonton 92E or O-scope for RF drive measurements.

On my personal TS-820S after loading to 100 watts out at 14.175mhz. With Heaters on, SG switch off and Flip to send I get the following drive levels.

1. TIF signal at Conn RF-1 Pin 10 = 120mv rms
2. MD at wiper of bandswitch deck one = 1.45v rms
3. VCO at TP-1 on RF board = 1.0v rms

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying

to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I

cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45403. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 02:00:19 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45403

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

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So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

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Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

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Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control

grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45404. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-22 20:44:34 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45404

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? External VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45405. Re: [TS-520_820_530_830] Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 00:52:23 UTC
From: anthony jaen
Topic: 45399 Message: 45405

try to move back and forth the bandswitch or switch must have been dirty

Anthony Christian Montinola Jaen
Keyboard Basher & Tinkerer

On Wednesday, October 23, 2013 7:14 AM, Michael George <hpdd709@...> wrote:

Just stay away from the plate voltage. If you don't, you may have the taste of copper pennies in your mouth.

Love the hobby as I do Enjoy, but be safe, Remember if in doubt - DON"T.

73,

Mike/K3MG

45406. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 05:12:51 UTC
From: Wes Will
Topic: 45399 Message: 45406

On 10/22/2013 03:44 PM, bvelasquez@... wrote:

> Some more information to the group. I checked filament voltage at pin 2
> on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
> should be. However, with the tubes in, the voltage is at 140ma VAC. I

Please to clarify??

"140 milliAmperes Volts Alternating Current" ?????

One or the other. (milli-)Amperes, or Volts. Which?

Do you mean the tube CURRENT is 140 mA? Or that the tube VOLTAGE drops from 12 Volts AC no-load, to 140 thousandths of one VOLT??

Are you measuring from Pin 2 to chassis ground?

To measure the current, you would need to have LIFTED or broken the wire onto Pin 2 and insered the Ammeter into the circuit, one lead to the lifted wire, the other to the Pin 2 terminal.

For voltage, from Pin 2 with one lead, ground with the other lead, to measure the voltage drop when the heater is turned on.

What sort of meter are you using, by the way? An old-fashioned VTVM? Or a modern DMM? (Won't make a lot of difference, either way, for measuring heater voltage, just curious.) Or are you actually measuring current, using an Ameter or milliAmmeter?

--
W Will
N9KDY

45407. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 05:20:36 UTC
From: Wes Will
Topic: 45399 Message: 45407

On 10/22/2013 03:44 PM, bvelasquez@... wrote:
>
>
> Some more information to the group. I checked filament voltage at pin 2
> on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it

Isn't the heater pins 2 and 7??

--
W Will
N9KDY

Got about twenty messages all in one wad, some from several DAYS ago.
Trying to wade through them, sorry if this is disjointed. That batch
brings the stats email vs. web site to receiving one message in SIX,
instead of the one message in eleven or twelve. I guess that is an
improvement.... The new Yahoo "system" STINKS.
www

45408. RE: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 12:52:02 UTC
From: Brad Allen
Topic: 45399 Message: 45408

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO

cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45409. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 12:52:50 UTC
From: Mike
Topic: 45399 Message: 45409

Leave the driver and both final tubes in their sockets. Make sure the
SEND switch is DOWN BEFORE you power up the 820! Power up the 820 and
set the HEATER switch to ON . Use caution when measuring filament
voltage since there are high voltages present on the final unit board!!!

Measure the final tube filament voltage at the tube sockets starting
with final tube V1 pin 2.

Set your volt meter to measure AC (25VAC)
Connect the "BLACK" meter lead to the 820's chassis
Connect the "RED" meter lead to final tube V1's pin 2.

The meter should show 12VAC. If it does then move ONLY the RED meter
lead to final tube V1's pin 7, the meter should show 6VAC. If that's
what you see but both final tube filaments are not lit then final tube
V2 filament is most likely OPEN.

Measure the filament voltage of the driver tube, V1, on the RF unit board

Connect the "RED" meter lead to driver tube socket pin 5
Connect the "BLACK" meter lead to the 820's chassis.

The meter should show 12VAC. If it does BUT the driver tube filament is
NOT lit then the driver tube's filament is most likely OPEN.

I have no idea what "140ma VAC" means, that makes no sense!

Cycling the band switch and checking the final tube cathode resistors
has nothing to do with the driver and both final tube filament problems.

Mike W5RKL

On 10/23/2013 12:20 AM, Wes Will wrote:
>
> On 10/22/2013 03:44 PM, bvelasquez@... wrote:
> >
> >
> > Some more information to the group. I checked filament voltage at pin 2
> > on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
>
> Isn't the heater pins 2 and 7??
>
> --
> W Will
> N9KDY
>

> Got about twenty messages all in one wad, some from several DAYS ago.
> Trying to wade through them, sorry if this is disjointed. That batch
> brings the stats email vs. web site to receiving one message in SIX,
> instead of the one message in eleven or twelve. I guess that is an
> improvement.... The new Yahoo "system" STINKS.
> www
>
>

45410. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 13:11:48 UTC
From: Mike
Topic: 45399 Message: 45410

NO the switch is NOT bad! Did you read the entire thread? It has already been determined that 12VAC IS present at pin 2 of final tube V1 (see below) so the switch can't be bad so why suggest it is!!!

"/*I checked filament voltage at pin 2 of V1, the 6146B. It's at 12VAC without the tubes inserted, as it should be*//*.*/"

You believe the 820 filament voltage to the 6146 filaments should be 6VAC? Why would you say that when the final tube filaments are wired in "series"? That would put "3VAC" across each final tube filament!! If you look at the 820 schematic you will clearly see that the final tube filaments are, in fact, wired in "series" AND the driver and both final tube filament voltage IS "12VAC" not "6VAC" as you thought!

Mike W5RKL

On 10/23/2013 7:52 AM, Brad Allen wrote:
>
> How can the voltage be 140ma VAC? Your issue is a simple one. No need
> to check high voltage or alignment of the radio. I believe the voltage
> to a 646 should be 6.3 volts, not 2 volts for one thing and I also
> believe that the two tubes may be in series. Try checking the
> RESISTANCE of the filaments of each tube. Do you have a schematic? You
> may want to trace right back to the transformer. You may have
> something as simple as a bad switch, quite common for those to go bad.
> Brad KB2CHY
>
> ---
>
> *From:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of
> *bvelasquez@...
> *Sent:* Tuesday, October 22, 2013 4:45 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> *Subject:* [TS-520_820_530_830] RE: Transmitter not working - No
> idling current, tubes not turning on.
>
> Some more information to the group. I checked filament voltage at pin
> 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
> should be. However, with the tubes in, the voltage is at 140ma VAC.
> I would imagine it should stay at 12 VAC. I checked the HV, and the
> tubes are at 930 V when power is on. The driver tube filaments are
> also not on when the HT switch is ON.
>
> I checked the cathode resistors and they show 5 OHMS to ground.

>
> I'm wondering why the filament voltage is dropping like that, is this
> normal?
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Hello, recently acquired a TS-820. The receive works great.
>
> However, when attempting the Tuning procedure (Checking that all
> controls are set according to the manual), the ALC meter did not move
> at the first step. I checked the Idling current and it stays at zero.
> Removing the cover, I checked to see if the filaments on the 6164B's
> light up with the H. Switch on. They do not light up.
>
> With HV set on the meter, I do read a little over 9 on the scale.
>
> Where are some common places that would exhibit these symptoms in the
> transmitter portion of the radio so that I have a starting point on
> what to check. Do I check if the SG switch is functional, H. Switch?
> Ex ternal VFO cable is good. I checked that and all pins have
> continuity.
>
> Any other starting bases begin troubleshooting?
>
> Thank you!
>
>

45411. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 13:23:01 UTC
From: Guy Morgan
Topic: 45399 Message: 45411

From: Mike
Sent: Wednesday, October 23, 2013 2:11 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

The original questioner said “the 820 filament voltage to the 6146 filaments should be 6VAC”. I suspect that what he meant was ”the 820 filament voltage across each of the 6146 filaments should be 6Vac” which would be correct. I think it’s a case of using an ambiguous form of words rather than a misapprehension that 6146 valves have a 3V filament.

Like everyone else, I am at loss to see where 140ma VAC comes from, even if 140ma, 140 mVAC or 140VAC was meant.

Guy –G3POM

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@...m, mailto:ts-520_820_530_830@yahoogroups.com wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45412. RE: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 13:59:17 UTC
From: Brad Allen
Topic: 45399 Message: 45412

Mike, I said the switch could be bad because of the 140ma VAC reading. Obviously someone read something wrong. The filaments of the 6146's are in series with 12 volts which that means 6VAC at each filament. !2 volts AC would go to the 12BY7. So the12BY7 is in PARALLEL with 2 6146's in series and voltage across each supplied to the tubes. No, I did not read the whole thread. It seems that some don't want to get all the spaces and such on their portable devices, so some stuff is cutoff. I usually look at the last response. After I saw the 140ma VAC reading I was not sure what kind of know how you had, so I attempted the simple and easy route. I know what the schematic says without looking at it and I NEVER said the voltage to the tubes was 6 VAC. I said it was 12VAC so there should be 6 VAC across EACH tube in the final cage. The 12BY7 would be 12 volts. You asked for help in this, and I responded in good faith. No reason to be so quick to bite off my head. The switch could be intermittent or where the contacts can't handle the current. If you say the switch is not bad, OK, just say so. I am only trying to help you get you through a simple series parallel circuit.

Oh by the way, 2 6146's in SERIES with 12 volts applied would put 6 volts at each filament. That is a true statement. The driver is fed across the transformer with 12 volts. I will let you read what you wrote and analyze that again. I never said the TOTAL voltage across two 6146's is 6VAC, you did. I said ONE tube is 6VAC so the tubes may be in series which would equal the 12 VAC applied. Brad KB2CHY

. I believe the voltage to a 6146 should be 6.3 volts, not 12 volts. Please READ what I wrote. You will see I said to "A" 6146, not both.

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 9:12 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

NO the switch is NOT bad! Did you read the entire thread? It has already been determined that 12VAC IS present at pin 2 of final tube V1 (see below) so the switch can't be bad so why suggest it is!!!

"I checked filament voltage at pin 2 of V1, the 6146B. It's at 12VAC without the tubes inserted, as it should be."

You believe the 820 filament voltage to the 6146 filaments should be 6VAC? Why would you say that when the final tube filaments are wired in "series"?

That would put "3VAC" across each final tube filament!! If you look at the 820 schematic you will clearly see that the final tube filaments are, in fact, wired in "series" AND the driver and both final tube filament voltage IS "12VAC" not "6VAC" as you thought!

Mike W5RKL

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 6146 should be 6.3 volts, not 12 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: <mailto:TS-520_820_530_830@yahoogroups.com>
TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of
bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com,
<mailto:ts-520_820_530_830@yahoogroups.com>
<ts-520_820_530_830@yahoogroups.com> wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45413. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 14:12:04 UTC
From: Mike
Topic: 45399 Message: 45413

This is BASIC electricity/electronics knowledge that ALL hams should know how to do. However, unfortunately many members don't believe they need to know this stuff so we end up with how this thread has gone!

Tackling one problem at a time is what should be done. Once the filament issue is solved I suspect the loss of 60ma idling current will no longer exist.

Mike W5RKL

On 10/23/2013 8:23 AM, Guy Morgan wrote:
>
> *From:* Mike <mailto:w5rkl@...>
> *Sent:* Wednesday, October 23, 2013 2:11 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Subject:* Re: [TS-520_820_530_830] RE: Transmitter not working - No
> idling current, tubes not turning on.
> The original questioner said “the 820 filament voltage to the 6146
> filaments should be 6VAC”. I suspect that what he meant was ”the
> 820 filament voltage across each of the 6146 filaments should be
> 6Vac” which would be correct. I think it’s a case of using an
> ambiguous form of words rather than a misapprehension that 6146 valves
> have a 3V filament.
> Like everyone else, I am at loss to see where 140ma VAC comes from,
> even if 140ma, 140 mVAC or 140VAC was meant.
> Guy –G3POM
> On 10/23/2013 7:52 AM, Brad Allen wrote:
>>
>> How can the voltage be 140ma VAC? Your issue is a simple one. No need
>> to check high voltage or alignment of the radio. I believe the
>> voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I
>> also believe that the two tubes may be in series. Try checking the
>> RESISTANCE of the filaments of each tube. Do you have a schematic?
>> You may want to trace right back to the transformer. You may have
>> something as simple as a bad switch, quite common for those to go
>> bad. Brad KB2CHY
>>
>> ---
>>
>> *From:*TS-520_820_530_830@yahoogroups.com
>> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of
>> *bvelasquez@...
>> *Sent:* Tuesday, October 22, 2013 4:45 PM

>> *To:* TS-520_820_530_830@yahoogroups.com
>> *Subject:* [TS-520_820_530_830] RE: Transmitter not working - No
>> idling current, tubes not turning on.
>>
>> Some more information to the group. I checked filament voltage at
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>> as it should be. However, with the tubes in, the voltage is at 140ma
>> VAC. I would imagine it should stay at 12 VAC. I checked the HV,
>> and the tubes are at 930 V when power is on. The driver tube
>> filaments are also not on when the HT switch is ON.
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>> I checked the cathode resistors and they show 5 OHMS to ground.
>>
>> I'm wondering why the filament voltage is dropping like that, is this
>> normal?
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>> ---In TS-520_820_530_830@yahoogroups.com,
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>>
>> However, when attempting the Tuning procedure (Checking that all
>> controls are set according to the manual), the ALC meter did not move
>> at the first step. I checked the Idling current and it stays at
>> zero. Removing the cover, I checked to see if the filaments on the
>> 6164B's light up with the H. Switch on. They do not light up.
>>
>> With HV set on the meter, I do read a little over 9 on the scale.
>>
>> Where are some common places that would exhibit these symptoms in the
>> transmitter portion of the radio so that I have a starting point on
>> what to check. Do I check if the SG switch is functional, H.
>> Switch? Ex ternal VFO cable is good. I checked that and all pins
>> have continuity.
>>
>> Any other starting bases begin troubleshooting?
>>
>> Thank you!
>>
>
>

45414. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 14:15:05 UTC
From: Guy Morgan
Topic: 45399 Message: 45414

Indeed! If we had 60mA idling current with cold filaments that would be really interesting

Guy – G3POM

From: Mike
Sent: Wednesday, October 23, 2013 3:12 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

This is BASIC electricity/electronics knowledge that ALL hams should know how to do. However, unfortunately many members don't believe they need to know this stuff so we end up with how this thread has gone!

Tackling one problem at a time is what should be done. Once the filament issue is solved I suspect the loss of 60ma idling current will no longer exist.

Mike W5RKL

On 10/23/2013 8:23 AM, Guy Morgan wrote:

From: Mike
Sent: Wednesday, October 23, 2013 2:11 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

The original questioner said â□□the 820 filament voltage to the 6146 filaments should be 6VACâ□□. I suspect that what he meant was â□□the 820 filament voltage across each of the 6146 filaments should be 6Vacâ□□ which would be correct. I think itâ□□s a case of using an ambiguous form of words rather than a misapprehension that 6146 valves have a 3V filament.

Like everyone else, I am at loss to see where 140ma VAC comes from, even if 140ma, 140 mVAC or 140VAC was meant.

Guy â□□G3POM

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

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I'm wondering why the filament voltage is dropping like that, is this normal?

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With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

[Non-text portions of this message have been removed]

45415. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 15:14:27 UTC
From: Mike
Topic: 45399 Message: 45415

Brad,

If you took my response as "biting you head off" then you took it wrong.

I am sorry Brad but I do not agree with the switch being intermittent. There is no evidence, at least at this stage, that indicates the switch is intermittent. The presence of 12VAC at pin 2 of V1 final tube indicates the switch is not bad or even intermittent. An intermittent switch could easily show the filaments lit then dying out without touching the switch but that has not been indicated.

Your wording of your response about the filament voltage to the final tube indicated to me that you thought the final tube filament voltage should be 6.3VAC not 12VAC. I am aware the filament voltage for the 6146 is 6.3VAC but the 6146 filaments, as I said, in the 820 are wired in series so the filament voltage in the 820 will be 12VAC. Your indication of the 6146 filament wiring was not clear, you hinted that the final tubes were in series, which they are.

I don't mean any disrespect to anyone but it gets very frustrating and annoying when trying to help someone and they don't listen. They ask for help yet when given a few simple easy steps to take, they don't follow or if they do they do other things they are not told to do which quite often confuses the issue! That happens a lot on this and other ham forums and groups and it gets very frustrating and annoying!

Also, members need to read an entire thread before responding. It's quite possible that your response could duplicate a response given a few hours or half a day earlier.

73
Mike W5RKL

On 10/23/2013 8:59 AM, Brad Allen wrote:
>
> Mike, I said the switch could be bad because of the 140ma VAC reading.
> Obviously someone read something wrong. The filaments of the 6146's
> are in series with 12 volts which that means 6VAC at each filament. !2
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> final cage. The 12BY7 would be 12 volts. You asked for help in this,
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> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Mike
> *Sent:* Wednesday, October 23, 2013 9:12 AM
> *To:* TS-520_820_530_830@yahoogroups.com
> *Subject:* Re: [TS-520_820_530_830] RE: Transmitter not working - No
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> in "series"? That would put "3VAC" across each final tube filament!!
> If you look at the 820 schematic you will clearly see that the final
> tube filaments are, in fact, wired in "series" AND the driver and both
> final tube filament voltage IS "12VAC" not "6VAC" as you thought!
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> Mike W5RKL
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> On 10/23/2013 7:52 AM, Brad Allen wrote:
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>> <mailto:TS-520_820_530_830@yahoogroups.com>] *On Behalf Of
>> *bvelasquez@... <mailto:bvelasquez@...>
>> *Sent:* Tuesday, October 22, 2013 4:45 PM
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>> ---In TS-520_820_530_830@yahoogroups.com
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>> Hello, recently acquired a TS-820. The receive works great.
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>> However, when attempting the Tuning procedure (Checking that all
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>> zero. Removing the cover, I checked to see if the filaments on the
>> 6164B's light up with the H. Switch on. They do not light up.

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>> Where are some common places that would exhibit these symptoms in the
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>> Ex ternal VFO cable is good. I checked that and all pins have
>> continuity.
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>> Any other starting bases begin troubleshooting?
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>> Thank you!
>>
>

45416. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 17:32:19 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45416

I am going to start back from the beginning. I just looked at the CAR-2 board schematic and the specs for oscillator frequencies. CW and FSK(space) use the same frequency (8830.7) so if FSK is working, CW should also be working. The default for FSK with nothing plugged into the FSK jack is space. Looking at the schematic, the CW carrier is keyed on at CJ2-CW through L1 and D1. FSK is keyed on at CJ2-FSK through L2 and D2. They both key the oscillator on at the same point. Since I am apparently not getting CW carrier in the Tune or CW postion, either L1 or D1 must be open. I will check these when I get home this evening.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal

3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in

this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working

properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These

voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45417. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 20:54:01 UTC
From: Wes Will
Topic: 45399 Message: 45417

On 10/22/2013 03:44 PM, bvelasquez@... wrote:

> on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
> should be. However, with the tubes in, the voltage is at 140ma VAC. I

Tovarishch, the problem is the mixed terms you used here. Nobody is trying to snipe at you, we are just confused as all get-out as to what you could POSSIBLY mean.

You used, as it shows above, the term

140 MILLI-AMPERES VOLTS ALTERNATING CURRENT

when I expand all the abbreviations.

Milli-amperes are NOT Volts. You measure them in totally different ways, for one thing, with totally different meters. (Can be combined into one box, certainly, but an ammeter is placed in series with the circuit under test, and volts are measured with the meter in parallel to the part being checked.)

Is the correct unit MILLIVOLTS, perhaps??? Abbreviated "mV" ?? Because milli-Ampere Volts is TRULY confusing.

You should get 12 Volts AC from Pin 2 of V1 to chassis ground, and only 6 Volts AC at pin 7 of V1 (which is connected directly to pin 2 of V2, the other 6146 tube; it is just the other end of the same wire).

Heater switch ON of course. Flip it to OFF and that should drop to Zero volts. It might be worth a check, this will make certain you don't have a wonky heater switch; they do go out of order sometimes.

Really, it's not a personal attack. We just want to figure out what Milli-Amperes Volts really meant.

--
W Will
N9KDY

45418. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 21:09:34 UTC
From: Guy Morgan
Topic: 45399 Message: 45418

Quite.

Actually when you look at the dimensions 140maVAC is 140mW. No more likely as a figure measured at a filament pin though./

Guy - G3POM

-----Original Message-----
From: Wes Will
Sent: Wednesday, October 23, 2013 9:54 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

On 10/22/2013 03:44 PM, bvelasquez@... wrote:

> on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
> should be. However, with the tubes in, the voltage is at 140ma VAC. I

Tovarishch, the problem is the mixed terms you used here. Nobody is trying to snipe at you, we are just confused as all get-out as to what you could POSSIBLY mean.

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Milli-amperes are NOT Volts. You measure them in totally different ways, for one thing, with totally different meters. (Can be combined into one box, certainly, but an ammeter is placed in series with the circuit under test, and volts are measured with the meter in parallel to the part being checked.)

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Heater switch ON of course. Flip it to OFF and that should drop to Zero volts. It might be worth a check, this will make certain you don't have a wonky heater switch; they do go out of order sometimes.

Really, it's not a personal attack. We just want to figure out what
Milli-Amperes Volts really meant.

--
W Will
N9KDY

Yahoo! Groups Links

45419. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 23:39:57 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45419

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few

seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dummy load.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have a Kenwood TS-820S. Receive is working fine. Strange transmit problem.

When the Mode switch is the Tune, CW, USB, or LSB postion and I operate the Send switch I get no plate current and no output. When the switch is in the FSK position, I get almost normal plate current and can tune the rig to about 3/4 full power out. I can only get the load and plate controls to 160 ma into my dummy load with carrier control at max. Maybe a bad 12BY7 preventing full power out.

The other strange thing is when the meter switch is in the RF position, I can only increase the carrier control to about 70 ma plate current before the meter pegs when in FSK mode.

My 50 watt dummy load doesn't have a power indicator but I know the transmitter is putting out decent power in FSK mode as the resistors in the dummy load are getting warm.

Voltages (SG, Plate, Bias) are all normal. They drop about 10% when switching from receive to transmit mode. This drop happens in all postions of the mode switch, not just the FSK mode.

This makes no sense as in most cases the Tune and CW contacts of S6 are tied together. And S6-2 ties Tune, CW, and FSK together. Has anyone seen this issue before or give me an idea where to look for the problem?

Ray,
AB7HE

45420. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 15:17:41 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45420

It is mv not ma. My big labelling mistake and I'll make sure I double-check what I type next time.

---In ts-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 10/22/2013 03:44 PM, bvelasquez@... mailto:bvelasquez@... wrote:

> Some more information to the group. I checked filament voltage at pin 2
> on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
> should be. However, with the tubes in, the voltage is at 140ma VAC. I

Please to clarify??

"140 milliAmperes Volts Alternating Current" ?????

One or the other. (milli-)Amperes, or Volts. Which?

Do you mean the tube CURRENT is 140 mA? Or that the tube VOLTAGE drops from 12 Volts AC no-load, to 140 thousandths of one VOLT??

Are you measuring from Pin 2 to chassis ground?

To measure the current, you would need to have LIFTED or broken the wire onto Pin 2 and insered the Ammeter into the circuit, one lead to the lifted wire, the other to the Pin 2 terminal.

For voltage, from Pin 2 with one lead, ground with the other lead, to measure the voltage drop when the heater is turned on.

What sort of meter are you using, by the way? An old-fashioned VTVM? Or a modern DMM? (Won't make a lot of difference, either way, for measuring heater voltage, just curious.) Or are you actually measuring current, using an Ameter or milliAmmeter?

--
W Will
N9KDY

45421. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 17:11:49 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45421

OK, everyone. Here is a summary of what I'm seeing, and I believe I found the problem.

With the tubes in, I see the following:

Finals Board:

120mv on Pin 2 on V1 with HT switch ON.
50.2mv on Pin 7 on V1

RF Board

300mv on Pin 5 with HT switch ON

The HT switch does toggle power ON and OFF when you flip it.

However, when hooking up the probes and running through the tests, the driver filaments and the 6146 filaments lit up!! What?? I measured the voltage and all was as it should be 12 VAC at Pin 2 on V1 and the same on the RF board pin 5. So good power and filaments lit.

I toggled the HT switch OFF and back ON, back to the problem. No 12 VAC.

So, I suspect it is the HT switch, because if I keep toggling it ON and OFF, the voltage eventually comes back and the filaments are lit. Dirty HT switch contacts causing poor connection to 12 VAC power supply possibly?

I'll look further.

Again, thank you for all your help! Any suggestions on how to clean or check the HT switch would be greatly appreciated.

Barry

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Brad,

If you took my response as "biting you head off" then you took it wrong.

I am sorry Brad but I do not agree with the switch being intermittent. There is no evidence, at least at this stage, that indicates the switch is intermittent. The presence of 12VAC at pin 2 of V1 final tube indicates the switch is not bad or even intermittent. An intermittent switch could easily show the filaments lit then dying out without touching the switch but that has not been indicated.

Your wording of your response about the filament voltage to the final tube indicated to me that you thought the final tube filament voltage should be 6.3VAC not 12VAC. I am aware the filament voltage for the 6146 is 6.3VAC but the 6146 filaments, as I said, in the 820 are wired in series so the filament voltage in the 820 will be 12VAC. Your indication of the 6146 filament wiring was not clear, you hinted that the final tubes were in series, which

they are.

I don't mean any disrespect to anyone but it gets very frustrating and annoying when trying to help someone and they don't listen. They ask for help yet when given a few simple easy steps to take, they don't follow or if they do they do other things they are not told to do which quite often confuses the issue! That happens a lot on this and other ham forums and groups and it gets very frustrating and annoying!

Also, members need to read an entire thread before responding. It's quite possible that your response could duplicate a response given a few hours or half a day earlier.

73
Mike W5RKL

On 10/23/2013 8:59 AM, Brad Allen wrote:

Mike, I said the switch could be bad because of the 140ma VAC reading. Obviously someone read something wrong. The filaments of the 6146's are in series with 12 volts which that means 6VAC at each filament. !2 volts AC would go to the 12BY7. So the12BY7 is in PARALLEL with 2 6146's in series and voltage across each supplied to the tubes. No, I did not read the whole thread. It seems that some don't want to get all the spaces and such on their portable devices, so some stuff is cutoff. I usually look at the last response. After I saw the 140ma VAC reading I was not sure what kind of know how you had, so I attempted the simple and easy route. I know what the schematic says without looking at it and I NEVER said the voltage to the tubes was 6 VAC. I said it was 12VAC so there should be 6 VAC across EACH tube in the final cage. The 12BY7 would be 12 volts. You asked for help in this, and I responded in good faith. No reason to be so quick to bite off my head. The switch could be intermittent or where the contacts can't handle the current. If you say the switch is not bad, OK, just say so. I am only trying to help you get you through a simple series parallel circuit.
Oh by the way, 2 6146's in SERIES with 12 volts applied would put 6 volts at each filament. That is a true statement. The driver is fed across the transformer with 12 volts. I will let you read what you wrote and analyze that again. I never said the TOTAL voltage across two 6146's is 6VAC, you did. I said ONE tube is 6VAC so the tubes may be in series which would equal the 12 VAC applied. Brad KB2CHY

. I believe the voltage to a 6146 should be 6.3 volts, not 12 volts. Please READ what I wrote. You will see I said to "A" 6146, not both.

From: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 9:12 AM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

NO the switch is NOT bad! Did you read the entire thread? It has already been determined that 12VAC IS present at pin 2 of final tube V1 (see below) so the switch can't be bad so why suggest it is!!!

"I checked filament voltage at pin 2 of V1, the 6146B. It's at 12VAC without the tubes inserted, as it should be."

You believe the 820 filament voltage to the 6146 filaments should be 6VAC? Why would you say that when the final tube filaments are wired in "series"? That would put "3VAC" across each final tube filament!! If you look at the 820 schematic you will clearly see that the final tube filaments are, in fact, wired in "series" AND the driver and both final tube filament voltage IS "12VAC" not "6VAC" as you thought!

Mike W5RKL

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 6146 should be 6.3 volts, not 12 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@... mailto:bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com , <ts-520_820_530_830@yahoogroups.com> mailto:ts-520_820_530_830@yahoogroups.com wrote:
Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45422. RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 18:07:20 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45422

Hello Mike,

Thank you for the help with this. The switch does seem to be intermittent. In performing all the tests suggested here, I noticed at one point the filaments did light up WITH the tubes in. There was 12 VAC at Pin 2 on V1 at that point. However, if I turn of the HT switch and turn it back on, the voltage would then be at 140mv at pin 2 on V1. Same issue at the driver tube, pin 5. A mv range with no filaments lit. However, repeatedly toggling the HT switch will eventually provide the correct voltage at pin 2 on V1 at the finals and pin 5 at the RF board. So, unless there is something else that could cause this behavior along the path from the HT switch to these pins, the HT switch might be dirty or something else.

I'm looking for any suggestions on what else to check in this case of intermittent behavior besides the HT switch, which I will check closely and clean.

The 12 VAC seems to be reliably at the pins when the tubes are removed, but that could have been a fluke and the HT switch was working, by chance, at those times. I'll have to check all this again and see with and without the tubes to see if the 12VAC comes and goes.

73,

Barry

45423. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 21:25:11 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45423

Ugh.. why are none of my posts getting posted!!! I'm trying to correct my mistake of using mA instead of mV. My mistake, but for whatever reason, none of my correcting posts are making it on this thread. Does someone have to approve each response?? I've responded hours ago to correct the mistake, but I don't see a single one of my posts.

The Heater switch is faulty it seems. Toggling it repeatedly eventually provides the correct voltages. Toggling it some more does not. It's intermittent. When it works, all voltages are good.

I'll get some Deoxit and clean the switch and see if that helps. Hope this response gets into this thread.

Barry

---In ts-520_820_530_830@yahoogroups.com, <yahoo@...> wrote:

Quite.

Actually when you look at the dimensions 140maVAC is 140mW. No more likely
as a figure measured at a filament pin though./

Guy - G3POM

-----Original Message-----
From: Wes Will
Sent: Wednesday, October 23, 2013 9:54 PM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling
current, tubes not turning on.

On 10/22/2013 03:44 PM, bvelasquez@... mailto:bvelasquez@... wrote:

> on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it
> should be. However, with the tubes in, the voltage is at 140ma VAC. I

Tovarishch, the problem is the mixed terms you used here. Nobody is
trying to snipe at you, we are just confused as all get-out as to what
you could POSSIBLY mean.

You used, as it shows above, the term

140 MILLI-AMPERES VOLTS ALTERNATING CURRENT

when I expand all the abbreviations.

Milli-amperes are NOT Volts. You measure them in totally different
ways, for one thing, with totally different meters. (Can be combined
into one box, certainly, but an ammeter is placed in series with the
circuit under test, and volts are measured with the meter in parallel to

the part being checked.)

Is the correct unit MILLIVOLTS, perhaps??? Abbreviated "mV" ?? Because milli-Ampere Volts is TRULY confusing.

You should get 12 Volts AC from Pin 2 of V1 to chassis ground, and only 6 Volts AC at pin 7 of V1 (which is connected directly to pin 2 of V2, the other 6146 tube; it is just the other end of the same wire).

Heater switch ON of course. Flip it to OFF and that should drop to Zero volts. It might be worth a check, this will make certain you don't have a wonky heater switch; they do go out of order sometimes.

Really, it's not a personal attack. We just want to figure out what Milli-Amperes Volts really meant.

--
W Will
N9KDY

Yahoo! Groups Links

45424. RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 15:14:21 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45424

My apologies to everyone in this thread for mis-labelling "140ma VAC". It's 140 mv!! NOT ma. Ugh. My big mistake and again I apologies for not double-checking what I was typing and verifying the labeling I was giving you all.

There is 12 VAC on V1, pin 2 *without* the V1 tube in place. With the tube, it's 140mv +-10mv. My meter will not settle. I will check the filament voltages on the driver tube next.

I just wanted to clarify the ma/mv confusion as quickly as possible as when you guys pointed out my labeling mistake I new that couldn't be right and had to get the correct information to you soon.

Barry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Indeed! If we had 60mA idling current with cold filaments that would be really interesting

Guy – G3POM

From: Mike
Sent: Wednesday, October 23, 2013 3:12 PM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

This is BASIC electricity/electronics knowledge that ALL hams should know how to do. However, unfortunately many members don't believe they need to know this stuff so we end up with how this thread has gone!

Tackling one problem at a time is what should be done. Once the filament issue is solved I suspect the loss of 60ma idling current will no longer exist.

Mike W5RKL

On 10/23/2013 8:23 AM, Guy Morgan wrote:

From: Mike
Sent: Wednesday, October 23, 2013 2:11 PM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

The original questioner said â□□the 820 filament voltage to the 6146 filaments should be 6VACâ□□. I suspect that what he meant was â□□the 820 filament voltage across each of the 6146 filaments should be 6Vacâ□□ which would be correct. I think itâ□□s a case of using an ambiguous form of words rather than a misapprehension that 6146 valves have a 3V filament.

Like everyone else, I am at loss to see where 140ma VAC comes from, even if 140ma, 140 mVAC or 140VAC was meant.

Guy â□□G3POM

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@... mailto:bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, mailto:ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

[Non-text portions of this message have been removed]

45425. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-23 04:08:50 UTC
From: clifford wright
Topic: 45399 Message: 45425

Quick query what are you measuring as 140mA VAC???
If your filaments are open then you should measure 12 volts ac across one and nothing across the other.
There is one possibility though. Remove the 6146B's (after temporarily grounding the plate connector) to ensure safety and measure the resistance between pins 2 and 7, 1 pin away from the locating lug. It should be a few Ohms. If so your heaters are OK.
Then check between pin 1 and pin 2. It should be very high.
If not you may have a heater/cathode short. In either case new 6146B's are the only answer.
The only other possibility is a crack in the final circuit board (look VERY closely) or a dry joint in the heater circuit on the board. This can happen as there is quite a lot of heat around given the poor efficiency of the 820 series finals on some bands. Once again an Ohmmeter is what you need to locate it together with careful inspection.
Hope these suggestions help.
Zl1BDA

45426. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 02:09:11 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45426

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal

presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see

approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back

on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band without the ALC indication falling off. Should get FSD with Car Pot advanced no more than approx 1000 to 1100. Rest between each band test as Driver tube is running class A (full plate current).

4 If RF detector is pegging at 70ma plate current then turn down the sensitivity pot. You always have to adjust the sensitivity pot. Set it for approx 2/3 deflection at 100 watts out. Would have been handy if KW would have put the pot on the front panel. They provided this meter position as it is better to load a Class AB1 linear amp by tuning for max rf output without exceeding plate dissipation than using the old dip and load method. They also provided it as external wattmeters were not common and they wanted the radio to be instrumented to be stand alone.

5. I would not use a 50 watt dummy load. If you must then have to realize all dummy loads have a duty cycle. Can use it but have to limit key down time.

6. When you get a couple of bucks ahead suggest you get an external wattmeter. Makes a good Loading aid and a good diagnostic tool. Drake W4, Heath HM-102, any of the MFJs are good and give you a SWR bridge and Wattmeter in one piece of test gear. Having actual output wattage tells you a lot more than looking at relative RF output power by measuring rf voltage at SO-239 or measuring the temperature of your dumm

(Message over 64 KB, truncated)

45427. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 02:17:27 UTC
From: Mike
Topic: 45399 Message: 45427

Now that there is evidence of a HEATER switch failure which was not initially evident, you should take steps to replace the HEATER switch. Do not work on any other problems the radio has until the switch is replaced and found to be working as it should. That's my suggestion/steps you should take.

73
Mike W5RKL

On 10/23/2013 1:07 PM, bvelasquez@... wrote:
>
> Hello Mike,
>
>
> Thank you for the help with this. The switch does seem to be
> intermittent. In performing all the tests suggested here, I noticed
> at one point the filaments did light up WITH the tubes in. There was
> 12 VAC at Pin 2 on V1 at that point. However, if I turn of the HT
> switch and turn it back on, the voltage would then be at 140mv at pin
> 2 on V1. Same issue at the driver tube, pin 5. A mv range with no
> filaments lit. However, repeatedly toggling the HT switch will
> eventually provide the correct voltage at pin 2 on V1 at the finals
> and pin 5 at the RF board. So, unless there is something else that
> could cause this behavior along the path from the HT switch to these
> pins, the HT switch might be dirty or something else.
>
> I'm looking for any suggestions on what else to check in this case of
> intermittent behavior besides the HT switch, which I will check
> closely and clean.
>
> The 12 VAC seems to be reliably at the pins when the tubes are
> removed, but that could have been a fluke and the HT switch was
> working, by chance, at those times. I'll have to check all this again
> and see with and without the tubes to see if the 12VAC comes and goes.
>
> 73,
>
> Barry
>

45428. RE: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 05:09:24 UTC
From: Brad Allen
Topic: 45399 Message: 45428

Very much aware, but my statement was very clear. 12 VAC feeds 2 tubes with 6 volt filaments in series, therefore 6VAC across each tube. Others also said the switch could be dirty. I am far from new with working on this type of gear. My wording was exactly what I have below in red. It was you who read it wrong thinking I thought 6VAC across 2 6 volt tubes etc., Not so. I stated A tube one 6146 would have the 6 volts on it; obviously the other would as well with 2 volts feeding it. I don't know how to write it any clearer. None the less, let's move on.

Ok yes, I certainly know that the threads can be numerous, but USUALLY if no one cuts anything off of previous posts, I see all of the thread and read it. Unfortunately this is a stickler with me that people have to cut off part of the thread. They say it's too long and they have to scroll through so much. Personally I believe it to be a issue with some and man do they make a big deal over it. I don't say anything when I have to sift through numerous posts to help someone out. It the thread is not cutoff and the replies are in order, the last one on that subject should be all I need. You also have to remember that others may respond at the same time or shortly before or after I do which I have no control over.

That's all. I agree with your frustration, but that is what we do and sometimes the same questions over and over. If you are going to help in a forum setting, one needs to just bite the bullet and repeat the same answers over and over.

I hope we understand each other on the situation of the filaments. Certainly this is a circuit I have in my head and I can easily explain it. I thought my response was perfectly clear. Yes, you nipped at me and it was your interpretation of what I wrote. Have a good day, Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 11:14 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Brad,

If you took my response as "biting you head off" then you took it wrong.

I am sorry Brad but I do not agree with the switch being intermittent. There is no evidence, at least at this stage, that indicates the switch is

intermittent. The presence of 12VAC at pin 2 of V1 final tube indicates the switch is not bad or even intermittent. An intermittent switch could easily show the filaments lit then dying out without touching the switch but that has not been indicated.

Your wording of your response about the filament voltage to the final tube indicated to me that you thought the final tube filament voltage should be 6.3VAC not 12VAC. I am aware the filament voltage for the 6146 is 6.3VAC but the 6146 filaments, as I said, in the 820 are wired in series so the filament voltage in the 820 will be 12VAC. Your indication of the 6146 filament wiring was not clear, you hinted that the final tubes were in series, which they are.

I don't mean any disrespect to anyone but it gets very frustrating and annoying when trying to help someone and they don't listen. They ask for help yet when given a few simple easy steps to take, they don't follow or if they do they do other things they are not told to do which quite often confuses the issue! That happens a lot on this and other ham forums and groups and it gets very frustrating and annoying!

Also, members need to read an entire thread before responding. It's quite possible that your response could duplicate a response given a few hours or half a day earlier.

73
Mike W5RKL

On 10/23/2013 8:59 AM, Brad Allen wrote:

Mike, I said the switch could be bad because of the 140ma VAC reading. Obviously someone read something wrong. The filaments of the 6146's are in series with 12 volts which that means 6VAC at each filament. !2 volts AC would go to the 12BY7. So the12BY7 is in PARALLEL with 2 6146's in series and voltage across each supplied to the tubes. No, I did not read the whole thread. It seems that some don't want to get all the spaces and such on their portable devices, so some stuff is cutoff. I usually look at the last response. After I saw the 140ma VAC reading I was not sure what kind of know how you had, so I attempted the simple and easy route. I know what the schematic says without looking at it and I NEVER said the voltage to the tubes was 6 VAC. I said it was 12VAC so there should be 6 VAC across EACH tube in the final cage. The 12BY7 would be 12 volts. You asked for help in this, and I responded in good faith. No reason to be so quick to bite off my head. The switch could be intermittent or where the contacts can't handle the current. If you say the switch is not bad, OK, just say so. I am only trying to help you get you through a simple series parallel circuit.

Oh by the way, 2 6146's in SERIES with 12 volts applied would put 6 volts at each filament. That is a true statement. The driver is fed across the transformer with 12 volts. I will let you read what you wrote and analyze that again. I never said the TOTAL voltage across two 6146's is 6VAC, you did. I said ONE tube is 6VAC so the tubes may be in series which would equal the 12 VAC applied. Brad KB2CHY

. I believe the voltage to a 6146 should be 6.3 volts, not 12 volts. Please READ what I wrote. You will see I said to "A" 6146, not both.

From: <mailto:TS-520_820_530_830@yahoogroups.com>
TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 9:12 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

NO the switch is NOT bad! Did you read the entire thread? It has already been determined that 12VAC IS present at pin 2 of final tube V1 (see below) so the switch can't be bad so why suggest it is!!!

"I checked filament voltage at pin 2 of V1, the 6146B. It's at 12VAC without the tubes inserted, as it should be."

You believe the 820 filament voltage to the 6146 filaments should be 6VAC? Why would you say that when the final tube filaments are wired in "series"? That would put "3VAC" across each final tube filament!! If you look at the 820 schematic you will clearly see that the final tube filaments are, in fact, wired in "series" AND the driver and both final tube filament voltage IS "12VAC" not "6VAC" as you thought!

Mike W5RKL

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 6146 should be 6.3 volts, not 12 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: <mailto:TS-520_820_530_830@yahoogroups.com>
TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when

power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com, <mailto:ts-520_820_530_830@yahoogroups.com> <ts-520_820_530_830@yahoogroups.com> wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45429. RE: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 05:12:53 UTC
From: Brad Allen
Topic: 45399 Message: 45429

I am not so sure the guy is a HAM! Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 10:12 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

This is BASIC electricity/electronics knowledge that ALL hams should know how to do. However, unfortunately many members don't believe they need to know this stuff so we end up with how this thread has gone!

Tackling one problem at a time is what should be done. Once the filament issue is solved I suspect the loss of 60ma idling current will no longer exist.

Mike W5RKL

On 10/23/2013 8:23 AM, Guy Morgan wrote:

From: Mike <mailto:w5rkl@...m>

Sent: Wednesday, October 23, 2013 2:11 PM

To: TS-520_820_530_830@yahoogroups.com

Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

The original questioner said â□□the 820 filament voltage to the 6146 filaments should be 6VACâ□□. I suspect that what he meant was â□□the 820 filament voltage across each of the 6146 filaments should be 6Vacâ□□ which would be correct. I think itâ□□s a case of using an ambiguous form of words rather than a misapprehension that 6146 valves have a 3V filament.

Like everyone else, I am at loss to see where 140ma VAC comes from, even if 140ma, 140 mVAC or 140VAC was meant.

Guy â□□G3POM

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646

should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

_____

From: <mailto:TS-520_820_530_830@yahoogroups.com>
TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of
bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

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mailto:ts-520_820_530_830@yahoogroups.com wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45430. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 07:40:40 UTC
From: Gordon JC Pearce
Topic: 45399 Message: 45430

On Wed, Oct 23, 2013 at 10:11:49AM -0700, bvelasquez@... wrote:
> However, when hooking up the probes and running through the tests, the driver filaments and the 6146 filaments lit up!! What?? I measured the voltage and all was as it should be 12 VAC at Pin 2 on V1 and the same on the RF board pin 5. So good power and filaments lit.
>
>
> I toggled the HT switch OFF and back ON, back to the problem. No 12 VAC.

So, as you surmised in your *first* email, the heater switch is faulty. It's a bit of a bugger that you typoed 140mV AC as 140mA VAC because we've now had close to a week of people who ought to know better jumping up and down squawking about "ZOMG BASIC KNOWLEDGE!" when it was pretty clear from the outset that it was a) a typo, and b) a broken switch.

However, it's worth pointing out that this is the HEATER switch, and switches the heater supply. It's not the HT switch and it doesn't do a damn thing to the HT supply - that's still waiting there to bite the unwary! I don't think I've ever turned the heater switch off on my TS-520. Does anyone do this? I don't recommend wiring it across except as a temporary measure to test - but the amount of work to get at it to bodge it like that is as much as the amount of work to just replace the thing!

Now if we could just trim all the extraneous crap from replies and stop top-posting, this whole thing could have been cleared up a lot sooner ;-)

--
Gordonjcp MM0YEQ

45431. RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 09:57:56 UTC
From: <wagstw46@...>
Topic: 45399 Message: 45431

'know better jumping up and down squawking about "ZOMG BASIC KNOWLEDGE!"

Yeah this hobby and this forum would most assuredly be better if people like Mike Waldrop W5RKL would stop force feeding all this fundamental crap!

I submit this forum would be a better place if the owners would institute a more stringent membership approval screening process. Clearly needs to be a probationary period.

Let me see I have a technical problem with my KW hybrid. Who would I seek help from? Gordon or Mike ? Now there is a "No Brainer"!

Got to run now and go buy a bigger hammer.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Wed, Oct 23, 2013 at 10:11:49AM -0700, bvelasquez@... mailto:bvelasquez@... wrote:
> However, when hooking up the probes and running through the tests, the driver filaments and the 6146 filaments lit up!! What?? I measured the voltage and all was as it should be 12 VAC at Pin 2 on V1 and the same on the RF board pin 5. So good power and filaments lit.
>
>
> I toggled the HT switch OFF and back ON, back to the problem. No 12 VAC.

So, as you surmised in your *first* email, the heater switch is faulty. It's a bit of a bugger that you typoed 140mV AC as 140mA VAC because we've now had close to a week of people who ought to know better jumping up and down squawking about "ZOMG BASIC KNOWLEDGE!" when it was pretty clear from the outset that it was a) a typo, and b) a broken switch.

However, it's worth pointing out that this is the HEATER switch, and switches the heater supply. It's not the HT switch and it doesn't do a damn thing to the HT supply - that's still waiting there to bite the unwary! I don't think I've ever turned the heater switch off on my TS-520. Does anyone do this? I don't recommend wiring it across except as a temporary measure to test - but the amount of work to get at it to bodge it like that is as much as the amount of work to just replace the thing!

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--
Gordonjcp MM0YEQ

45432. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 11:27:05 UTC
From: <paw_paw44036@...>
Topic: 45399 Message: 45432

With this severe drop in filament voltage. First I would check the tubes for a shorted heater to cathode. If the tubes are ok and you say without the tubes you have 12 vac then put the tubes back in and turn everything on and check each side of the heater switch to see what the voltage is there. If there is 12 vac on both sides of the switch, then you know it is ok. Also check pin 4 of the ext vfo socket for 12 vac. One other thing, do you have any meter and vfo lamps? These come from the same power source. You might want to check your power cord as well as pin 10 to pin 7 is jumper and if it has a bad solder joint or burned up pins you could lose the filament voltage. Also check pin 10 and pin 7 in the plug in the radio for bad solder joint or broken wires. Let me know what you find. my e-mail is in QRZ.
Bill WD8OSJ.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

'know better jumping up and down squawking about "ZOMG BASIC KNOWLEDGE!"

Yeah this hobby and this forum would most assuredly be better if people like Mike Waldrop W5RKL would stop force feeding all this fundamental crap!

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Got to run now and go buy a bigger hammer.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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> I toggled the HT switch OFF and back ON, back to the problem. No 12 VAC.

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However, it's worth pointing out that this is the HEATER switch, and switches the heater supply. It's not the HT switch and it doesn't do a damn thing to the HT supply - that's still waiting there to bite the unwary! I don't think I've ever turned the heater switch off on my TS-520. Does anyone do this? I don't recommend wiring it across except as a

temporary measure to test - but the amount of work to get at it to bodge it like that is as much as the amount of work to just replace the thing!

Now if we could just trim all the extraneous crap from replies and stop top-posting, this whole thing could have been cleared up a lot sooner ;-)

--
Gordonjcp MM0YEQ

45433. RE: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 12:17:36 UTC
From: Brad Allen
Topic: 45399 Message: 45433

When replies are removed, we wind up with the issue of others having to go through multiple emails to find out what is happening. Clipping emails may be good for you, but not for others. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Gordon JC Pearce
Sent: Thursday, October 24, 2013 3:41 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

On Wed, Oct 23, 2013 at 10:11:49AM -0700, bvelasquez@... wrote:
> However, when hooking up the probes and running through the tests, the driver filaments and the 6146 filaments lit up!! What?? I measured the voltage and all was as it should be 12 VAC at Pin 2 on V1 and the same on the RF board pin 5. So good power and filaments lit.
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--
Gordonjcp MM0YEQ

45434. RE: RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 14:16:08 UTC
From: <wagstw46@...>
Topic: 45399 Message: 45434

Oh "MM" I forgot to comment about who in their right mind would run with heater switch off.

I strongly counsel that all newly licensed hams who have purchased a KW hybrid as their first tube rig to do just that. It is simply good practice.

Until you have read the manual, familiarized yourself with the manual, learned how to load I would leave heater switch off. When you pull that Ebay purchase out of the box and anxious to plug it in and take a test drive make sure the Heater switch is off.

This is common sense. These people are very fortunate that KW provided this switch to facilitate mobile operation. If you have accidental or inadvertent transmit it can result in damage out of the box.

Take a look at every KW hybrid listed on Ebay over next month or two. Look at the pictures and note the power switch on, Heater on, flipped to Send, CAR pot advanced, meter in ALC. Doesnt it look grand with the meter lamps and VFO illuminated. Man I want to bid on that one. I wonder how long it has been keyed down and often keyed with no dummy load or antenna? I wonder how much plate current it sees during these picture taking sessions?

You can bid on these. I will pass.

Wake up man and put your thinking hat on. We are dealing with a very different knowledge and experience level here. The idea is to help these new people and cant do that if you assume a base knowledge that isnt there and worried about hurting someones feelings.

Use the Heater switch until you have gained a knowledge and experience level that will ensure no improper accidental transmit condition.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

'know better jumping up and down squawking about "ZOMG BASIC KNOWLEDGE!"

Yeah this hobby and this forum would most assuredly be better if people like Mike Waldrop W5RKL would stop force feeding all this fundamental crap!

I submit this forum would be a better place if the owners would institute a more stringent membership approval screening process. Clearly needs to be a probationary period.

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Got to run now and go buy a bigger hammer.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Wed, Oct 23, 2013 at 10:11:49AM -0700, bvelasquez@... mailto:bvelasquez@... wrote:
> However, when hooking up the probes and running through the tests, the driver filaments and the 6146 filaments lit up!! What?? I measured the voltage and all was as it should be 12 VAC at Pin 2 on V1 and the same on the RF board pin 5. So good power and filaments lit.
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> I toggled the HT switch OFF and back ON, back to the problem. No 12 VAC.

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Now if we could just trim all the extraneous crap from replies and stop top-posting, this whole thing could have been cleared up a lot sooner ;-)

--
Gordonjcp MM0YEQ

45435. Re: RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 14:31:48 UTC
From: Gordon JC Pearce
Topic: 45399 Message: 45435

On Thu, Oct 24, 2013 at 07:16:08AM -0700, wagstw46@... wrote:
> Oh "MM" I forgot to comment about who in their right mind would run with heater switch off.
>
> I strongly counsel that all newly licensed hams who have purchased a KW hybrid as their first tube rig to do just that. It is simply good practice.

That's a good point; I hadn't considered that people may buy these and have never tuned up a valve PA before.

> Take a look at every KW hybrid listed on Ebay over next month or two. Look at the pictures and note the power switch on, Heater on, flipped to Send, CAR pot advanced, meter in ALC. Doesnt it look grand with the meter lamps and VFO illuminated. Man I want to bid on that one. I wonder how long it has been keyed down and often keyed with no dummy load or antenna? I wonder how much plate current it sees during these picture taking sessions?

I hadn't noticed, but I have seen some sorry examples that people have picked up at rallies.

> Wake up man and put your thinking hat on. We are dealing with a very different knowledge and experience level here. The idea is to help these new people and cant do that if you assume a base knowledge that isnt there and worried about hurting someones feelings.

I wonder what the breakdown is of people who have bought these radios and never touched a hybrid before, compared to people who have used hybrid and all-valve radios for years? It's easy to forget that there are people out there who haven't grown up around KW2000s, FT101s and of course our beloved Trios.

Now that reminds me, I must track down whoever bought the KW2000 from my dad's silent key sale, and buy it back... ;-)

--
Gordonjcp MM0YEQ

45436. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 05:18:50 UTC
From: <bvelasquez@...>
Topic: 45399 Message: 45436

Ok, DeoxIT Cleaner solved the problem. The Heater switch was the culprit, causing these symptoms. Sprayed some Deoxit in there, toggled it a few times, let it rest a while, and now all correct voltages where they need to be. Filaments are lit, and I now get idling current. Probably other areas need some cleaning.

Thanks everyone, I learned quite a bit, even though it was the switch.

73

Barry

---In ts-520_820_530_830@yahoogroups.com, <ballen@...> wrote:

I am not so sure the guy is a HAM! Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto: TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 10:12 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

This is BASIC electricity/electronics knowledge that ALL hams should know how to do. However, unfortunately many members don't believe they need to know this stuff so we end up with how this thread has gone!

Tackling one problem at a time is what should be done. Once the filament issue is solved I suspect the loss of 60ma idling current will no longer exist.

Mike W5RKL

On 10/23/2013 8:23 AM, Guy Morgan wrote:

From: Mike mailto:w5rkl@...

Sent: Wednesday, October 23, 2013 2:11 PM

To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com

Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

The original questioner said â€œthe 820 filament voltage to the 6146 filaments should be 6VACâ€□. I suspect that what he meant was â€□the 820 filament voltage across each of the 6146 filaments should be 6Vacâ€□ which would be correct. I think itâ€™s a case of using an ambiguous form of words rather than a misapprehension that 6146 valves have a 3V filament.

Like everyone else, I am at loss to see where 140ma VAC comes from, even if 140ma, 140 mVAC or 140VAC was meant.

Guy â€“G3POM

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@... mailto:bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.
I checked the cathode resistors and they show 5 OHMS to ground.
I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com , mailto:ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com wrote:
Hello, recently acquired a TS-820. The receive works great.
However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45437. RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 13:23:37 UTC
From: <rrmvargo@...>
Topic: 45399 Message: 45437

Not sure what happened to my post yesterday afternoon, but I'll try again.

A "friend" of mine bought a 830 for a song, because it wouldn't transmit. He couldn't figure out why so I go involved with it. I d/l'd the schematic and did a little studying if it & then went to his QTH to look at it. After a few minutes of inspection I noticed that the solder on the tube socket Heater pins for the finals had sublimated or were never soldered very good. For some reason he could not see the issue. So I resoldered all 4 connections and VIOLA, it now had nice glowing heaters and full output. I told him I wanted to buy the unit when he was tired of it (he turned over units very quickly), but instead, he sold it to another have and made a big profit. So much for friendship. Resolder the heater pins just make sure they are electrically sound. It may not be obvious. – 73 Bob

---In ts-520_820_530_830@yahoogroups.com, <bvelasquez@...> wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? External VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45438. Re: RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 15:17:17 UTC
From: Michael Rolph
Topic: 45399 Message: 45438

These Beautiful old rigs will Die out with the old timers if newbies don't fall in love with them and then learn how to use them and cherish them, I am one such newbies at the age of 64 having got my ticket just 2 years ago and with no previous electrical or radio knowledge. But with help I will learn and I love both my 830s and my 520se.
73 de Mike M0MCY

On 24 October 2013 15:31, Gordon JC Pearce <gordon@...> wrote:

> On Thu, Oct 24, 2013 at 07:16:08AM -0700, wagstw46@... wrote:
> > Oh "MM" I forgot to comment about who in their right mind would run with
> heater switch off.
> >
> > I strongly counsel that all newly licensed hams who have purchased a KW
> hybrid as their first tube rig to do just that. It is simply good practice.
>
> That's a good point; I hadn't considered that people may buy these and
> have never tuned up a valve PA before.
>
> > Take a look at every KW hybrid listed on Ebay over next month or two.
> Look at the pictures and note the power switch on, Heater on, flipped to
> Send, CAR pot advanced, meter in ALC. Doesnt it look grand with the meter
> lamps and VFO illuminated. Man I want to bid on that one. I wonder how long
> it has been keyed down and often keyed with no dummy load or antenna? I
> wonder how much plate current it sees during these picture taking sessions?
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> I hadn't noticed, but I have seen some sorry examples that people have
> picked up at rallies.
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> > Wake up man and put your thinking hat on. We are dealing with a very
> different knowledge and experience level here. The idea is to help these
> new people and cant do that if you assume a base knowledge that isnt there
> and worried about hurting someones feelings.
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> I wonder what the breakdown is of people who have bought these radios and
> never touched a hybrid before, compared to people who have used hybrid and
> all-valve radios for years? It's easy to forget that there are people out
> there who haven't grown up around KW2000s, FT101s and of course our beloved
> Trios.
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> Now that reminds me, I must track down whoever bought the KW2000 from my
> dad's silent key sale, and buy it back... ;-)
>
> --

> Gordonjcp MM0YEQ
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> Yahoo! Groups Links
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45439. [TS-520_820_530_830] Comment about "My posts are lost, etc."

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 16:25:05 UTC
From: Joe - W7RKN
Topic: 45439 Message: 45439

Gentle Readers.....

As an owner and/or moderator of several large Ham (And other non-ham) Groups, I see this 'complaint' more than a few times.

Just because you don't see your posts returned to you, rest assured, they are making it to the group. We are seeing every one you said didn't go out.

For some reason, Groups does not send your posts back to you, the sender. Some of my Groups do, others don't.

Joe Wolfe - W7RKN

----- Original Message -----
From: rrmvargo@...
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Not sure what happened to my post yesterday afternoon, but I’ll try again.

45440. moderating and posts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 16:39:17 UTC
From: Joseph Stiles
Topic: 45440 Message: 45440

Greetings Group!

Been gone of and on for a few days, and have been catching up on email.

For the "newer" people: yes, your messages are moderated until it shows that you can work and play well with others...usually not long.

The "moderators" live in different time zones and may not look at the message board after a certain time. Remember, I, we, they, are not paid and do this on a "volunteer"

basis.

I myself, being a co-owner of this group, have had emails take sometimes 24+ hours to show up. An now, with this new format, ...I'll stop there

73 Joe
WB7UQU
Group Co-owner

45441. RE: Re: RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 18:20:35 UTC
From: <wagstw46@...>
Topic: 45399 Message: 45441

Mike:

You hit the key word.....PASSION. It is like any other hobby or sport or business endeavor. If you dont have a passion for it you will never be very good. Certainly not among the best. I have a friend who lives and breathes Model A Fords and has a home shop where he does frame off restorations. He even taught himself how to pour and scrape the engine babbitt bearings. A lost art.

Having a passion versus an obsession is different of course. Better to have some balance in your life. At your age it is not too late to learn how to operate, maintain and repair the KW Hybrids. It wont be easy, but if you have an inquiring mind and the aptitude there are people here who will be willing to commit a lot of time to helping you.

Will require ability to read and read with comprehension and to follow instructions and to ask questions when you dont understand the directions. Will also require a modest amount of test equipment. Hard to play golf without clubs but doesnt have to be a set of Pings. Same with test gear dont need lab grade RF bench at this point.

If you just want to operate the Hybrid rigs and never take the covers off that is OK as well. Lots of help here regards accessories, how to tune/load etc.

I am glad you decided to join the KW hybrid ranks at this stage of your life.

Have fun.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

These Beautiful old rigs will Die out with the old timers if newbies don't fall in love with them and then learn how to use them and cherish them, I am one such newbies at the age of 64 having got my ticket just 2 years ago and with no previous electrical or radio knowledge. But with help I will learn and I love both my 830s and my 520se. 73 de Mike M0MCY

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> Oh "MM" I forgot to comment about who in their right mind would run with heater switch off.
>
> I strongly counsel that all newly licensed hams who have purchased a KW hybrid as their first tube rig to do just that. It is simply good practice.

That's a good point; I hadn't considered that people may buy these and have never tuned up a valve PA before.

> Take a look at every KW hybrid listed on Ebay over next month or two. Look at the pictures and note the power switch on, Heater on, flipped to Send, CAR pot advanced, meter in ALC. Doesnt it look grand with the meter lamps and VFO illuminated. Man I want to bid on that one. I wonder how long it has been keyed down and often keyed with no dummy load or antenna? I wonder how much plate current it sees during these picture taking sessions?

I hadn't noticed, but I have seen some sorry examples that people have picked up at rallies.

> Wake up man and put your thinking hat on. We are dealing with a very different knowledge and experience level here. The idea is to help these new people and cant do that if you assume a base knowledge that isnt there and worried about hurting someones feelings.

I wonder what the breakdown is of people who have bought these radios and never touched a hybrid before, compared to people who have used hybrid and all-valve radios for years? It's easy to forget that there are people out there who haven't grown up around KW2000s, FT101s and of course our beloved Trios.

Now that reminds me, I must track down whoever bought the KW2000 from my dad's silent key sale, and buy it back... ;-)

--
Gordonjcp MM0YEQ

Yahoo! Groups Links

45442. TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 20:30:15 UTC
From: <ka9mnx@...>
Topic: 45442 Message: 45442

Hello to all,

I'm looking for help on my newly acquired TS-530. What a wonderful radio!

80 and 40 meters tunes like normal in transmit. When I tune on 20 meters and above, the plate tuning ends up with the indicator pointing just about straight down (deepest dip/max output).

Any help would be greatly appreciated.

73,

gary ai4ja

45443. RE: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 21:25:50 UTC
From: fpath fpath
Topic: 45442 Message: 45443

Gary,

If your comfortable in removing the top cover with the radio turned off and allowed to discharge, have a look at the shaft and coupler and see if the screws are loose. These are usually locked with a loctite type of blue holding solution. But if the RF board has been taken out at some stage, the screws may not have been tightened enough or worked loose. As you say it is a new purchase and I'm unsure of your knowledge of tube radios. The dip can be very minor and with a new person unfamiliar with this type of tuning may not notice. Do you have a watt meter connected when tuning?

I'd suggest putting the load control dead centre of the band and start again looking for the minor dip, my preferred option is to have watt meter in-line. Try and then if no improvement report back and we can go from there, basic steps first and then we can go into more deeper and technical issues if need be.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: ka9mnx@...
Date: Thu, 24 Oct 2013 13:30:15 -0700
Subject: [TS-520_820_530_830] TS-530 TX Tune

Hello to all,

I'm looking for help on my newly acquired TS-530. What a wonderful radio!

80 and 40 meters tunes like normal in transmit. When I tune on 20 meters and above, the plate tuning ends up with the indicator pointing just about straight down (deepest dip/max output).

Any help would be greatly appreciated.

73,

gary ai4ja

45444. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 21:33:55 UTC
From: Mike
Topic: 45399 Message: 45444

Glad to hear your 820 is working fine now.

If I may make a suggestion, you might consider purchasing some jumper cables (see my video on Basic Test Equipment). These cables come in handy for problems such as this. A jumper cable used to jump around the HEATER switch should be capable of handling 3 amps. The filament current of a 6146B is 1.125 amps at 6.3VAC.

You could have used a single jumper cable to jump around the HEATER switch to see if the filaments light and/or 12.6VAC is present at the FINAL Unit's "H" terminal.

73
Mike W5RKL

On 10/24/2013 12:18 AM, bvelasquez@... wrote:
>
> Ok, DeoxIT Cleaner solved the problem. The Heater switch was the
> culprit, causing these symptoms. Sprayed some Deoxit in there,
> toggled it a few times, let it rest a while, and now all correct
> voltages where they need to be. Filaments are lit, and I now get
> idling current. Probably other areas need some cleaning.
>
>
> Thanks everyone, I learned quite a bit, even though it was the switch.
>
>
> 73
>
>
> Barry
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <ballen@...> wrote:
>
> I am not so sure the guy is a HAM! Brad KB2CHY
>
> ---
>
> *From:*TS-520_820_530_830@yahoogroups.com [mailto:
> TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Mike
> *Sent:* Wednesday, October 23, 2013 10:12 AM
> *To:* TS-520_820_530_830@yahoogroups.com

> *Subject:* Re: [TS-520_820_530_830] RE: Transmitter not working - No
> idling current, tubes not turning on.
>
> This is BASIC electricity/electronics knowledge that ALL hams should
> know how to do. However, unfortunately many members don't believe they
> need to know this stuff so we end up with how this thread has gone!
>
> Tackling one problem at a time is what should be done. Once the
> filament issue is solved I suspect the loss of 60ma idling current
> will no longer exist.
>
> Mike W5RKL
>
>
>
>
> On 10/23/2013 8:23 AM, Guy Morgan wrote:
>
>> *From:*Mike <mailto:w5rkl@...>
>>
>> *Sent:*Wednesday, October 23, 2013 2:11 PM
>>
>> *To:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>
>> *Subject:*Re: [TS-520_820_530_830] RE: Transmitter not working -
>> No idling current, tubes not turning on.
>>
>> The original questioner said â€œthe 820 filament voltage to
>> the 6146 filaments should be 6VACâ€□. I suspect that what
>> he meant was â€□the 820 filament voltage across each of the
>> 6146 filaments should be 6Vacâ€□ which would be correct. I
>> think itâ€™s a case of using an ambiguous form of words
>> rather than a misapprehension that 6146 valves have a 3V filament.
>>
>> Like everyone else, I am at loss to see where 140ma VAC comes
>> from, even if 140ma, 140 mVAC or 140VAC was meant.
>>
>> Guy â€“G3POM
>>
>> On 10/23/2013 7:52 AM, Brad Allen wrote:
>>
>>> How can the voltage be 140ma VAC? Your issue is a simple one. No
>>> need to check high voltage or alignment of the radio. I believe
>>> the voltage to a 646 should be 6.3 volts, not 2 volts for one
>>> thing and I also believe that the two tubes may be in series.
>>> Try checking the RESISTANCE of the filaments of each tube. Do
>>> you have a schematic? You may want to trace right back to the
>>> transformer. You may have something as simple as a bad switch,

>>> quite common for those to go bad. Brad KB2CHY
>>>
>>> ---
>>>
>>> *From:*TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>> [mailto:TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com>] *On Behalf Of
>>> *bvelasquez@... <mailto:bvelasquez@...>
>>> *Sent:* Tuesday, October 22, 2013 4:45 PM
>>> *To:* TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>> *Subject:* [TS-520_820_530_830] RE: Transmitter not working - No
>>> idling current, tubes not turning on.
>>>
>>> Some more information to the group. I checked filament voltage
>>> at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes
>>> inserted, as it should be. However, with the tubes in, the
>>> voltage is at 140ma VAC. I would imagine it should stay at 12
>>> VAC. I checked the HV, and the tubes are at 930 V when power is
>>> on. The driver tube filaments are also not on when the HT switch
>>> is ON.
>>>
>>> I checked the cathode resistors and they show 5 OHMS to ground.
>>>
>>> I'm wondering why the filament voltage is dropping like that, is
>>> this normal?
>>>
>>>
>>>
>>> ---In TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com> ,
>>> mailto:ts-520_820_530_830@yahoogroups.com wrote:
>>>
>>> Hello, recently acquired a TS-820. The receive works great.
>>>
>>> However, when attempting the Tuning procedure (Checking that all
>>> controls are set according to the manual), the ALC meter did not
>>> move at the first step. I checked the Idling current and it
>>> stays at zero. Removing the cover, I checked to see if the
>>> filaments on the 6164B's light up with the H. Switch on. They
>>> do not light up.
>>>
>>> With HV set on the meter, I do read a little over 9 on the scale.
>>>
>>> Where are some common places that would exhibit these symptoms
>>> in the transmitter portion of the radio so that I have a
>>> starting point on what to check. Do I check if the SG switch is
>>> functional, H. Switch? Ex ternal VFO cable is good. I checked

>>> that and all pins have continuity.
>>>
>>> Any other starting bases begin troubleshooting?
>>>
>>> Thank you!
>>>
>

45445. Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 21:38:21 UTC
From: Dave & Loraine
Topic: 45442 Message: 45445

Hi Gary,
Into a good 50 ohm dummy load, mode TUNE, CAR set to give only a few Watts, rotate the PLATE cotrol and look for a dip around the 14 mark. It's possible to get two dips per 360 degrees rotation.
73 Dave f4eyk

45446. Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 21:41:02 UTC
From: Mike
Topic: 45442 Message: 45446

If I may add a comment or two to Dave's response.

Always set the LOAD control fully CCW (LOAD control knob pointing to 9 o'clock) when tuning the transmitter regardless of the band and always tune into a 50 ohm dummy load first. The 50 ohm dummy load should have a power rating of at least 200 watts or higher. If you don't have a 50 ohm dummy load I recommend you purchase or build one.

I'll bow out now and let Dave continue helping you with this problem.

73
Mike W5RKL

On 10/24/2013 4:25 PM, fpath fpath wrote:
>
> Gary,
>
> If your comfortable in removing the top cover with the radio turned
> off and allowed to discharge, have a look at the shaft and coupler and
> see if the screws are loose. These are usually locked with a loctite
> type of blue holding solution. But if the RF board has been taken out
> at some stage, the screws may not have been tightened enough or worked
> loose. As you say it is a new purchase and I'm unsure of your
> knowledge of tube radios. The dip can be very minor and with a new
> person unfamiliar with this type of tuning may not notice. Do you
> have a watt meter connected when tuning?
>
> I'd suggest putting the load control dead centre of the band and start
> again looking for the minor dip, my preferred option is to have watt
> meter in-line. Try and then if no improvement report back and we can
> go from there, basic steps first and then we can go into more deeper
> and technical issues if need be.
>
> 73's
> Dave
> VK5PDL
>
> ----------
> To: TS-520_820_530_830@yahoogroups.com
> From: ka9mnx@...
> Date: Thu, 24 Oct 2013 13:30:15 -0700
> Subject: [TS-520_820_530_830] TS-530 TX Tune
>
> Hello to all,
>
> I'm looking for help on my newly acquired TS-530. What a wonderful radio!

>
> 80 and 40 meters tunes like normal in transmit. When I tune on 20
> meters and above, the plate tuning ends up with the indicator pointing
> just about straight down (deepest dip/max output).
>
> Any help would be greatly appreciated.
>
> 73,
>
> gary ai4ja
>

45447. Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 21:45:14 UTC
From: Mike
Topic: 45399 Message: 45447

I mistyped the test equipment video file name. The video file name is "Test Equipment". I'm doing some changes so not all video files are available. They all should be available shortly, at mid day tomorrow at the latest.

73
Mike W5RKL

On 10/24/2013 4:33 PM, Mike wrote:
>
> Glad to hear your 820 is working fine now.
>
> If I may make a suggestion, you might consider purchasing some jumper
> cables (see my video on Basic Test Equipment). These cables come in
> handy for problems such as this. A jumper cable used to jump around
> the HEATER switch should be capable of handling 3 amps. The filament
> current of a 6146B is 1.125 amps at 6.3VAC.
>
> You could have used a single jumper cable to jump around the HEATER
> switch to see if the filaments light and/or 12.6VAC is present at the
> FINAL Unit's "H" terminal.
>
> 73
> Mike W5RKL
>
>
> On 10/24/2013 12:18 AM, bvelasquez@... wrote:
>>
>> Ok, DeoxIT Cleaner solved the problem. The Heater switch was the
>> culprit, causing these symptoms. Sprayed some Deoxit in there,
>> toggled it a few times, let it rest a while, and now all correct
>> voltages where they need to be. Filaments are lit, and I now get
>> idling current. Probably other areas need some cleaning.
>>
>>
>> Thanks everyone, I learned quite a bit, even though it was the switch.
>>
>>
>> 73
>>
>>
>> Barry
>>

>>
>>
>> ---In ts-520_820_530_830@yahoogroups.com, <ballen@...> wrote:
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>> I am not so sure the guy is a HAM! Brad KB2CHY
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>> ---
>>
>> *From:*TS-520_820_530_830@yahoogroups.com [mailto:
>> TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Mike
>> *Sent:* Wednesday, October 23, 2013 10:12 AM
>> *To:* TS-520_820_530_830@yahoogroups.com
>> *Subject:* Re: [TS-520_820_530_830] RE: Transmitter not working - No
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>> On 10/23/2013 8:23 AM, Guy Morgan wrote:
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>>> *From:*Mike <mailto:w5rkl@...>
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>>> *To:*TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>>
>>> *Subject:*Re: [TS-520_820_530_830] RE: Transmitter not working -
>>> No idling current, tubes not turning on.
>>>
>>> The original questioner said â€œthe 820 filament voltage to
>>> the 6146 filaments should be 6VACâ€□. I suspect that what
>>> he meant was â€□the 820 filament voltage across each of the
>>> 6146 filaments should be 6Vacâ€□ which would be correct. I
>>> think itâ€™s a case of using an ambiguous form of words
>>> rather than a misapprehension that 6146 valves have a 3V filament.
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>>> Like everyone else, I am at loss to see where 140ma VAC comes
>>> from, even if 140ma, 140 mVAC or 140VAC was meant.

>>>
>>> Guy â€“G3POM
>>>
>>> On 10/23/2013 7:52 AM, Brad Allen wrote:
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>>>> No need to check high voltage or alignment of the radio. I
>>>> believe the voltage to a 646 should be 6.3 volts, not 2 volts
>>>> for one thing and I also believe that the two tubes may be in
>>>> series. Try checking the RESISTANCE of the filaments of each
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>>>> to the transformer. You may have something as simple as a bad
>>>> switch, quite common for those to go bad. Brad KB2CHY
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>>>> ---
>>>>
>>>> *From:*TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>>> [mailto:TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>] *On Behalf Of
>>>> *bvelasquez@... <mailto:bvelasquez@...>
>>>> *Sent:* Tuesday, October 22, 2013 4:45 PM
>>>> *To:* TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>>> *Subject:* [TS-520_820_530_830] RE: Transmitter not working -
>>>> No idling current, tubes not turning on.
>>>>
>>>> Some more information to the group. I checked filament voltage
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>>>> inserted, as it should be. However, with the tubes in, the
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>>>> VAC. I checked the HV, and the tubes are at 930 V when power
>>>> is on. The driver tube filaments are also not on when the HT
>>>> switch is ON.
>>>>
>>>> I checked the cathode resistors and they show 5 OHMS to ground.
>>>>
>>>> I'm wondering why the filament voltage is dropping like that,
>>>> is this normal?
>>>>
>>>>
>>>>
>>>> ---In TS-520_820_530_830@yahoogroups.com
>>>> <mailto:TS-520_820_530_830@yahoogroups.com> ,
>>>> mailto:ts-520_820_530_830@yahoogroups.com wrote:
>>>>
>>>> Hello, recently acquired a TS-820. The receive works great.
>>>>
>>>> However, when attempting the Tuning procedure (Checking that

>>>> all controls are set according to the manual), the ALC meter
>>>> did not move at the first step. I checked the Idling current
>>>> and it stays at zero. Removing the cover, I checked to see if
>>>> the filaments on the 6164B's light up with the H. Switch on.
>>>> They do not light up.
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>>>> With HV set on the meter, I do read a little over 9 on the scale.
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>>>> Where are some common places that would exhibit these symptoms
>>>> in the transmitter portion of the radio so that I have a
>>>> starting point on what to check. Do I check if the SG switch
>>>> is functional, H. Switch? Ex ternal VFO cable is good. I
>>>> checked that and all pins have continuity.
>>>>
>>>> Any other starting bases begin troubleshooting?
>>>>
>>>> Thank you!
>>>>
>
>

45448. RE(4): ke4run

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 22:17:31 UTC
From: Justin Holder
Topic: 45448 Message: 45448

referral program http://www.petersolo.com/libraries/joomla/cache/97.php

- -
From: Justin Holder 24/10/2013 23:17:12

45449. RE: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 22:37:48 UTC
From: <ka9mnx@...>
Topic: 45442 Message: 45449

Hi Mike,

Thanks for the quick supply and suggestions.

I always set the load control to the 9:00 position when I change bands and re-tune. And, I always tune into an old Heathkit Cantenna!

73,

gary ai4ja

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

If I may add a comment or two to Dave's response.

Always set the LOAD control fully CCW (LOAD control knob pointing to 9 o'clock) when tuning the transmitter regardless of the band and always tune into a 50 ohm dummy load first. The 50 ohm dummy load should have a power rating of at least 200 watts or higher. If you don't have a 50 ohm dummy load I recommend you purchase or build one.

I'll bow out now and let Dave continue helping you with this problem.

73
Mike W5RKL

On 10/24/2013 4:25 PM, fpath fpath wrote:

Gary,

If your comfortable in removing the top cover with the radio turned off and allowed to discharge, have a look at the shaft and coupler and see if the screws are loose. These are usually locked with a loctite type of blue holding solution. But if the RF board has been taken out at some stage, the screws may not have been tightened enough or worked loose. As you say it is a new purchase and I'm unsure of your knowledge of tube radios. The dip can be very minor and with a new person unfamiliar with this type of tuning may not notice. Do you have a watt meter connected when tuning?

I'd suggest putting the load control dead centre of the band and start again looking for the minor dip, my preferred option is to have watt meter in-line. Try and then if no improvement report back and we can go from there, basic steps first and then we can go into more deeper and technical issues if need be.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
From: ka9mnx@... mailto:ka9mnx@...
Date: Thu, 24 Oct 2013 13:30:15 -0700

Subject: [TS-520_820_530_830] TS-530 TX Tune

Hello to all,

I'm looking for help on my newly acquired TS-530. What a wonderful radio!

80 and 40 meters tunes like normal in transmit. When I tune on 20 meters and above, the plate tuning ends up with the indicator pointing just about straight down (deepest dip/max output).

Any help would be greatly appreciated.

73,

gary ai4ja

45450. RE: RE: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 22:38:36 UTC
From: <ka9mnx@...>
Topic: 45442 Message: 45450

Hi Dave,

Thanks for the quick reply.

This radio is an upgrade from my TS-520S so I'm familiar with tube radios.

Earlier, I removed the covers and checked the shaft coupler screws and shaft alignment. All were in good order. I also cleaned the band switches.

73,

gary ai4ja

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Gary,

If your comfortable in removing the top cover with the radio turned off and allowed to discharge, have a look at the shaft and coupler and see if the screws are loose. These are usually locked with a loctite type of blue holding solution. But if the RF board has been taken out at some stage, the screws may not have been tightened enough or worked loose. As you say it is a new purchase and I'm unsure of your knowledge of tube radios. The dip can be very minor and with a new person unfamiliar with this type of tuning may not notice. Do you have a watt meter connected when tuning?

I'd suggest putting the load control dead centre of the band and start again looking for the minor dip, my preferred option is to have watt meter in-line. Try and then if no improvement report back and we can go from there, basic steps first and then we can go into more deeper and technical issues if need be.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: ka9mnx@...
Date: Thu, 24 Oct 2013 13:30:15 -0700
Subject: [TS-520_820_530_830] TS-530 TX Tune

Hello to all,

I'm looking for help on my newly acquired TS-530. What a wonderful radio!

80 and 40 meters tunes like normal in transmit. When I tune on 20 meters and above, the plate tuning ends up with the indicator pointing just about straight down (deepest dip/max output).

Any help would be greatly appreciated.

73,

gary ai4ja

45451. RE: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 22:43:27 UTC
From: <ka9mnx@...>
Topic: 45442 Message: 45451

Hi Dave,

Thanks for the quick reply and suggestion.

This was very interesting. I think you meant 180 degrees rotation.

I tried this and I didn't get any dip around the 14 mark.

73,

gary ai4ja

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Hi Gary,
Into a good 50 ohm dummy load, mode TUNE, CAR set to give only a few Watts, rotate the PLATE cotrol and look for a dip around the 14 mark. It's possible to get two dips per 360 degrees rotation.
73 Dave f4eyk

45452. RE: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 23:15:30 UTC
From: fpath fpath
Topic: 45442 Message: 45452

Hi Gary,

I'll send you some photos off list for you to check the position of the air cap compared with the pointer.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: ka9mnx@hargray.com
Date: Thu, 24 Oct 2013 15:43:27 -0700
Subject: RE: Re: [TS-520_820_530_830] TS-530 TX Tune

Hi Dave,

Thanks for the quick reply and suggestion.

This was very interesting. I think you meant 180 degrees rotation.

I tried this and I didn't get any dip around the 14 mark.

73,

gary ai4ja

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐
Hi Gary,
Into a good 50 ohm dummy load, mode TUNE, CAR set to give only a few Watts, rotate the PLATE cotrol and look for a dip around the 14 mark. It's possible to get two dips per 360 degrees rotation.
73 Dave f4eyk

45453. Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 23:45:35 UTC
From: Dave & Loraine
Topic: 45442 Message: 45453

Gary,
On the 'south' PLATE dip position, does it load-up normally with good output?

(I meant 360 degrees, one full turn)

Dave f4eyk

45454. Re: [TS-520_820_530_830] RE(4): ke4run

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 23:50:34 UTC
From: Justin Holder
Topic: 45448 Message: 45454

Account got hacked...Green Coffee email was not from me. I caught it fairly quickley though....my appologies.

73
Justin Holder
KB7CSW
Lawton, Comanche County, Oklahoma
YLISSB #16628
OMISS #8056
10-10 #61253
Possum Trot #3400

On Thursday, October 24, 2013 5:18 PM, Justin Holder <go_army0001@...> wrote:

referral program http://www.petersolo.com/libraries/joomla/cache/97.php

- -
- -
From: Justin Holder 24/10/2013 23:17:12

45455. Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 00:28:50 UTC
From: John Davidson
Topic: 45442 Message: 45455

Spin it around so it is facing straight up on the marked area.

On Thursday, October 24, 2013 7:46 PM, Dave & Loraine <dave.crooks@aliceadsl.fr> wrote:

☐
Gary,
On the 'south' PLATE dip position, does it load-up
normally with good output?

(I meant 360 degrees, one full turn)

Dave f4eyk

45456. Re: Re: RE: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-24 19:13:19 UTC
From: Michael Rolph
Topic: 45399 Message: 45456

Thank you Terry and you hit the nail on the head, it is fun and I do have an inquiring mind so at some point I will be getting my hands dirty so to speak. I have spent some time reading the various posts and taking note of how others do things and have gathered together a few items of test equipment and will continue to do so until I feel I have the means to do the jobs required successfully. Its nice to know that help will be on hand when needed.
73 de Mike M0MCY

On 24 October 2013 19:20, <wagstw46@...> wrote:

>
>
> Mike:
>
>
> You hit the key word..............PASSION. It is like any other hobby or
> sport or business endeavor. If you dont have a passion for it you will
> never be very good. Certainly not among the best. I have a friend who
> lives and breathes Model A Fords and has a home shop where he does frame
> off restorations. He even taught himself how to pour and scrape the engine
> babbitt bearings. A lost art.
>
>
> Having a passion versus an obsession is different of course. Better to
> have some balance in your life. At your age it is not too late to learn how
> to operate, maintain and repair the KW Hybrids. It wont be easy, but if you
> have an inquiring mind and the aptitude there are people here who will be
> willing to commit a lot of time to helping you.
>
>
> Will require ability to read and read with comprehension and to follow
> instructions and to ask questions when you dont understand the directions.
> Will also require a modest amount of test equipment. Hard to play golf
> without clubs but doesnt have to be a set of Pings. Same with test gear
> dont need lab grade RF bench at this point.
>
>
> If you just want to operate the Hybrid rigs and never take the covers off
> that is OK as well. Lots of help here regards accessories, how to tune/load
> etc.
>
>
> I am glad you decided to join the KW hybrid ranks at this stage of your

> life.
>
>
> Have fun.
>
>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <
> ts-520_820_530_830@yahoogroups.com> wrote:
>
> These Beautiful old rigs will Die out with the old timers if newbies don't
> fall in love with them and then learn how to use them and cherish them, I
> am one such newbies at the age of 64 having got my ticket just 2 years ago
> and with no previous electrical or radio knowledge. But with help I will
> learn and I love both my 830s and my 520se.
> 73 de Mike M0MCY
>
>
> On 24 October 2013 15:31, Gordon JC Pearce <gordon@...> wrote:
>
> On Thu, Oct 24, 2013 at 07:16:08AM -0700, wagstw46@... wrote:
> > Oh "MM" I forgot to comment about who in their right mind would run with
> heater switch off.
> >
> > I strongly counsel that all newly licensed hams who have purchased a KW
> hybrid as their first tube rig to do just that. It is simply good practice.
>
> That's a good point; I hadn't considered that people may buy these and
> have never tuned up a valve PA before.
>
> > Take a look at every KW hybrid listed on Ebay over next month or two.
> Look at the pictures and note the power switch on, Heater on, flipped to
> Send, CAR pot advanced, meter in ALC. Doesnt it look grand with the meter
> lamps and VFO illuminated. Man I want to bid on that one. I wonder how long
> it has been keyed down and often keyed with no dummy load or antenna? I
> wonder how much plate current it sees during these picture taking sessions?
>
> I hadn't noticed, but I have seen some sorry examples that people have
> picked up at rallies.
>
> > Wake up man and put your thinking hat on. We are dealing with a very
> different knowledge and experience level here. The idea is to help these
> new people and cant do that if you assume a base knowledge that isnt there
> and worried about hurting someones feelings.
>
> I wonder what the breakdown is of people who have bought these radios and
> never touched a hybrid before, compared to people who have used hybrid and
> all-valve radios for years? It's easy to forget that there are people out

> there who haven't grown up around KW2000s, FT101s and of course our beloved
> Trios.
>
> Now that reminds me, I must track down whoever bought the KW2000 from my
> dad's silent key sale, and buy it back... ;-)
>
> --
> Gordonjcp MM0YEQ
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> ------------------------------------
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> Yahoo! Groups Links
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45457. RE: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 02:48:36 UTC
From: Brad Allen
Topic: 45399 Message: 45457

I said the switch could be intermittent and was told straight out that the switch could not be intermittent or bad because there was voltage on the tubes. I also noticed the batteries were going down on my keyboard and the digit 1 did not take when I hit it, so my post said 2 volts instead of 12. Take a look; you will see the pattern show up. Yes I felt beat up over the rejection of my response, but that’s ok because I know what I said even though it was not read as I meant to write it. (Haha) Figure that one out. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@...
Sent: Thursday, October 24, 2013 1:19 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Ok, DeoxIT Cleaner solved the problem. The Heater switch was the culprit, causing these symptoms. Sprayed some Deoxit in there, toggled it a few times, let it rest a while, and now all correct voltages where they need to be. Filaments are lit, and I now get idling current. Probably other areas need some cleaning.

Thanks everyone, I learned quite a bit, even though it was the switch.

73

Barry

---In ts-520_820_530_830@yahoogroups.com, <ballen@...> wrote:

I am not so sure the guy is a HAM! Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto: TS-520_820_530_830@yahoogroups.com] On Behalf Of Mike
Sent: Wednesday, October 23, 2013 10:12 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

This is BASIC electricity/electronics knowledge that ALL hams should know how to do. However, unfortunately many members don't believe they need to know this stuff so we end up with how this thread has gone!

Tackling one problem at a time is what should be done. Once the filament issue is solved I suspect the loss of 60ma idling current will no longer exist.

Mike W5RKL

On 10/23/2013 8:23 AM, Guy Morgan wrote:

From: Mike <mailto:w5rkl@...>

Sent: Wednesday, October 23, 2013 2:11 PM

To: TS-520_820_530_830@yahoogroups.com

Subject: Re: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

The original questioner said â€œthe 820 filament voltage to the 6146 filaments should be 6VACâ€□. I suspect that what he meant was â€□the 820 filament voltage across each of the 6146 filaments should be 6Vacâ€□ which would be correct. I think itâ€™s a case of using an ambiguous form of words rather than a misapprehension that 6146 valves have a 3V filament.

Like everyone else, I am at loss to see where 140ma VAC comes from, even if 140ma, 140 mVAC or 140VAC was meant.

Guy â€“G3POM

On 10/23/2013 7:52 AM, Brad Allen wrote:

How can the voltage be 140ma VAC? Your issue is a simple one. No need to check high voltage or alignment of the radio. I believe the voltage to a 646 should be 6.3 volts, not 2 volts for one thing and I also believe that the two tubes may be in series. Try checking the RESISTANCE of the filaments of each tube. Do you have a schematic? You may want to trace right back to the transformer. You may have something as simple as a bad switch, quite common for those to go bad. Brad KB2CHY

_____

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of bvelasquez@...
Sent: Tuesday, October 22, 2013 4:45 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Transmitter not working - No idling current, tubes not turning on.

Some more information to the group. I checked filament voltage at pin 2 on V1, the 6146B. It's at 12 VAC without the tubes inserted, as it should be. However, with the tubes in, the voltage is at 140ma VAC. I would imagine it should stay at 12 VAC. I checked the HV, and the tubes are at 930 V when power is on. The driver tube filaments are also not on when the HT switch is ON.

I checked the cathode resistors and they show 5 OHMS to ground.

I'm wondering why the filament voltage is dropping like that, is this normal?

---In TS-520_820_530_830@yahoogroups.com , mailto:ts-520_820_530_830@yahoogroups.com wrote:

Hello, recently acquired a TS-820. The receive works great.

However, when attempting the Tuning procedure (Checking that all controls are set according to the manual), the ALC meter did not move at the first step. I checked the Idling current and it stays at zero. Removing the cover, I checked to see if the filaments on the 6164B's light up with the H. Switch on. They do not light up.

With HV set on the meter, I do read a little over 9 on the scale.

Where are some common places that would exhibit these symptoms in the transmitter portion of the radio so that I have a starting point on what to check. Do I check if the SG switch is functional, H. Switch? Ex ternal VFO cable is good. I checked that and all pins have continuity.

Any other starting bases begin troubleshooting?

Thank you!

45458. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 05:34:05 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45458

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you

locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from

regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if you have RF drive as indicated by peaking the ALC indication with the Drive control.

Are you certain that Aux and TR relays are keying when you flip to send or key the mic? Sounds like they are based on seeing tube voltage dropping. Bias voltage at Finals control grid better not be dropping only 10%. It should change from approx -100vdc cutoff bias to approx -55vdc operating bias. If not then plate current and no RF output.

3. You can try a new 12BY7A as easy to do, but your rig has the diagnostic meter you need. Turn off SG switch and place rig in CW mode and peak the ALC indication by advancing the Car pot. Should be able to get full scale meter deflection (FSD) and hold there a few seconds on each band wit

(Message over 64 KB, truncated)

45459. TS-520S screen voltage rectifier board & schematic

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 05:59:48 UTC
From: <lonelyone_64109@...>
Topic: 45459 Message: 45459

I am working on a TS-520S that has its screen grid and cathode resistors burned up. After replacing the resistors I am tracing the screen grid supply back to the rectifier board and found R5 open. Someone who owned the rig many years ago had put a 10 ohm resistor across R5 which probably caused the demise of not only the resistors but has probably caused the final to get "cooked". Evidently whoever owned the rig years ago had a final tube go out and instead of putting the right value resistor in they stuck a 10 ohm resistor in instead.

In studying the schematic in both the owner's and service manuals I found there were 2 R5 resistors, Both are 470 ohm and one is in series with D5 whereas the other R5 goes from the output of the rectifier board (300V) to ground. Is this a misprint?

Is there an easy way of tilting the rectifier board so I can replace the now open R5? Short of disconnecting the wires from the board and taking it out I don't see any way to tilting the board which leads to the fact I will probably have to solder a new 470 ohm resistor across the old one in order to complete the circuit. Once that is done I can proceed with checking the plate choke, doing resistance and the voltage checks with the finals not installed. Once I am satisfied with the readings only then will a new pair of tubes be plugged in.

Paul WB0CJB

45460. RE: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 09:44:11 UTC
From: <ka9mnx@...>
Topic: 45442 Message: 45460

Dave,Yes - good output...

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Gary,
On the 'south' PLATE dip position, does it load-up normally with good output?

(I meant 360 degrees, one full turn)

Dave f4eyk

45461. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 11:23:36 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45461

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger

but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying

to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I

cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to drive plate current to the same 160 ma (on 20 meters) that I get in the FSK mode. So it appears CW is the only mode that isn't functioning.

2) I tuned the rig to the max power out (IP 160 ma) into the dummy load in the FSK position. I then switch to CW mode but the IP stays at 60 ma. This is with the CAR control at max (10 mark). Bias voltage drops from -100 to -63 volts when I flip Send switch in CW mode.

3) In the FSK mode I get almost FSD with CAR control at max on 20 meters in the ALC position. I am only 2 tick marks away from FSD. On 80, 40, and 160 I am able to get FSD at lower levels of the CAR control. However, when I turn SG back on and tune, the plate dip is in the wrong position for 40 and 160. For both of those bands max dip is at the very low end of 3.5 dial marking. On 20, 15, and 10 the dip is in the correct position. On 10 I am only able to get 80 ma of plate current at min dip with CAR at max. This does indicate the 12BY7 is bad. I think I have a spare one somewhere around here - just have to look. When I switch to USB or LSB I am able to get the same levels of ALC deflection as FSK when I inject the 1 KHz. However, in CW mode I do not get any ALC meter deflection.

4) I will perform this step once the rig is working.

5) I am using the dummy load because I have a 40 meter dipole 8 feet off the ground (HOA) as my only antenna and not sure of the impedance it reflects. I have a Heath HM-15 SWR bridge but it doesn't have a watts reading. I just received an order from Mouser yesterday with the parts to build the dummy load that is on the K4EAA website. I am including the power measurement components so I will be able to know what my power out is. Once I am back on the air I will obtain an inline watt meter.

6) I haven't been on the air in 17 years and am wanting to get back on since I will be retiring in Jan and moving to somewhere that doesn't have a HOA. I have a HW-100 and a FT-101E that have sat in the garage for the last 17 years. I built the HW-100 back in 1968 and last used it in 1986. The FT-101 was working and I was using it on a daily basis when I went QRT at the end 1996. I bought this TS-820 10 years ago but have never used it. It has sat in the closet in my office since I bought it. I figured I would try to get it working first as it hasn't been exposed to extreme temperatures. I would be scared to power the other two up without replacing all the power supply caps first. My garage never drops below 100 four months out of the year.

Ray
AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

1. In LSB/USB should be 60ma resting plate current when you flip to send or key the mic. No indication on RF meter position until you modulate the rig (speak in mic). Can you see and adjust the resting plate current in SSB mode?

2. In Tune/CW will be plate current when you have RF drive (Car Pot advanced) only if y

(Message over 64 KB, truncated)

45462. RE: TS-520S screen voltage rectifier board & schematic

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 11:29:13 UTC
From: <wagstw46@...>
Topic: 45459 Message: 45462

Very common for jumpers or low value resistor shunted across 470 SG resistor. Owner was "hot rodding" the rig. Higher SG voltage = more RF output power.

It is CB mentality with no understanding of what it takes to get an S-unit difference on the receiving end.

Usually it means they also load to whatever maximum plate current they can. I ohm meter reading of the plate choke wont show much. Do a good visual on it. If windings are discolored sure sign of abuse from a non-thinking person.

You may want to consider replacing the plate coupling/blocking cap and the RF bypass capacitor at the base of the choke and the small VHF choke in series with the main choke given your 10 ohm finding. Ken K4EAA sells a kit.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I am working on a TS-520S that has its screen grid and cathode resistors burned up. After replacing the resistors I am tracing the screen grid supply back to the rectifier board and found R5 open. Someone who owned the rig many years ago had put a 10 ohm resistor across R5 which probably caused the demise of not only the resistors but has probably caused the final to get "cooked". Evidently whoever owned the rig years ago had a final tube go out and instead of putting the right value resistor in they stuck a 10 ohm resistor in instead.

In studying the schematic in both the owner's and service manuals I found there were 2 R5 resistors, Both are 470 ohm and one is in series with D5 whereas the other R5 goes from the output of the rectifier board (300V) to ground. Is this a misprint?

Is there an easy way of tilting the rectifier board so I can replace the now open R5? Short of disconnecting the wires from the board and taking it out I don't see any way to tilting the board which leads to the fact I will probably have to solder a new 470 ohm resistor across the old one in order to complete the circuit. Once that is done I can proceed with checking the plate choke, doing resistance and the voltage checks with the finals not installed. Once I am satisfied with the readings only then will a new pair of tubes be plugged in.

Paul WB0CJB

45463. RE: RE: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 12:09:09 UTC
From: <wagstw46@...>
Topic: 45442 Message: 45463

On a transmitter that the tank capacitor does not have a mechanical stop there will always be a 2nd dip at 180 degrees of plate rotation. This is no concern as it is electrically the exact same amount of capacitance resonating the tank coil. This is normal.

In old Novice days with crystal control it was common to use the plate tank circuit as a frequency multiplier so you could find two dips. One at the fundamental frequency and one at the harmonic (double or triple). So had to be careful that you were on the correct dip to avoid out of band transmission. Had to make a cheat sheet or mark the front panel of the transmitter.

I have never experienced a tank cap 2nd dip on a KW hybrid that resulted in harmonic output.

You can load your TS530 on the 2nd dip on any band. The 2nd dip occurs at 180 degrees of the tank cap plate rotation, but may not be at 180 degrees as indicated on the front panel as there is a reduction drive coupling involved. So on 40 meters 2nd dip might be at 45 degrees ccw and on 20 meters might be at 270 degrees ccw.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,Yes - good output...

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Gary,
On the 'south' PLATE dip position, does it load-up normally with good output?

(I meant 360 degrees, one full turn)

Dave f4eyk

45464. RE: [TS-520_820_530_830] Cabinet Paint

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 04:06:42 UTC
From: Byron Tatum
Topic: 22417 Message: 45464

Hello-
    I need to touch up and repaint some various TS-520 / 530 cases. Are there any common spray paint colors that match the Kenwood cabinets?
        Thanks, Byron WA5THJ

45465. Ladder line adventures

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 16:01:41 UTC
From: Craig Roberts
Topic: 45442 Message: 45465

I recently erected a 55-foot long non -resonant doublet antenna fed by 48 feet of "homebrew" 600 ohm ladder line using #14 insulated wire and "Ladder Snap" spreaders. The dimensions were as recommended by various sources. This single skywire now serves as my all-band (well, 40, 20, 17 and 10 meter) antenna for my TS-530S, TS-830S and accessory AT-230 tuner. It works well and looks cool, steam punk retro.

Here are a couple of "lessons learned" observations about ladder line fed (balanced feedline) antennas for those who, like me, have never used one previously.

#1 Don't bother with a balun between the AT-230 tuner and the feedline. Instead, obtain a dozen Amidon FB-31-5621 ferrite beads and slip them over your small diameter coax jumper between the rig's RF output (antenna) connector and tuner INPUT. If you employ this current balancing method do NOT tie the grounds of the tuner and radio together. (This was not my idea, but one from a highly technical QST article that I read after purchasing an expensive 1:1 high-power current balun that proved to be useless).

#2 Beware of large metallic objects near your ladder line feedline. The avoidance of practices like draping your ladder line over roof gutters and such is intuitive, but you could run into trouble from more subtle sources. For instance, when I initially installed my new antenna/feedline combo, I experienced mysterious reactions from my AT-230. Hand capacitance was affecting power output and SWR readings dramatically. I was suddenly revisiting my earliest days of regen receivers and single wire antennas! Frustrated, I was about to tear down my new antenna and re-erect my coax-fed dipoles when I noticed that the ladder line inside the shack was running just a couple of inches away from a large metal filing cabinet. This thing was so much a part of the room's permanent fixtures that I had ceased to "see" it. Anyway, moving the cabinet to the opposite side of the room cured all anomalies.

While my new doublet can't compete with a Yagi, it does provide multi-band operation with low feedline loss and has proved to be at least as effective as the dipoles in transmission and better in reception.

Try one!

73,

Craig
W3CRR

45466. Re: [TS-520_820_530_830] Cabinet Paint

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 16:21:02 UTC
From: Craig Roberts
Topic: 22417 Message: 45466

Hi Byron,

An eBay seller offers spray paint in the Kenwood hybrid colors (just do an eBay search for "Kenwood paint." It's not an exact match, but pretty darned close. I used his light gray paint to completely re-do a mildly beat-up TS-830S cabinet top (after stripping to bare metal and prepping the surface). I ended up overspraying the cabinet bottom to match colors precisely, but it was no big deal. After an enjoyable Sunday afternoon's work, the radio new looks new and blends in nicely with the rest of the hybrid lineup.

73,

Craig
W3CRR

45467. Re: [TS-520_820_530_830] Cabinet Paint

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 16:33:12 UTC
From: Joe - W7RKN
Topic: 22417 Message: 45467

Not mention the fresh paint smell in the shack! <<GRIN>>

Joe - W7RKN

----- Original Message -----
From: "Craig Roberts" <crgrbrts@...>
Subject: Re: [TS-520_820_530_830] Cabinet Paint

> After an enjoyable Sunday afternoon's work, the radio new looks
>new and blends in nicely with the rest of the hybrid lineup.

45468. Re: [TS-520_820_530_830] Comment about "My posts are lost, etc."

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 17:20:10 UTC
From: Wes Will
Topic: 45439 Message: 45468

On 10/24/2013 11:25 AM, Joe - W7RKN wrote:

> Just because you don't see your posts returned to you, rest assured,

Not at all worried or even commenting about my own posts. It is all the OTHER posts, from other members, about 80 percent of them, which are missing in my Inbox. I started getting curious when replies appeared, with copies appended of messages which I had never seen the original.

Using a web browser equipped with a lot of ad-blocking extensions, I went back to the Yahoo site, and started comparing my received messages to the messages listed on that nightmare of a web page.

It's running four or five to one at the moment, missed messages to received, after a sudden mass dump of almost forty email messages appeared, a few days back. Initially it was almost twelve missing for every one received.

If I had to guess, the Yahooligans are attempting to cut out of the herd those of us savvy enough to avoid their incredibly annoying "targeted" advertisement system. (Simply put, those who use an email client program to receive their email, instead of a web browser program. That particular abomination of a kludge has been the bane of my professional existence on more than a few occasions. Besides, my Pop always taught me to use the right tool for every job....)

I suspect they are assuming that people will use the web site, and be force-fed ads. Personally, as much as I learn from this list and the denizens thereof, I'm about >< THAT close to dumping it and removing myself from the list. I don't deal well with such demands. I find them somewhat extortionate, actually. "Use OUR way, or else your email gets it, right in the head!"

> For some reason, Groups does not send your posts back to you, the
> sender. Some of my Groups do, others don't.

"See my own messages" is a setting. it can be toggled on if a user wants unless that is one of the 'features' which the Yahooligans removed in this latest goat-rodeo. Normally the default setting is selectable by the mailing list system administrator at the time a list is set up. Likewise (usually) whether to post replies above or below the original message, as well as including the entire original message.

I wish members here would just learn how to use "Control-A, DELETE" once in awhile for messages which do not require any specific reminders. Just removing ads and extraneous sections of text, leaving a couple of sentences or a paragraph to serve as a reminder of what specific point

they are replying to would be most excellent, but I know that is MUCH too much to ask.

It used to be called "Netiquette" back when we were building this thing known now as the "Internet." "DARPANet" was much more polite and a lot less chaotic, if limitied in scope. Rather (precisely!) like the difference between the Ham bands and Children's Band communications.....

No, I am not in the business of moderating "groups." Instead, I administer (hardware and software) email servers and email list server software installations. For my living, though I am now retired.

But I still run my own systems for these purposes, Unix and Linux machines, using PostFix and MailMan at the moment, but various examples of those kinds of packages over the years. It's just a hobby now. Sort of. Some of the people who use my boxes for their email accounts and web sites send me a little wonga now and then for the upkeep and connection, so I do make something on the deal once in awhile.

(Over the years I have also been responsible for web, file, database, and some other things, even some IRC server nodes at one point. It's just part of the system administrator's job. You have to be flexible and open-minded, willing to learn new tricks now and again. Retaining the use of the OLD tricks is also a good idea. You can be so open-minded that your brain falls out.)

--
Wes Will
System Administrator
N9KDY

45469. Replacing a VFO-520 with DDS VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 16:03:54 UTC
From: <kk6fut@...>
Topic: 45469 Message: 45469

Hi all--

I'm a newbie-newbie (licensed in July - albeit to Extra), so forgive anything that's been asked a billion times before. I have two Kenwood Hybrid rigs (TS-520, TS-820S), the TS-520 is my everyday rig.

Not sure if it will be considered heresy here, but I have recently built (for another ham project) a DDS VFO and it occurred to me that I should be able to replicate the output of the VFO-520 and use this on the 520 (just for kicks...) (yes, I could just go buy a VFO-520...)

With the DDS I can set to output the correct 4.90 to 5.5Mhz I believe is required for replicating the output of a VFO-520 on the frequency generator side (??). However, it's unclear to me what frequencies ought to be fed into the VFO input to replicate the VFO-520--I grew up in the world of microprocessors, so this is probably basic knowledge for all of you.

It looks like the pins on the connector are:
1 - VFO signal
2 - VFO coax ground
3 - lamp indicator (no need to connect) (gnd)
4 - lamp indicator (no need to connect) (12V)
5 - ?? (relay when transmit on from radio, no need to connect?)
6 - ??? (calibrator signal, no need to connect?)
7 - nc
8 - no connect? (was 9v to supply internal VFO -- or should this still be jumpered to 9?)
9 - no connect (9v to external vfo, not needed?)

Has anyone tried this? Any suggestions/thoughts on if this would work at all?

Ben
KK6FUT

45470. Re: [TS-520_820_530_830] Replacing a VFO-520 with DDS VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 17:33:35 UTC
From: Gordon JC Pearce
Topic: 45469 Message: 45470

On Fri, Oct 25, 2013 at 09:03:54AM -0700, kk6fut@... wrote:
> With the DDS I can set to output the correct 4.90 to 5.5Mhz I believe is required for replicating the output of a VFO-520 on the frequency generator side (??). However, it's unclear to me what frequencies ought to be fed into the VFO input to replicate the VFO-520--I grew up in the world of microprocessors, so this is probably basic knowledge for all of you.

I have just such a DDS sitting on the bench hooked to an Arduino at the moment. I feel an experiment coming on... ;-)

--
Gordonjcp MM0YEQ

45471. Re: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 18:16:43 UTC
From: CROOKS David
Topic: 45442 Message: 45471

I don't understand why no dip at 14 when 'opposite' dip is OK and rig is OK.
I'll bow out.
Good luck
Dave f4eyk

45472. RE: Re: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 20:00:57 UTC
From: <wagstw46@...>
Topic: 45442 Message: 45472

Dave:

No need for you to bow out. I was trying to help. I will attempt this clarification and then go back to my bench.

I apparently did not explain it well enough. There is a difference between 180 degree rotation of the capacitor plates and 180 degrees rotation of the Pointer indication when a reduction drive (similar to a Jackson drive) is used. If the Plate Tuning cap is directly driven off the shaft knob then there would be 2 dips at 180 degrees of the knob position. Dont want to direct drive a Tank capacitor as it would make tuning resonance touchy.

If you get a dip at the normal band specific white mark location on the front panel and lets say that is at 1200 or North you cannot simply rotate the knob until you are at 0600 or South and expect to find a dip. It will not be there. If that is what the Op is doing or being directed to do he will not find a dip there.

What this fellow should do is make sure that the couplings are all tight and he is not turning the knob and shaft and the air variable is not moving in sync with it. If the couplings are tight and alignment hasnt slipped then he should place rig in Tune mode and flip to Send and find resonance on the white painted arc. He can do this by looking for IP dip, a peak on the RF relative power meter indication or looking at a peak in output power on an external wattmeter. It should be very close to 14 or just slightly to the right side of the "4".

Record or note where that is at. Now key the rig again in Tune mode and rotate the Plate Tune capacitor until you find the other dip. You cannot just turn the knob until the pointer is at 180 degrees from the first "normal" dip location.

In Tune mode you have time to run the Plate Tune knob until you bring the pointer completely back to the original dip without hurting the finals. Somewhere in that travel will be the 2nd dip.

As I tried to point out in my post at approx 14.2 mhz the 1st or normal dip will occur close to 1:00 pm or 1300 and the 2nd dip will occur at approx 5:00 pm or 1700. The 2nd dip will not occur at 7:00 pm or 1900 which would be 180 degrees of pointer rotation.

I saw all this talk about North and South and 180 degrees relative to the Pointer and I wanted to make sure he was not just turning the knob to get the Pointer 180 degrees from the original dip and reporting back no dip at that "south" location.

What I suggest is we ask him to find the "normal"dip and then flip to send again and find the 2nd dip and report back where that occurs at.

You are exactly correct there has to be two dips and they do occur when the air variable has been rotated 180 degrees and the degree of plate mesh is the same and the resulting capacitance is the same. However, that will not occur at 180 degrees of pointer rotation.

If the drive mechanism is working and aligned properly and the Op runs the capacitor thru 360 degrees of rotation and there is no 2nd dip then we have a phenomenon!

You stay and help. I have apparently "helped" enough. Sorry if I did not understand what the Op was doing and reporting. No intention to step on your thread.

Everyone should all be happy I didnt throw in a dose of basic and fundamental crap about air variable capacitor plate shape and linearity and discussion of SLC, SLF, and SLW types. That would really have muddied the waters!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ I don't understand why no dip at 14 when 'opposite' dip is OK and rig is OK.
I'll bow out.
Good luck
Dave f4eyk

45473. RE: RE: Re: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 20:36:09 UTC
From: <wagstw46@...>
Topic: 45442 Message: 45473

It has been quietly pointed out to me that there is no reduction drive on the TS530 plate tuning capacitor so now we may need to have that SLC and linearity discussion!

I dont have a TS530 here so someone who has one will have to do the "two dip" test and if you find that you do get 2 dips at 180 degrees of rotation of the indicating pointer I will offer my public apology and open the fundamental books for a much needed refresher.

I know that on a TS-830 the 2nd dip does not occur at 180 degrees of pointer indication.

I think I have an old 1930 Cardwell air variable capacitor primer around here some where.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave:

No need for you to bow out. I was trying to help. I will attempt this clarification and then go back to my bench.

I apparently did not explain it well enough. There is a difference between 180 degree rotation of the capacitor plates and 180 degrees rotation of the Pointer indication when a reduction drive (similar to a Jackson drive) is used. If the Plate Tuning cap is directly driven off the shaft knob then there would be 2 dips at 180 degrees of the knob position. Dont want to direct drive a Tank capacitor as it would make tuning resonance touchy.

If you get a dip at the normal band specific white mark location on the front panel and lets say that is at 1200 or North you cannot simply rotate the knob until you are at 0600 or South and expect to find a dip. It will not be there. If that is what the Op is doing or being directed to do he will not find a dip there.

What this fellow should do is make sure that the couplings are all tight and he is not turning the knob and shaft and the air variable is not moving in sync with it. If the couplings are tight and alignment hasnt slipped then he should place rig in Tune mode and flip to Send and find resonance on the white painted arc. He can do this by looking for IP dip, a peak on the RF relative power meter indication or looking at a peak in output power on an external wattmeter. It should be very close to 14 or just slightly to the right side of the "4".

Record or note where that is at. Now key the rig again in Tune mode and rotate the Plate Tune capacitor until you find the other dip. You cannot just turn the knob until the pointer is at 180 degrees from the first "normal" dip location.

In Tune mode you have time to run the Plate Tune knob until you bring the pointer completely back to the original dip without hurting the finals. Somewhere in that travel will be the 2nd dip.

As I tried to point out in my post at approx 14.2 mhz the 1st or normal dip will occur close to 1:00 pm or 1300 and the 2nd dip will occur at approx 5:00 pm or 1700. The 2nd dip will not occur at 7:00 pm or 1900 which would be 180 degrees of pointer rotation.

I saw all this talk about North and South and 180 degrees relative to the Pointer and I wanted to make sure he was not just turning the knob to get the Pointer 180 degrees from the original dip and reporting back no dip at that "south" location.

What I suggest is we ask him to find the "normal"dip and then flip to send again and find the 2nd dip and report back where that occurs at.

You are exactly correct there has to be two dips and they do occur when the air variable has been rotated 180 degrees and the degree of plate mesh is the same and the resulting capacitance is the same. However, that will not occur at 180 degrees of pointer rotation.

If the drive mechanism is working and aligned properly and the Op runs the capacitor thru 360 degrees of rotation and there is no 2nd dip then we have a phenomenon!

You stay and help. I have apparently "helped" enough. Sorry if I did not understand what the Op was doing and reporting. No intention to step on your thread.

Everyone should all be happy I didnt throw in a dose of basic and fundamental crap about air variable capacitor plate shape and linearity and discussion of SLC, SLF, and SLW types. That would really have muddied the waters!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ I don't understand why no dip at 14 when 'opposite' dip is OK and rig is OK.
I'll bow out.
Good luck
Dave f4eyk

45474. RE: RE: RE: Re: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 20:39:26 UTC
From: <wagstw46@...>
Topic: 45442 Message: 45474

Man I need to give it up! Not 2 dips at 180 degrees!

I meant a 2nd dip at 180 degrees of pointer rotation.

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

It has been quietly pointed out to me that there is no reduction drive on the TS530 plate tuning capacitor so now we may need to have that SLC and linearity discussion!

I dont have a TS530 here so someone who has one will have to do the "two dip" test and if you find that you do get 2 dips at 180 degrees of rotation of the indicating pointer I will offer my public apology and open the fundamental books for a much needed refresher.

I know that on a TS-830 the 2nd dip does not occur at 180 degrees of pointer indication.

I think I have an old 1930 Cardwell air variable capacitor primer around here some where.

Terry K9TW

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Dave:

No need for you to bow out. I was trying to help. I will attempt this clarification and then go back to my bench.

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pointer is at 180 degrees from the first "normal" dip location.

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I'll bow out.
Good luck
Dave f4eyk

45475. Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 20:43:12 UTC
From: Ron
Topic: 45442 Message: 45475

Terry , I'd be very disappointed if u did give it up !!!! Lol.

Ron KK4PWF

On Oct 25, 2013, at 3:39 PM, <wagstw46@...> wrote:

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> Man I need to give it up! Not 2 dips at 180 degrees!
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> I meant a 2nd dip at 180 degrees of pointer rotation.
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> Terry
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45476. RE: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 20:52:49 UTC
From: <wagstw46@...>
Topic: 45442 Message: 45476

Ron there is just too much crap in the old file cabinet and having hard time finding it anymore. Also need to get control of the fingers that tend to race ahead before I even get the file drawer open.

Young ones will probably do better as their stuff is on the Cloud and they can use key word searches or Find commands!.

Fortunately I can still "Find" my way home most days!

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry , I'd be very disappointed if u did give it up !!!! Lol.

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---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

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I'll bow out.
Good luck
Dave f4eyk

45477. RE: [TS-520_820_530_830] Replacing a VFO-520 with DDS VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 21:02:31 UTC
From: fpath fpath
Topic: 45469 Message: 45477

the audino works perfectly as an eat fo, have 3 working off two 830,s and one off a 530

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: gordon@...
Date: Fri, 25 Oct 2013 18:33:35 +0100
Subject: Re: [TS-520_820_530_830] Replacing a VFO-520 with DDS VFO

On Fri, Oct 25, 2013 at 09:03:54AM -0700, kk6fut@... wrote:

> With the DDS I can set to output the correct 4.90 to 5.5Mhz I believe is required for replicating the output of a VFO-520 on the frequency generator side (??). However, it's unclear to me what frequencies ought to be fed into the VFO input to replicate the VFO-520--I grew up in the world of microprocessors, so this is probably basic knowledge for all of you.

I have just such a DDS sitting on the bench hooked to an Arduino at the moment. I feel an experiment coming on... ;-)

--

Gordonjcp MM0YEQ

45478. RE: Ladder line adventures

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 21:11:39 UTC
From: <ka9mnx@...>
Topic: 45442 Message: 45478

Hi Craig,

Better yet, find an old Johnson Match Box!

I bought some commercial ladder line from the Wireman about 10 years ago with the intention of "playing" with it. I made a trade for the Match Box (the small one) with a friend of mine knowing I would need it "someday". I could never get the Match Box to tune coax, though.

Finally last fall I decided to put up as much antenna wire that would fit on my lot. This ended up to being about 175' fed at the center. I think I calculated this to resonate around 2.1 Mhz. I purposely DID NOT want the antenna to be resonate on amateur bands.

The antenna matches beautifully on all bands except 30 meters and I'm loving it!

73,

gary ai4ja

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I recently erected a 55-foot long non -resonant doublet antenna fed by
48 feet of "homebrew" 600 ohm ladder line using #14 insulated wire and
"Ladder Snap" spreaders. The dimensions were as recommended by various
sources. This single skywire now serves as my all-band (well, 40, 20, 17
and 10 meter) antenna for my TS-530S, TS-830S and accessory AT-230
tuner. It works well and looks cool, steam punk retro.

Here are a couple of "lessons learned" observations about ladder line
fed (balanced feedline) antennas for those who, like me, have never used
one previously.

#1 Don't bother with a balun between the AT-230 tuner and the
feedline. Instead, obtain a dozen Amidon FB-31-5621 ferrite beads and
slip them over your small diameter coax jumper between the rig's RF
output (antenna) connector and tuner INPUT. If you employ this current
balancing method do NOT tie the grounds of the tuner and radio
together. (This was not my idea, but one from a highly technical QST
article that I read after purchasing an expensive 1:1 high-power current
balun that proved to be useless).

#2 Beware of large metallic objects near your ladder line feedline. The
avoidance of practices like draping your ladder line over roof gutters
and such is intuitive, but you could run into trouble from more subtle
sources. For instance, when I initially installed my new
antenna/feedline combo, I experienced mysterious reactions from my
AT-230. Hand capacitance was affecting power output and SWR readings
dramatically. I was suddenly revisiting my earliest days of regen

receivers and single wire antennas! Frustrated, I was about to tear down my new antenna and re-erect my coax-fed dipoles when I noticed that the ladder line inside the shack was running just a couple of inches away from a large metal filing cabinet. This thing was so much a part of the room's permanent fixtures that I had ceased to "see" it. Anyway, moving the cabinet to the opposite side of the room cured all anomalies.

While my new doublet can't compete with a Yagi, it does provide multi-band operation with low feedline loss and has proved to be at least as effective as the dipoles in transmission and better in reception.

Try one!

73,

Craig
W3CRR

45479. TS-820 Digital Display problem.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 17:46:21 UTC
From: <bvelasquez@...>
Topic: 45479 Message: 45479

With the BAND switch set to 7 MHz or lower, the Digital Display (DG-1) frequency jumps all over the place, at seemingly random frequencies around the band range set with the BAND switch. 14 Mhz and higher are stable, with no symptoms displayed when switched to these bands.

I've double-checked the VFO remote cable for continuity and cleaned the contacts at that point. I also jumpered pins 8 and 9 at the remote VFO port to remove the remote VFO from the equation, but the problem continues.

Is it possible there are dirty contacts at the Display Unit, AVR unit, or Counter Ass'y unit that might cause this? DeoxIT here?

45480. Using contact cleaner, DeoxIT, as general maintenance?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 17:51:03 UTC
From: <bvelasquez@...>
Topic: 45480 Message: 45480

I used DeoxIT to successfully clean the HEAT switch on my TS-820. In your opinion, is it a good idea to use DeoxIT in other areas of the radio just to clean things up a bit? If so, what are the key areas you would spray to clean up if you had a radio that was sitting for a while, or displaying issues of poor contacts?

If not, I understand. Maybe best not to spray the stuff if you don't need to. However, seems like a good idea to clean up some key areas in the radio.

Let me know if you have any maintenance steps you like to go through to clean up one of these radios to ensure clean contact areas.

45481. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 22:25:53 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45481

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We can talk about plate dip not occurring at right place when we get CW working.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Thanks for the comments.

1) I have 60 ma of current when I flip Send switch in CW, USB, and LSB modes. I don't have a microphone as I only operated CW back when I was on the air. I have a 1KHz tone generator and connected it to the microphone input. When I do this and increase MIC control in both USB and LSB I am able to dri

(Message over 64 KB, truncated)

45482. Re: [TS-520_820_530_830] RE: Ladder line adventures

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 22:58:36 UTC
From: Craig Roberts
Topic: 45442 Message: 45482

Hey Gary,

Now that sounds like fun. My little suburban lot limits my wire stringing activities, but I'm very pleased with what a mere 55 feet and ladder line can do.

As for 30 meters -- that's also the band that eludes my tuner's efforts (well, other than 80 and 160 -- two real estate demanding bands I have never visited in 43 years on the air).

73!

Craig
W3CRR

45483. Re: Re: Re: Re: [TS-520_820_530_830] TS-530 TX Tune

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-25 23:26:35 UTC
From: CROOKS David
Topic: 45442 Message: 45483

Terry
No problem. I wanted someone to take over as I can't see how there could not be two dips. (provided that the variable capacitor on the 530 is the continuous type!)

"If the drive mechanism is working and aligned properly and the Op runs the capacitor thru 360 degrees of rotation and there is no 2nd dip then we have a phenomenon!"

My understanding of the reported problem is just that!

Cheers
Dave f4eyk

45484. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 00:03:12 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45484

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the

cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need

this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

No, I don't have a key in the key jack. However, I did plug one in and keyed it just to see if the N/C contact wasn't closing the circuit.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Do you have a key in the key jack? If so remove it or key the key with Car Pot advanced. Cant load rig in CW mode if you have a key in key jack and it isnt closed. Brings back memories of the J-38 slider bar.

We

(Message over 64 KB, truncated)

45485. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 01:20:15 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45485

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years

and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you

locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in. If I plug the key in, FIX3-11 follows the key, open with key up, ground with key down. I cleaned the mode switch and visually checked it for broken wires.

I have a couple of multimeters, a 150 MHz analog scope, a 100 MHz digital scope, a W7ZOI power meter, and a KA7EXM power meter. I feel comportable taking measurements anywhere inside the rig, including the final cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I forgot to mention where I am going with this (if not obvious) is a bad/dirty Mode switch contact or a broken wire at the mode switch in CW mode. The fact that you have output in FSK tells me that you do have approx 0.0 to 0.60vdc at TP-2 which then means the path from CV to the BM is good.

If you have no DMM, VOM, or VTVM the mode switch in a TS820 is an open deck type and pretty accessible with bottom cover off so you should be able to apply some deoxit and canned air to clean the contacts.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK well that would have been a quick fix and not first time so had to ask.

What test gear do you have and what is your comfort level to take measurements inside the rig?

When you inject audio into mic line and get output it tells you that your Balanced Modulator is working. In CW mode to produce output from the BM the Car Pot provides variable DC voltage to bias on the ring diodes. It is derives this bias voltage from

regulated 9vdc from AVR board thru mode switch contacts.

The BM is on the IF board. Need to measure at Conn IF-5 at the CV terminal. Should see variable 0 to 9vdc at CV as you adjust the Car Pot thru its range.

Then measure at TP-2 and should see approx 0.0 to 0.70vdc as you adjust the Car Pot.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

45486. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 02:45:37 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45486

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Conn IF-5 CV the voltage varies from .1 volts to 8.95 volts as I rotate the CAR control. On TP-2 the voltage varies from 16 mV to .443 volts as I rotate the CAR control. These voltages are the same with the Mode switch in either CW or FSK mode.

Also, on the FIX VOX board, FIX3-11 is shorted to ground when the key is not plugged in.

45487. Re: [TS-520_820_530_830] TS-820 Digital Display problem.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 04:42:21 UTC
From: Joseph Stiles
Topic: 45479 Message: 45487

I would check the voltage of the coils in the VCO(voltage controlled oscillator) Unit first. It's on the underside of the rig. Procedure is on Pg 52, Section 5-2 of the service manual. You will need a fine ended tuning tool and a decent voltmeter/vtvm at a minimum. I think that this should take care of the problem. Take your time...those coils can be a bit touchy

For some good initial(basic) troubleshooting, the 820(S) service manual has a "troubleshooting" section. Look on Pg's 38 - 41.

  Good Luck.

   Also, it is customary to sign your posts with your name and call sign(if any)

73 Joe
WB7UQU
Group Co-owner

On Friday, October 25, 2013 2:11 PM, "bvelasquez@..." <bvelasquez@...> wrote:

>With the BAND switch set to 7 MHz or lower, the Digital Display (DG-1) frequency jumps all over the place, at seemingly random frequencies around the band range set with the BAND switch. 14 Mhz and higher are stable, with no symptoms displayed when switched to these bands.
>
>
>I've double-checked the VFO remote cable for continuity and cleaned the contacts at that point. I also jumpered pins 8 and 9 at the remote VFO port to remove the remote VFO from the equation, but the problem continues.
>
>
>Is it possible there are dirty contacts at the Display Unit, AVR unit, or Counter Ass'y unit that might cause this? DeoxIT here?
>
>
>

45488. Re: [TS-520_820_530_830] TS-820 Digital Display problem.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 04:42:30 UTC
From: Joseph Stiles
Topic: 45479 Message: 45488

I would check the voltage of the coils in the VCO(voltage controlled oscillator) Unit first. It's on the underside of the rig. Procedure is on Pg 52, Section 5-2 of the service manual. You will need a fine ended tuning tool and a decent voltmeter/vtvm at a minimum. I think that this should take care of the problem. Take your time...those coils can be a bit touchy

For some good initial(basic) troubleshooting, the 820(S) service manual has a "troubleshooting" section. Look on Pg's 38 - 41.

  Good Luck.

   Also, it is customary to sign your posts with your name and call sign(if any)

73 Joe
WB7UQU
Group Co-owner

On Friday, October 25, 2013 2:11 PM, "bvelasquez@..." <bvelasquez@...> wrote:

>With the BAND switch set to 7 MHz or lower, the Digital Display (DG-1) frequency jumps all over the place, at seemingly random frequencies around the band range set with the BAND switch. 14 Mhz and higher are stable, with no symptoms displayed when switched to these bands.
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>
>
>Is it possible there are dirty contacts at the Display Unit, AVR unit, or Counter Ass'y unit that might cause this? DeoxIT here?
>
>
>

45489. Kenwood TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 06:13:51 UTC
From: <n0dks1@...>
Topic: 6609 Message: 45489

How can I tell what year my Kenwood TS-520 was made by the serial number?
it starts with a number 3 .

Thanks everyone
Dave n0dks

45490. CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 07:30:46 UTC
From: Gordon JC Pearce
Topic: 45490 Message: 45490

Well the good thing about it being All Contest All Bands this weekend, is that I now know my TS-520 receives perfectly well on all its bands. Shame there's no one to talk to though. I can't be the only one here that finds hour after hour of "You're 5 and 9, QRZ?" stultifying boring?

Maybe I'll get back to investigating my strange loading capacitor issue.

--
Gordonjcp MM0YEQ

45491. RE: Kenwood TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 11:43:40 UTC
From: <paw_paw44036@...>
Topic: 6609 Message: 45491

KCC-Amateur <kcc-amateur at kenwoodusa.com mailto:kcc-amateur@kenwoodusa.com>

send your serial number here and they will answer.
Change at to @.

Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <n0dks1@...> wrote:

How can I tell what year my Kenwood TS-520 was made by the serial number?
it starts with a number 3 .

Thanks everyone
Dave n0dks

45492. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 11:57:34 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45492

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or

850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram,

only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right

now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measurements anywhere inside the radio including the Final Cage.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

For some reason I cannot read your entire response? It appears you are reporting back that you have good bias voltage available at the BM from the Car Pot. In CW TX mode you need this bias voltage and you need the local oscillator (LO) or Carrier to produce an output. Which in this case it is 8.830.70mhz CA-2 produced on the CAR-2 Unit.

You are getting CA-2 Carrier in FSK mode so it tells me the Crystal and the soldering at its pins have to be good.

If you have a RF millivolt meter or O-scope you can measure the 8830.7 mhz Carrier at the IF board at TP-5.TP-5 is tucked back in the corner under the chassis side rail. With rig in CW mode flip to send and measure the level and the frequency at TP-5. It should be approx 300mv rms or approx 850mv P-P on a scope at 8830.70mhz.

I would measure the level first before you look at it with a Freq Counter as the counter may pull the level down. If you dont have a means to measure CA-2 Carrier level and frequency then at minimum measure CW terminal at CAR-2 Unit board to make sure you are getting CW TX bias voltage.

If you remove the 2 screws that secure the cover you will see a white 10 pin connector. The 3rd pin from the Crystal is the CW terminal. When you flip to send in CW mode should see approx 9.0vdc here. If you have 9vdc and still no output then suspect bad switching diode D1. D1 is close to the Crystal and you can measure the voltage at its anode and cathode. When you flip to send in CW mode should read approx 9vdc on the anode and approx 8.3vdc on the cathode. Note: The 9vdc will depend on where the AVR regulated 9vdc has been set too.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

45493. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 12:21:07 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45493

Just to make certain I understand what you are reporting:

1. With IF-2 in Pos A (toward rear panel) you have good TX output in all modes and good RX thru the SSB filter ?

2. With IF-2 in Pos B you have good TX output in LSB, USB, FSK modes thru the SSB filter. You have no TX output in CW mode thru the CW filter but have good RX in CW mode thru the CW filter?

3. With IF-2 in Pos C (toward front panel) you have good TX output in LSB, USB modes thru the SSB filter. You have good TX output in FSK mode thru the CW filter. You have no TX output in CW mode thru the CW filter, but you do have good RX thru the CW filter?

Is configuration 3 what we are talking about?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high

density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the

cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measuremen

(Message over 64 KB, truncated)

45494. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 13:16:19 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45494

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high

density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the

cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

Suggest you buy a Freq Counter. Can measure Freq roughly with O-scope. Some measure and display Freq (may or may not do so accurately) and some require using F=1/T and not accurate enough for adjusting the Oscillators in the KW hybrids.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Let's try this again. For some reason yahoo has been mangling my posts. This has been a problem ever since they went to this new stupid format they are using.

Measuring at TP-2 the voltage varies from 16 mV to .443V when adjusting the CAR control in both FSK and CW mode. On Conn IF-5 at the CV terminal, the voltage varies from .12V to 8.95V in both FSK and CW mode when adjusting the CAR control.

Also, on the FIX VOX board FIX3-11 is grounded with no key plugged in. Plugging a key in, FIX3-11 follows the key (open key up, grounded key down).

I have cleaned the contacts on the Mode switch and checked for broken wires.

At TP-5 I measure 8.831434 MHz at .64V P-P (on scope) in all positions of the mode switch without the Send switch flipped. When I flip the Send switch the voltage drops to .48V P-P. The CAR control has no affect on the signal level with the Send switch in either position.

I measure 8.97V at the CW terminal on CAR-2 when I flip the Send switch. I measure 8.94V at the anode of D1 and 8.19V at the cathode when the Send switch is flipped.

I have a couple of multimeters, a 150 MHz analog scope, 100 MHz digital scope, W7ZOI power meter, and a KA7EXM power meter. I feel comfortable taking measuremen

(Message over 64 KB, truncated)

45495. Re: [TS-520_820_530_830] CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 13:53:07 UTC
From: K5MYJ
Topic: 45490 Message: 45495

I use the contests for receiver testing. They way they operate now I don't even get their calls so I can look up their locations.

I guess if you are heard you are 5 & 9!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Gordon JC Pearce
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 26, 2013 12:30 AM
Subject: [TS-520_820_530_830] CQWW and testing

Well the good thing about it being All Contest All Bands this weekend, is that I now know my TS-520 receives perfectly well on all its bands. Shame there's no one to talk to though. I can't be the only one here that finds hour after hour of "You're 5 and 9, QRZ?" stultifying boring?

Maybe I'll get back to investigating my strange loading capacitor issue.

--
Gordonjcp MM0YEQ

45496. Re: [TS-520_820_530_830] CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 14:21:30 UTC
From: Gordon JC Pearce
Topic: 45490 Message: 45496

On Sat, Oct 26, 2013 at 06:53:07AM -0700, K5MYJ wrote:
> I use the contests for receiver testing. They way they operate now I don't even get their calls so I can look up their locations.
>
> I guess if you are heard you are 5 & 9!
>
> Bob Macklin
> K5MYJ

Just listened to a "Kee-loh-watt Leeee-maaaah" station take six goes to get an M6's callsign then give him a 5 and 9 report. Now, forgive my relatively inexperienced views here, but surely if it takes you six goes to get the callsign he's sure as hell not readability 5?

--
Gordonjcp MM0YEQ

45497. Re: [TS-520_820_530_830] CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 14:33:02 UTC
From: K5MYJ
Topic: 45490 Message: 45497

My problem is fine tuning them to get their call sign. They don't talk long enough!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Gordon JC Pearce
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, October 26, 2013 7:21 AM
Subject: Re: [TS-520_820_530_830] CQWW and testing

On Sat, Oct 26, 2013 at 06:53:07AM -0700, K5MYJ wrote:
> I use the contests for receiver testing. They way they operate now I don't even get their calls so I can look up their locations.
>
> I guess if you are heard you are 5 & 9!
>
> Bob Macklin
> K5MYJ

Just listened to a "Kee-loh-watt Leeee-maaaah" station take six goes to get an M6's callsign then give him a 5 and 9 report. Now, forgive my relatively inexperienced views here, but surely if it takes you six goes to get the callsign he's sure as hell not readability 5?

--
Gordonjcp MM0YEQ

45498. Re: [TS-520_820_530_830] CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 15:57:36 UTC
From: <pmarkavage@...>
Topic: 45490 Message: 45498

In this contest, the first two digits (5, 9) are immaterial). A carryover from older tradition of contest contact acknowledgement. It's the last two digits that are important. Many many amateurs love the competition of weekend contests (great rigs, great antennas, endurance, etc.). A nice change from the typical QSO.

Pete, wa2cwa
5905

On Sat, 26 Oct 2013 15:21:30 +0100 Gordon JC Pearce <gordon@...>
writes:
> On Sat, Oct 26, 2013 at 06:53:07AM -0700, K5MYJ wrote:
> > I use the contests for receiver testing. They way they operate now
> I don't even get their calls so I can look up their locations.
> >
> > I guess if you are heard you are 5 & 9!
> >
> > Bob Macklin
> > K5MYJ
>
> Just listened to a "Kee-loh-watt Leeee-maaaah" station take six goes
> to get an M6's callsign then give him a 5 and 9 report. Now,
> forgive my relatively inexperienced views here, but surely if it
> takes you six goes to get the callsign he's sure as hell not
> readability 5?
>
> --
> Gordonjcp MM0YEQ

45499. RE: Re: [TS-520_820_530_830] TS-820 Digital Display problem.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 06:22:30 UTC
From: <bvelasquez@...>
Topic: 45479 Message: 45499

Thanks Joe! I've read through those sections and I'll give it a try. I have a tuning tool on order and the voltmeter. Will sign my posts from now on.

73

Barry
K0DDR

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I would check the voltage of the coils in the VCO(voltage controlled oscillator) Unit first. It's on the underside of the rig. Procedure is on Pg 52, Section 5-2 of the service manual. You will need a fine ended tuning tool and a decent voltmeter/vtvm at a minimum. I think that this should take care of the problem. Take your time...those coils can be a bit touchy

For some good initial(basic) troubleshooting, the 820(S) service manual has a "troubleshooting" section. Look on Pg's 38 - 41.

Good Luck.

Also, it is customary to sign your posts with your name and call sign(if any)

73 Joe
WB7UQU
Group Co-owner

On Friday, October 25, 2013 2:11 PM, "bvelasquez@..." <bvelasquez@...> wrote:

With the BAND switch set to 7 MHz or lower, the Digital Display (DG-1) frequency jumps all over the place, at seemingly random frequencies around the band range set with the BAND switch. 14 Mhz and higher are stable, with no symptoms displayed when switched to these bands.

I've double-checked the VFO remote cable for continuity and cleaned the contacts at that point. I also jumpered pins 8 and 9 at the remote VFO port to remove the remote VFO from the equation, but the problem continues.

Is it possible there are dirty contacts at the Display Unit, AVR unit, or Counter Ass'y unit that might cause this? DeoxIT here?

45500. Re: [TS-520_820_530_830] ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 14:13:33 UTC
From: Bryan Mbryan
Topic: 45323 Message: 45500

two more questions since I've gotten some more ideas about things that may be causing me problems to look into.
1. Does it hurt to re-neutralize tubes (assuming they were neutralized correctly in the first place)? I don't see any WHEN to neutralize tubes OTHER than when replaced.
2. If instead of "bent fingers" on the band switch there is a "straight finger" on the contact band that i'm having a problem with, besides trying to clean the contact, is there any way of trying to use a needle nose or something (after I discharge the voltage) to re-bend that finger, or am I just going to break it off if I try that? There's noticeable difference when placing a piece of paper under that finger as opposed to the next one which is bent similar to the others.

Bryan kb3ybu

From: John Davidson <k8jd@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, October 15, 2013 1:39 PM
Subject: Re: [TS-520_820_530_830] ts-520 10 meter question general question

First, it is good form to sign your posts with your first name and callsign.
You should retune the final slightly when you go form you go from one end of a band to the other. SWR changes when you change frequency away from the antennas resonant point

If the SWR is higher on the low end , it means your longer than optimum, when it is low on the high end it is longer than optimum length.
7j, John...K8JD
From: Bryan Mbryan <kb3ybu@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, October 15, 2013 11:30 AM
Subject: [TS-520_820_530_830] ts-520 10 meter question general question

First thank you to everyone who has posted both questions and answers, being a new operator I've already learned a lot from previous messages and files. I'm still learning and very green (i'm not the quickest at dipping and peaking yet or even finding all the knobs) but my question is with a 10 meter dipole I have, I read a higher SWR on the 28.5 band switch settings, and much lower SWR's on the 28 band and 29.1 band. If I understand everything I've learned so far, this is opposite of what I would expect. I.e., I should be reading one low SWR somewhere, and increasingly higher SWR's. Since to me it seems inverted of what is should be, what should I be focusing on? Also possibly related if i'm not consistently doing it, is the need to dip and peak when changing "bands" related to the band switch on the radio or just the general ham band, meaning that you only dip and peak once for 10 meter instead of each of the three 10 meter band switch settings.

45501. TS520s coil cores

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 14:33:44 UTC
From: <peterlake2003@...>
Topic: 45501 Message: 45501

Hi does any one know of a source for the cores to fit the following coils please,
The Drive / Oscillator / Antenna / Mixer
This was a second hand purchase that only operates on one band due to most of the above being cracked.
I would like to get the old girl on the air and operating on all bands, any help would be most appreciated.
73s
Peter G8ZZL

45502. Re: [TS-520_820_530_830] TS520s coil cores

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 17:45:41 UTC
From: Joseph Stiles
Topic: 45501 Message: 45502

Peter,

  Finding the proper sized cores will be a great problem. If, the cores are not totally broken,
and can be removed...they can usually be removed and turned end-for-end, as they are "hollow" all the way through. Removing them can present problems in itself. More on that later.....

I do not know of any supplier on your side of the pond..but over here, you can give Bob Mansker an email: ke5ftf@... He has a good supply of stuff for KW hybrids...but this may be a tall order.

      Cheers..............

73 Joe
WB7UQU

On Saturday, October 26, 2013 10:38 AM, "peterlake2003@....uk" <peterlake2003@...> wrote:

>Hi does any one know of a source for the cores to fit the following coils please,
>The Drive / Oscillator / Antenna / Mixer
>This was a second hand purchase that only operates on one band due to most of the above being cracked.
>I would like to get the old girl on the air and operating on all bands, any help would be most appreciated.
>73s
>Peter G8ZZL
>
>
>
>

45503. Re: [TS-520_820_530_830] ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 17:53:54 UTC
From: Joseph Stiles
Topic: 45323 Message: 45503

Brian,

Neutralizing your finals should be done when they are replaced, as you noted. Unless you do a major alignment, or suspect trouble with them(no need to go into that here)...no reason to mess with them.

The "fingers" are made of several metals...and designed to be "springy." First question is:
"why is it bent out in the first place?" Also, WHICH band switch wafer? You can use a tuning tool or, other suitable item, to GENTLY apply pressure to the contact(s)

73 Joe
WB7UQU

On Saturday, October 26, 2013 10:37 AM, Bryan Mbryan <kb3ybu@...> wrote:

>two more questions since I've gotten some more ideas about things that may be causing me problems to look into.
>1. Does it hurt to re-neutralize tubes (assuming they were neutralized correctly in the first place)? I don't see any WHEN to neutralize tubes OTHER than when replaced.
>2. If instead of "bent fingers" on the band switch there is a "straight finger" on the contact band that i'm having a problem with, besides trying to clean the contact, is there any way of trying to use a needle nose or something (after I discharge the voltage) to re-bend that finger, or am I just going to break it off if I try that? There's noticeable difference when placing a piece of paper under that finger as opposed to the next one which is bent similar to the others.
>
>Bryan kb3ybu
>
>
>From: John Davidson <k8jd@...>
>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
>Sent: Tuesday, October 15, 2013 1:39 PM
>Subject: Re: [TS-520_820_530_830] ts-520 10 meter question general question
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>First, it is good form to sign your posts with your first name and callsign.
>You should retune the final slightly when you go form you go from one end of a band to the other. SWR changes when you change frequency away from the antennas resonant point
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>If the SWR is higher on the low end , it means your longer than optimum, when it is low on

the high end it is longer than optimum length.
>7j, John...K8JD
>From: Bryan Mbryan <kb3ybu@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Tuesday, October 15, 2013 11:30 AM
>Subject: [TS-520_820_530_830] ts-520 10 meter question general question
>
>
>
>
>First thank you to everyone who has posted both questions and answers, being a new operator I've already learned a lot from previous messages and files. I'm still learning and very green (i'm not the quickest at dipping and peaking yet or even finding all the knobs) but my question is with a 10 meter dipole I have, I read a higher SWR on the 28.5 band switch settings, and much lower SWR's on the 28 band and 29.1 band. If I understand everything I've learned so far, this is opposite of what I would expect. I.e., I should be reading one low SWR somewhere, and increasingly higher SWR's. Since to me it seems inverted of what is should be, what should I be focusing on? Also possibly related if i'm not consistently doing it, is the need to dip and peak when changing "bands" related to the band switch on the radio or just the general ham band, meaning that you only dip and peak once for 10 meter instead of each of the three 10 meter band switch settings.
>
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45504. Re: Re: [TS-520_820_530_830] TS-820 Digital Display problem.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 17:55:12 UTC
From: Joseph Stiles
Topic: 45479 Message: 45504

Barry,

  Thanks and, good luck.

  Please report back on if your problem gets solved

73 Joe
WB7UQU

On Saturday, October 26, 2013 10:37 AM, "bvelasquez@..." <bvelasquez@...> wrote:

>Thanks Joe! I've read through those sections and I'll give it a try. I have a tuning tool on order and the voltmeter. Will sign my posts from now on.
>
>
>73
>
>
>Barry
>K0DDR
>
>
>---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
>
>I would check the voltage of the coils in the VCO(voltage controlled oscillator) Unit first. It's on the underside of the rig. Procedure is on Pg 52, Section 5-2 of the service manual. You will need a fine ended tuning tool and a decent voltmeter/vtvm at a minimum. I think that this should take care of the problem. Take your time...those coils can be a bit touchy
>
>For some good initial(basic) troubleshooting, the 820(S) service manual has a "troubleshooting" section. Look on Pg's 38 - 41.
>
> Good Luck.
>
>   Also, it is customary to sign your posts with your name and call sign(if any)
>
>
>
>
>73 Joe
>WB7UQU
>Group Co-owner
>
>

>
>
>On Friday, October 25, 2013 2:11 PM, "bvelasquez@..." <bvelasquez@...> wrote:
>
>
>>>With the BAND switch set to 7 MHz or lower, the Digital Display (DG-1) frequency jumps all over the place, at seemingly random frequencies around the band range set with the BAND switch. 14 Mhz and higher are stable, with no symptoms displayed when switched to these bands.
>>>
>>>
>>>I've double-checked the VFO remote cable for continuity and cleaned the contacts at that point. I also jumpered pins 8 and 9 at the remote VFO port to remove the remote VFO from the equation, but the problem continues.
>>>
>>>
>>>Is it possible there are dirty contacts at the Display Unit, AVR unit, or Counter Ass'y unit that might cause this? DeoxIT here?
>>>
>>>
>
>
>

45505. Re: [TS-520_820_530_830] RE: Kenwood TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 18:08:11 UTC
From: Joseph Stiles
Topic: 6609 Message: 45505

Dave,

  In the "files" section of this board there is information on this subject. It is NOT 100% complete. Gathered from board/group members.

73 Joe
WB7UQU

On Saturday, October 26, 2013 4:43 AM, "paw_paw44036@..." <paw_paw44036@...> wrote:

> KCC-Amateur <kcc-amateur at kenwoodusa.com>
>
>send your serial number here and they will answer.
>Change at to @.
>
>Bill WD8OSJ
>
>
>---In ts-520_820_530_830@yahoogroups.com, <n0dks1@...> wrote:
>
>
>   How can I tell what year my Kenwood TS-520 was made by the serial number?
> it starts with a number 3 .
>
>   Thanks everyone
>   Dave n0dks
>
>
>
>

45506. Re: CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 18:45:21 UTC
From: radiomaninca
Topic: 45490 Message: 45506

Hi Everyone.

Well, I am a contester.

I love to contest, it's a test of radio and operator in the harshest of conditions. And you can work the world in 48 hours. I've worked stations that my friends have spent years trying to get, and I did it in one weekend.

As far as the noise, and complaints, you have to put it into focus, on any given contest weekend, 30 - 40% of the worlds operators will be on the air as compared to only 4 - 5% any other time.

The only reason I am not in this contest, and am instead writing this is because my station is still in boxes from moving to a new house, infact I even forgot the contest was this month until I read this post.

Last CQWW I ran my TS520SE on 80 mtrs as a run station and had a blast, especially when I told people what I was running.

One German operator asked my why I would run such an outmoded rig in a contest, and was surprised when I answered, Because I can.

One of my best memories in a contest is from the early 1990's, I was working Japan on 15 mtrs, hunting and pouncing, when I heard a faint buz off the back of my beam, I switched to a vertical antenna I have and almost fainted when I heard an American operator at Byrd Station Antartica calling CQ, I swung the Yagii around and we chatted for 15 minutes before I put him up on the cluster and lost him in the noise.
His QSL Card is on my wall in my shack today.

So please don't be upset with us contesters, we will be gone by Monday and you can have the airwaves back again.....until the next test.

PS. I also love to DX and rag chew.
One other consideration as well if you please, in an emergancy, when the crap has hit the fan, go to a contest station, it will get the message through.

Kevin VE3RRH

--- In TS-520_820_530_830@yahoogroups.com, Gordon JC Pearce <gordon@...> wrote:
>
> Well the good thing about it being All Contest All Bands this weekend, is that I now know my TS-520 receives perfectly well on all its bands. Shame there's no one to talk to though. I can't be the only one here that finds hour after hour of "You're 5 and 9, QRZ?" stultifying boring?
>
> Maybe I'll get back to investigating my strange loading capacitor issue.
>
> --

> Gordonjcp MM0YEQ
>

45507. Re: [TS-520_820_530_830] Re: CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 19:04:30 UTC
From: Denise Hargreaves
Topic: 45490 Message: 45507

Well said Kevin....Ham radio covers so many interests.....none are more important than the other (with the emergency use being the exception)....I am not a contester....but admire to dedication and persistence of those who do....good hearing from you....Haven't got your station in place yet...!! Your a BAAAAAD ham....LOL.... Talk to you soon Kevin....

Regards...Wes....VA6DWH

On 2013-10-26, at 12:45 PM, radiomaninca wrote:

> Hi Everyone.
>
> Well, I am a contester.
>
> I love to contest, it's a test of radio and operator in the harshest of conditions. And you can work the world in 48 hours. I've worked stations that my friends have spent years trying to get, and I did it in one weekend.
>
> As far as the noise, and complaints, you have to put it into focus, on any given contest weekend, 30 - 40% of the worlds operators will be on the air as compared to only 4 - 5% any other time.
>
> The only reason I am not in this contest, and am instead writing this is because my station is still in boxes from moving to a new house, infact I even forgot the contest was this month until I read this post.
>
> Last CQWW I ran my TS520SE on 80 mtrs as a run station and had a blast, especially when I told people what I was running.
>
> One German operator asked my why I would run such an outmoded rig in a contest, and was surprised when I answered, Because I can.
>
> One of my best memories in a contest is from the early 1990's, I was working Japan on 15 mtrs, hunting and pouncing, when I heard a faint buz off the back of my beam, I switched to a vertical antenna I have and almost fainted when I heard an American operator at Byrd Station Antartica calling CQ, I swung the Yagii around and we chatted for 15 minutes before I put him up on the cluster and lost him in the noise.
> His QSL Card is on my wall in my shack today.
>
> So please don't be upset with us contesters, we will be gone by Monday and you can have the airwaves back again.....until the next test.
>
> PS. I also love to DX and rag chew.
> One other consideration as well if you please, in an emergancy, when the crap has hit the fan, go to a contest station, it will get the message through.
>
> Kevin VE3RRH

>
> --- In TS-520_820_530_830@yahoogroups.com, Gordon JC Pearce <gordon@...> wrote:
> >
> > Well the good thing about it being All Contest All Bands this weekend, is that I now know my TS-520 receives perfectly well on all its bands. Shame there's no one to talk to though. I can't be the only one here that finds hour after hour of "You're 5 and 9, QRZ?" stultifying boring?
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> > --
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> >
>
>

45508. Re: [TS-520_820_530_830] Re: CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 19:35:03 UTC
From: Mike
Topic: 45490 Message: 45508

I mean no disrespect towards anyone who participates in contest.

Although I don't care for nor do I participate in contest, I do believe hams have a right to participate in contest if they so chose to.

Having said that I also believe signal reports should be honest. If band conditions are poor and one station has to ask 4 to 5 times for the callsign of another station, not because of interference or because the other station can't speak properly but rather because of poor band condition, then give an honest report. Too many contest stations seem to be followers which means they simply follow and do what other contest stations do whether it's right or wrong, and that is not what a contest stations should do. Many stations, whether they are participating in a contest or not, rely on an honest report so they can determine how well the band is from their location so why not be honest about the signal report?

Some stations may believe if they waste a few seconds or so giving an honest report that few extra seconds may mean loss of a few contacts. I don't believe that. Just be honest when giving a signal report, it's not going to effect your score nor will it change the outcome of your participation in the contest. It will, however, show that you are being honest.

73
Mike W5RKL

On 10/26/2013 1:45 PM, radiomaninca wrote:
>
> Hi Everyone.
>
> Well, I am a contester.
>
> I love to contest, it's a test of radio and operator in the harshest
> of conditions. And you can work the world in 48 hours. I've worked
> stations that my friends have spent years trying to get, and I did it
> in one weekend.
>
> As far as the noise, and complaints, you have to put it into focus, on
> any given contest weekend, 30 - 40% of the worlds operators will be on
> the air as compared to only 4 - 5% any other time.
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> The only reason I am not in this contest, and am instead writing this
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> blast, especially when I told people what I was running.
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> working Japan on 15 mtrs, hunting and pouncing, when I heard a faint
> buz off the back of my beam, I switched to a vertical antenna I have
> and almost fainted when I heard an American operator at Byrd Station
> Antartica calling CQ, I swung the Yagii around and we chatted for 15
> minutes before I put him up on the cluster and lost him in the noise.
> His QSL Card is on my wall in my shack today.
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>
> Kevin VE3RRH
>
> --- In TS-520_820_530_830@yahoogroups.com, Gordon JC Pearce
> <gordon@...> wrote:
> >
> > Well the good thing about it being All Contest All Bands this
> weekend, is that I now know my TS-520 receives perfectly well on all
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> one here that finds hour after hour of "You're 5 and 9, QRZ?"
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> > Maybe I'll get back to investigating my strange loading capacitor issue.
> >
> > --
> > Gordonjcp MM0YEQ
> >
>
>

45509. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 21:32:32 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45509

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the

USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger

but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying

to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on the CAR-2 board. On the IF board it comes in on Conn IF-5 pin 13.

At this point you have not confirmed that you have CAR-2 Q1 Oscillator running and available.

3. The DC voltages that you measured at D1 prove that you are getting the turn on voltages for Buffer amp Q2 so if Q1 is oscillating should get CW TX Carrier at CJ-3 and on to the IF board if all connectors are good.

You may have to adjust the frequency and output level but can talk about that later.

45510. Re: [TS-520_820_530_830] Re: CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 21:44:46 UTC
From: John Davidson
Topic: 45490 Message: 45510

How many times have I heard, " Station calling, You're 59 but repeat everything" ??

On Saturday, October 26, 2013 3:35 PM, Mike <w5rkl@...> wrote:

I mean no disrespect towards anyone who participates in contest.

Although I don't care for nor do I participate in contest, I do believe hams have a right to participate in contest if they so chose to.

Having said that I also believe signal reports should be honest. If band conditions are poor and one station has to ask 4 to 5 times for the callsign of another station, not because of interference or because the other station can't speak properly but rather because of poor band condition, then give an honest report. Too many contest stations seem to be followers which means they simply follow and do what other contest stations do whether it's right or wrong, and that is not what a contest stations should do. Many stations, whether they are participating in a contest or not, rely on an honest report so they can determine how well the band is from their location so why not be honest about the signal report?

Some stations may believe if they waste a few seconds or so giving an honest report that few extra seconds may mean loss of a few contacts. I don't believe that. Just be honest when giving a signal report, it's not going to effect your score nor will it change the outcome of your participation in the contest. It will, however, show that you are being honest.

73
Mike W5RKL

On 10/26/2013 1:45 PM, radiomaninca wrote:

>Hi Everyone.
>
>Well, I am a contester.
>
>I love to contest, it's a test of radio and operator in the harshest of conditions. And you can work the world in 48 hours. I've worked stations that my friends have spent years trying to get, and I did it in one weekend.
>
>As far as the noise, and complaints, you have to put it into focus, on any given contest weekend, 30 - 40% of the worlds operators will be on the air as compared to only 4 - 5% any other time.

>
>The only reason I am not in this contest, and am instead
writing this is because my station is still in boxes from
moving to a new house, infact I even forgot the contest
was this month until I read this post.
>
>Last CQWW I ran my TS520SE on 80 mtrs as a run station and
had a blast, especially when I told people what I was
running.
>
>One German operator asked my why I would run such an
outmoded rig in a contest, and was surprised when I
answered, Because I can.
>
>One of my best memories in a contest is from the early
1990's, I was working Japan on 15 mtrs, hunting and
pouncing, when I heard a faint buz off the back of my
beam, I switched to a vertical antenna I have and almost
fainted when I heard an American operator at Byrd Station
Antartica calling CQ, I swung the Yagii around and we
chatted for 15 minutes before I put him up on the cluster
and lost him in the noise.
>His QSL Card is on my wall in my shack today.
>
>So please don't be upset with us contesters, we will be
gone by Monday and you can have the airwaves back
again.....until the next test.
>
>PS. I also love to DX and rag chew.
>One other consideration as well if you please, in an
emergancy, when the crap has hit the fan, go to a contest
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>
>Kevin VE3RRH
>
>--- In TS-520_820_530_830@yahoogroups.com, Gordon JC Pearce <gordon@...> wrote:
>>
>> Well the good thing about it being All Contest All
Bands this weekend, is that I now know my TS-520 receives
perfectly well on all its bands. Shame there's no one to
talk to though. I can't be the only one here that finds
hour after hour of "You're 5 and 9, QRZ?" stultifying
boring?
>>
>> Maybe I'll get back to investigating my strange
loading capacitor issue.
>>
>> --
>> Gordonjcp MM0YEQ
>>

>
>

45511. Re: [TS-520_820_530_830] Re: CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 22:04:50 UTC
From: Gordon JC Pearce
Topic: 45490 Message: 45511

On Sat, Oct 26, 2013 at 02:44:46PM -0700, John Davidson wrote:
> How many times have I heard, " Station calling, You're 59 but repeat everything" ??

Do you ever get "You're 5 and 9, peaking 20 over" - right up until you tell the guy with the Bell & Whistle SuperDX 1000 with a Priceymatic 500 tuner into a 6-element Step-o-tron OVER9000 yagi, that you're running 80W into a wire dipole at which point you mysteriously drop into a fade and get a report of 5 and 7 dropping to 5 and 5 in deep QSB on the next over?

I'll post up a recording, next time it happens. Seems that the wallet operators don't like that a 40-year-old rig can outperform their ubersystems ;-)

--
Gordonjcp MM0YEQ

45512. new members & policy

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 22:47:12 UTC
From: Joseph Stiles
Topic: 45512 Message: 45512

Greetings Group!

  This must be a banner month, so many new members! I am glad to see that there is still a "spark"
out there for these fine old rigs!

  So, as a reminder to the new, and long time members:

                  Sign your posts with your name(first name just fine), and your call(if any).
                  Read the groups policy
                  Be respectful of the other members(see above)
                  New members: your posts will be "moderated" until it is known
                    that you "work and play well with others." This is not because we don't
                     want or like you...it cuts down on spam..and other detritus. This will usually
                     last maybe 7-10 days, or longer,...depending on your activity.

                   Recently, there has been an increase of disrespect, inappropriate comments,
                    and other "comments" directed to members of this group. I understand that there
                    will be "disagreements" about certain troubleshooting procedures/findings, but
                     do not get "pissy" about it. We all ALL here for the same reason. If for some reason,
                    you can not, or will not, go by these simple rules...just UNSUSCRIBE! Or, the

                     moderator(s) or co-owner(s) can always put you on "moderate" and review any/all
                     messages you want to post, and either approve or deny them...or just ban the
                     offending person(s).

                     That's all for now...back to our regular programing.....................

73 Joe
WB7UQU
Group Co-owner

45513. Re: [TS-520_820_530_830] new members & policy

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 22:55:52 UTC
From: Joe - W7RKN
Topic: 45512 Message: 45513

Spoilsport! <<GRIN>>

The moderation switch..an owner/moderator's best friend!

Joe - W7RKN
----- Original Message -----
From: Joseph Stiles
Subject: [TS-520_820_530_830] new members & policy

Greetings Group!

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out there for these fine old rigs!

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offending person(s).

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45514. Re: [TS-520_820_530_830] Re: CQWW and testing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 23:56:16 UTC
From: <pmarkavage@...>
Topic: 45490 Message: 45514

As I said earlier, the signal report is immaterial. 99.99% of the contest operators don't really care. The name of the game is to amass as many contacts as possible. The only data that's important is call, and with this contest, the CQ Zone Number. With computer logging programs, one less variable to worry about (R-S) is good. Everyone is 5-9. There's been a push for years the rid the contests of R-S reports on HF contests, but some traditions are hard to break. On VHF contests, all we give is a grid square for the contest exchange.

Pete, wa2cwa

On Sat, 26 Oct 2013 14:35:03 -0500 Mike <w5rkl@...> writes:

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Although I don't care for nor do I participate in contest, I do believe hams have a right to participate in contest if they so chose to.

Having said that I also believe signal reports should be honest. If band conditions are poor and one station has to ask 4 to 5 times for the callsign of another station, not because of interference or because the other station can't speak properly but rather because of poor band condition, then give an honest report. Too many contest stations seem to be followers which means they simply follow and do what other contest stations do whether it's right or wrong, and that is not what a contest stations should do. Many stations, whether they are participating in a contest or not, rely on an honest report so they can determine how well the band is from their location so why not be honest about the signal report?

Some stations may believe if they waste a few seconds or so giving an honest report that few extra seconds may mean loss of a few contacts. I don't believe that. Just be honest when giving a signal report, it's not going to effect your score nor will it change the outcome of your participation in the contest. It will, however, show that you are being honest.

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Mike W5RKL

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Well, I am a contester.

I love to contest, it's a test of radio and operator in the harshest of conditions. And you can work the world in 48 hours. I've worked stations

that my friends have spent years trying to get, and I did it in one weekend.

As far as the noise, and complaints, you have to put it into focus, on any given contest weekend, 30 - 40% of the worlds operators will be on the air as compared to only 4 - 5% any other time.

The only reason I am not in this contest, and am instead writing this is because my station is still in boxes from moving to a new house, infact I even forgot the contest was this month until I read this post.

Last CQWW I ran my TS520SE on 80 mtrs as a run station and had a blast, especially when I told people what I was running.

One German operator asked my why I would run such an outmoded rig in a contest, and was surprised when I answered, Because I can.

One of my best memories in a contest is from the early 1990's, I was working Japan on 15 mtrs, hunting and pouncing, when I heard a faint buz off the back of my beam, I switched to a vertical antenna I have and almost fainted when I heard an American operator at Byrd Station Antartica calling CQ, I swung the Yagii around and we chatted for 15 minutes before I put him up on the cluster and lost him in the noise. His QSL Card is on my wall in my shack today.

So please don't be upset with us contesters, we will be gone by Monday and you can have the airwaves back again.....until the next test.

PS. I also love to DX and rag chew.
One other consideration as well if you please, in an emergancy, when the crap has hit the fan, go to a contest station, it will get the message through.

Kevin VE3RRH

--- In TS-520_820_530_830@yahoogroups.com, Gordon JC Pearce <gordon@...> wrote:
>
> Well the good thing about it being All Contest All Bands this weekend, is that I now know my TS-520 receives perfectly well on all its bands. Shame there's no one to talk to though. I can't be the only one here that finds hour after hour of "You're 5 and 9, QRZ?" stultifying boring?
>
> Maybe I'll get back to investigating my strange loading capacitor issue.
>
> --
> Gordonjcp MM0YEQ
>

[Non-text portions of this message have been removed]

45515. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 00:44:58 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45515

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the

measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal

3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in

this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working

properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on t

(Message over 64 KB, truncated)

45516. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 01:09:34 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45516

Ray:

At Position A the RF signal (from the Balanced Modulator) level reading at D7 cathode is the signal applied to the SSB filter switching diode D5. Diode D7 is not biased on in position A and no signal is passing thru your optional CW filter.

We can see that in CW mode you are biasing on the CW filter diodes D7 and D8 in Position B and Position C.

We know rig works using the SSB filter in Position A so you need to have similar output level from the CW filter in Pos C even though I do not believe those levels are accurate.

Humor me for a moment and lets say that your 800mv input is really 80mv or 28mv rms input and your 600mv output is really 60mv or 21mv rms. Now these are levels that are believable and align with the TX level diagram levels. Take a look at the levels for the TS520 and the other rigs and you will see typical levels at filter input and output.

Keeping with this same theme that you need to divide your measured O-scope levels by 10 then:

We can see that the CW filter output level in Position B and Position C is low at 44mv or 44/2.828 = 15mv rms. If you really had 15mv of 8.830.7 mhz TIF signal you should have some fairly decent RF output from the 6146 Finals. It would be close to full RF output. I dont think you have 44mv. I think you have 4.4 mv and 4.4/2.828 = 1.6mv rms output. This would mean the filter is bad.

Again easy to jump across the filter or if you have a good RF sig gen you can inject a test 8.830mhz carrier at 15 to 20 mv rms at D8 and see that you will have good RF output. .

You can prove my divide by 10 thought fairly easily if you have a standard single diode rf probe.

If you have a rf probe and VTVM or DMM you can confirm that you need to divide your measured O-scope readings by 10. A single diode germanium probe has a barrier voltage of approx 250mv. So you need a RF signal greater than that to produce a dc voltmeter reading. If you have this test gear repeat the measurements in Position A.

If you really have 800mv P-P then 800/2.282 = 283 mv rms. Your VTVM will deflect somewhat, but only read approx 283 - 250 or 33mv. Typically about lowest meter graduation on a Heath VTVM on the 1.5 vdc range is 20mv. So the meter will just barely deflect with 800mv P-P signal. If you get no meter deflection you know that you do not have the high levels you are reporting. It takes a level greater than approx 250 mv (diode barrier voltage) to get any deflection.

Lastly again take a look at the other rigs TX level diagrams in the respective Service Manuals and you will see the typical levels that do not begin to approach what your are reporting.

If you think about it the Car Level from the Carrier Osc board to TP-5 on the IF board is only 300mv rms or 850mv P-P. The Carrier output level at Buffer Amp Q18 Drain is going to be something on the order of 140mv or 400mv P-P and that is going to be coupled by a 5pf cap to D5/D7 cathodes. So it is just not possible to have 800mv P-P at D5/D7 cathodes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P

on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off

6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv

rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF board on IF-4 C1A terminal. You have separate Carrier Oscillators for RX and TX.

Also, the Car Level Pot has nothing to do with the Carrier Osc levels produced on the CAR Assembly Unit. The Car level pot unbalances the balanced modulator and determines the carrier output level from the BM.

You really need to measure CA-2 produced on the CAR-2 board. If you do not have 300mv of 8830.7mhz at TP-5 in CW mode when you flip to Send then you have to work your way back from TP-5 to CAR-2 board. CA2 can be checked on the 7th terminal up on the white terminal block on t

(Message over 64 KB, truncated)

45517. RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 07:54:17 UTC
From: fpath fpath
Topic: 45490 Message: 45517

G'day All,

Just for information and to support the statement that the plate has two dipping spots is correct. With the pointer at the appropriate band selection the dip is small but noticeable. The second dip is not at the 180 degree mark but more like 5 o'clock position for 20m and is more noticable, the output is still the same.

73s

Dave

VK5PDL

45518. RE: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 11:06:26 UTC
From: <wagstw46@...>
Topic: 45490 Message: 45518

Dave

Thanks. Now can you please explain to us all how a air variable capacitor that can turn physically 360 degrees and be direct drive driven can have 2 dips that are not very close to 180 degrees using the knob pointer as an indicator?

If you remove the PA cage cover what will you see?

Are the plates meshed exactly same amount at each dip only on the opposite side of the rotation ie at the normal scribed dip the plates are meshed toward the load cap and at the 2nd dip at the 1700 pointer position the plates are meshed on the final tube side?

Do we have a cap that has a different linearity curve from one side to the other?

Or is there some kind of reduction device on the pointer?

I submit (despite being told there is no reduction drive) that there is some type of reduction device on the front panel behind the knob that drives the capacitor and pointer. If you look at the knob it should have a slit in it. If it does not then make a lite mark on it or affix piece of tape on it. Now turn the knob and take the pointer thru 360 degrees of rotation and count the number of times the knob travels 360 degrees. You should find it is a ratio somewhere between 5 to 1 and 6 to 1. On the TS-830 it is 5.5 to 1 reduction. You could also mark the fiber coupler at the PA cage and count turns or take the PA cage cover off.

That makes a lot more sense than building an air variable cap with a different linearity curve on opposite sides of rotation.

So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance. The pointer is just not at 180 degrees for each dip due to the drive ratio.

So Dave if you get time appreciate you putting this mystery to bed.

To the Op I submit he does have two dips and he just needs to do a complete 360 degree rotation in Tune mode to find both of them as I previously suggested. To best of my knowledge there is no padder cap used on the Tank capacitor on 20 meters that if bad could affect the normal plate dip location.

Thanks

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

G'day All,

Just for information and to support the statement that the plate has two dipping spots is correct. With the pointer at the appropriate band selection the dip is small but

noticeable. The second dip is not at the 180 degree mark but more like 5 o'clock position for 20m and is more noticable, the output is still the same.

73s
Dave
VK5PDL

45519. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 11:24:42 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45519

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures

8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe

in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

I am using a Simpson 710 Frequency counter. Specs say 1 Meg input shunted by 30 pF. The slight differences in frequency readings between CJ3-CA2 and TP-5 is probably due to the cable capacitance of the cable between IF5-13 and CJ3-CA2.

I have been taking all of these measurements with the SG switch turned off and the heater switch turned off.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I mis-spoke in Item 2 when I said you cant measure carrier at TP-5 in Rx in any of the mode switch positions. There will be legitimate carrier but not of interest.

There will be Carrier at CA-2 and TP-5 in Rx in all positions of the mode switch that you should see, but it is meaningless for CW Tx operation. It was not correct for me to label it as "Leakage" signals.

It is there by design but not for Rx or Tx operation. CA-1 Carrier Osc signals are coupled to the CAR-2 board to amp Q3 and then on to TP-5 at IF board and then sampled and sent to the CCR lead to provide carrier oscillator signals for the Counter Mixer Board. So the carrier osc signals you were measuring at each position of the mode switch in Rx are there by design to feed the counter, but of no interest to us as not utilized for the BM and CW transmit.

So you will see approx 250mv rms at 8831.50 mhz in CW and LSB and 250mv at 8828.5mhz in LSB and FSK, but not used by the BM. BM is not used in Rx operation. So disregard these signal other than the low levels you measured cannot be correct if your counter is working properly. I suspect you are not using O-scope properly. Are you using a 10X probe?

What I meant to say is at CA-2 and TP-5 the only frequency and level we care about is in CW and FSK positions of the mode switch in Tx. CA-2 carrier oscillator should be approx 250mv rms @ 8830.70mhz when in CW and FSK mode when flipped to send. This is what you are trying to validate. Measure at TP-5 in FSK as you know it is working. So use it to get your O-scope set up correctly and you can see approx 850mv P-P at 8830.7mhz. Once you can read that on your O-scope now switch to CW mode and flip to send to measure carrier osc signal level at TP-5.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes this new format gives me problems as well.

1. You are getting proper dc bias voltage to the BM. You need to confirm you are getting the Carrier Osc signal.

2. You cannot measure any Carrier freq or level at TP-5 in RX for any position of the mode switch. You may read some leakage signals in RX mode but meaningless. The BM is only used for TX and not RX. Only time you can measure any meaningful Carrier Osc frequency or level at TP-5 is in TX with the mode switch in CW or FSK. Carrier in RX mode is applied to another Mixer called the Product Detector and it arrives at IF bo

(Message over 64 KB, truncated)

45520. Re: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 12:11:48 UTC
From: CROOKS David
Topic: 45490 Message: 45520

Terry,

Just for interest, you said "So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance."

Take an example of the cap starting at 0% mesh.
If the dip is found at 10 % mesh cw, the dip will also be found at 10 % mesh ccw with a small angle between them, not 180%.
This leads to two possible cases of one dip per rotation of the cap if:

1) the dip occurs at 100% meshed
or
2) the dip occurs at 0% meshed

What's the probability of case 1 or 2?

Cheers
the other Dave f4eyk

45521. RE: Re: [TS-520_820_530_830] TS520s coil cores

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-26 23:50:37 UTC
From: <peterlake2003@...>
Topic: 45501 Message: 45521

Hi Joe
Thanks for the info I will send him an e-mail, I know its a long shot to try and get these cores but I will keep trying.
Will the coil assemblies complete if required I like the radio and it would be a shame not be able to keep such a god rig on the air
Thank you once again for you help
73s
Peter
G8ZZL

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Peter,

Finding the proper sized cores will be a great problem. If, the cores are not totally broken,
and can be removed...they can usually be removed and turned end-for-end, as they are "hollow" all the way through. Removing them can present problems in itself. More on that later.....

I do not know of any supplier on your side of the pond..but over here, you can give Bob Mansker an email: ke5ftf@... He has a good supply of stuff for KW hybrids...but this may be a tall order.

Cheers..............

73 Joe
WB7UQU

On Saturday, October 26, 2013 10:38 AM, "peterlake2003@..." <peterlake2003@...> wrote:

Hi does any one know of a source for the cores to fit the following coils please,
The Drive / Oscillator / Antenna / Mixer
This was a second hand purchase that only operates on one band due to most of the above being cracked.
I would like to get the old girl on the air and operating on all bands, any help would be most appreciated.
73s
Peter G8ZZL

45522. RE: Ladder line adventures

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 03:41:04 UTC
From: clifford wright
Topic: 45442 Message: 45522

Good day!
I had to read this twice before I realised that what we had here was exactly my G5RV.
Except! Why do people continue to try and feed it with coax and no ATU.
You can get some rather poor SWR that way and I have even heard of coax melting under higher powers.
If you want to use a G5RV then try a Z match. This will give you 1:1 SWR on almost all bands.
Mine was not too great on 10 MHz but then I tried the expedient of putting a 1uH (self supporting) heavy wire inductor into one side of the ladder line and all was fine.
As wire antennas go it takes a bit of beating. But you have to be able to get your reactances
right for any particular frequency.
BTW I worked Ecuador from NZ recently using a 2 tube 1934 QST receiver and my TS820's TX.
Zl1BDA

45523. RE: Re: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 17:59:59 UTC
From: <wagstw46@...>
Topic: 45490 Message: 45523

Dave:

You are correct if you started with the plates 100 % open and dip occurred at 10% meshed CW then it would also occur at 10% meshed in the CCW direction and that would be significantly less than 180 degrees. Similarly if you continued to rotate shaft CW back to 10% mesh that would be much more than 180 degrees

Same with 3.5 mhz where plates are 100 % meshed at full CCW as indicated on the painted white arc semi circle travel. So to get back to 100% mesh you would have to turn the cap 360 degrees either direction to get back to max capacitance.

It depends on what band you are on as to how many degrees between the two dips.

I mispoke about the 180 degrees.

Point I am trying to make is the knob pointer will not be 180 degrees from the normal white painted arc dip location when you rotate the shaft and locate the 2nd dip. However at that point you will be at the same electrical point and have the same amount of capacitor plate mesh and the same capacitance to resonate with the particular tank coil tap you have selected with the band switch.

What got me into this discussion was the direction that was given to the Op to rotate the cap 180 degrees or rotate from North to South and he should see the other dip and that is not correct.

I was worried the Op would just turn the Tank cap 180 degrees and key rig in Tune and move knob a few degrees back and forth and find no dip and report back that he only has 1 dip.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Terry,

Just for interest, you said "So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance."
Take an example of the cap starting at 0% mesh.
If the dip is found at 10 % mesh cw, the dip will also be found at 10 % mesh ccw with a small angle between them, not 180%.
This leads to two possible cases of one dip per rotation of the cap if:

1) the dip occurs at 100% meshed
or
2) the dip occurs at 0% meshed

What's the probability of case 1 or 2?

Cheers
the other Dave f4eyk

45524. Re: Re: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 19:44:46 UTC
From: CROOKS David
Topic: 45490 Message: 45524

Terry,

It's interesting that we're thinking the same but our typed messages sometimes don't reflect that. I guess it's because we're human.

I hope the Op (Gary?) has found his missing dip!

Dave f4eyk

45525. BK Precision 2160 manual

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 22:10:29 UTC
From: Rick
Topic: 45525 Message: 45525

I am in need of the above operator manual. I seem to be able to locate the 2160A manual with no problem, but the plain 2160 seems to be scarce. If you have one for sale or a good copy of one please contact me off list with details.

Thanks,

Rick/K5IAR

45526. RE: Re: Re: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 21:26:18 UTC
From: <wagstw46@...>
Topic: 45490 Message: 45526

Dave:

I would like to be around when these things evolve to multi-party Skype like capability so we could all observe and demonstrate in real time. How much more efficient this would be. Not likely in my life time.

Yes it would be nice if these fellows would come back and give some closure so we can all learn. I have asked for this before that they come back and tell us what they found even if operator error. No shame in that, but when people invest time in trying to help and others are following along it would be nice to know what they found and how they fixed it.

73s
Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Terry,

It's interesting that we're thinking the same but our typed messages sometimes don't reflect that. I guess it's because we're human.

I hope the Op (Gary?) has found his missing dip!

Dave f4eyk

45527. Re: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 21:37:35 UTC
From: Ron
Topic: 45490 Message: 45527

Hey Terry , I have checked all that we discussed I did find that the short was on the board that holds the two 110 resisters :: the yellow wire from rectifier is on post 1 along with 1 of the resisters. The other one is in series with brown wire on 2 post then end of second resister is on 3rd post which is a ground to chassis then the green wire and the resister going to final is on post 5. When I remove the board from chassis all connections read approx 79k ohms

Ron KK4PWF

On Oct 27, 2013, at 4:26 PM, <wagstw46@...> wrote:

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> Dave:
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> I would like to be around when these things evolve to multi-party Skype like capability so we could all observe and demonstrate in real time. How much more efficient this would be. Not likely in my life time.
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> Yes it would be nice if these fellows would come back and give some closure so we can all learn. I have asked for this before that they come back and tell us what they found even if operator error. No shame in that, but when people invest time in trying to help and others are following along it would be nice to know what they found and how they fixed it.
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> 73s
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> Terry K9TW
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> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
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> □
> Terry,
>
> It's interesting that we're thinking the same but our typed messages sometimes don't reflect that. I guess it's because

we're human.
>
> I hope the Op (Gary?) has found his missing dip!
>
> Dave f4eyk
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45528. Re: TS520s coil cores

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 22:20:18 UTC
From: Dave
Topic: 45501 Message: 45528

Although it has been a while I was was not able to find any for mine through normal channels. I was however able to scavenge enough from old CB's that were the correct size. I was still short so I was able to pull a couple from the 160 meter band to get me up on 80-10. I now have learned to never turn down free radio's, even CB radios. Hope you find some.

Cheers,
Dave N6DLH

45529. Re: [TS-520_820_530_830] TS520s coil cores

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 22:22:00 UTC
From: Wes Will
Topic: 45501 Message: 45529

On 10/26/2013 06:50 PM, peterlake2003@... wrote:
> try and get these cores but I will keep trying.

By any chance does anyone on this list have precise measurements of size - length, diameter, thread pitch (in either SAE or Metric measurements, I will convert as needed), as well as ferric composition data for these hard-to-find slugs?

I am NOT stupid enough to be thinking about wanting anyone to pull one out of a working rig! Instead, if someone is -already- having trouble in that area, and has one in hand, taking some precise measurements wouldn't be much of an additional chore.

With that information it might (MIGHT! NO BETS, NOT ANY SORT OF GUARANTEE.) be possible to find some manufacturer making a similar-enough slug for some other coil in some other kind of equipment that will allow us to scavenge some spares. I would be willing to look into it, I seem to recall hearing about a Polish company which might be still making such things.

So, if anyone has one of the slugs to hand, and the bit of skill required to read a caliper or micrometer, that would be a great start.

The type of ferrite is another item, it might be possible to get that information from Kenwood if it isn't already known. (The size and density of the granules, as well as the specific composition of the ferrite compound, makes a difference in the permeability of the core. It may be possible to compensate for it, at least to some extent, if we can't find an exact match.)

If we cannot find one to scavenge, between the lot of us and all the people and companies with which we together have contact, there ought to be some way to maneuver all that into at least one minimal production run of tuning slugs; a small enough run that we (as a group) could afford paying for it, but large enough to keep all of our rigs in coil tuning slugs for the foreseeable future.

It would probably require everyone who wants some to chip in a small amount to buy the entire output of a run (however many that might be), but you would be guaranteed enough slugs for all the hybrid rigs you could ever want. Those who didn't chip in initially would have to pay a premium price later (likely from one of those who did use foresight, and therefore have excess parts to their requirements).

Prices and such would be figured IF we can find someone who has or can make what we need.

I don't know about anyone else, but I think this might be worth looking into, at the very least. I have done similar things when we needed parts for R-390A receivers when I was still in the USAF. (A small West German machine shop made us a batch of one specific gear for the tuner drive transmission monstrosity, one which kept breaking on us and quickly went out of stock in the spares down in the electronic repair shop. That alone tells you it was awhile ago, right there, more than the fact that we were still using the R-390A; there was still an East and a West Germany then. But you might be amazed to find out that the last government order for Collins R-390A receivers was

1984!)

There is a site for help in repairing old (mostly military) 'valved' HF rigs:

http://www.vk2bv.org/radio/parry3.htm .

I find it fascinating, as well as quite helpful sometimes.

So, measurements of that tuning slug, anyone??

--
Wes Will
N9KDY

45530. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 22:35:03 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45530

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:

8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also

still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple

signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no

output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board.

We know that you have TIF output in FSK mode as you reported good RF output in that mode. I dont kow if you keyed rig in FSK and noted the 170hz shift or not, but not important right now. Also, you should have noted that the RF output in FSK is lower as the 820 lowers the Finals Screen Grid voltage in FSK mode so the tubes plate dissipation is not exceeded in this high duty cycle mode.

That should be enough for now.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is what I am seeing:
TP-5 and CJ3-CA2 have the same levels in CW and FSK modes: 820mV P-P in RX mode. Flipping Send switch the level drops to 640mV P-P. I have a Tektronix 2445 Scope and have the probe in 10X to prevent loading the circuit.

Frequencies measured at CJ3-CA2:
RX mode FSK - 8.828414 - TX mode FSK 8.830620
RX mode LSB - 8.828414 - TX mode LSB 8.828579
RX mode USB - 8.831460 - TX mode USB 8.831625
RX mode CW - 8.831460 - TX mode CW 8.830777

Frequencies measured at TP-5:
RX mode FSK - 8.828410 - TX mode FSK 8.830616
RX mode LSB - 8.828410 - TX mode LSB 8.828575
RX mode USB - 8.831450 - TX mode USB 8.831622
RX mode CW - 8.831446 - TX mode CW 8.830773

(Message over 64 KB, truncated)

45531. 520 versus 520S Short on 210

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 23:23:12 UTC
From: <wagstw46@...>
Topic: 45531 Message: 45531

Ron:

If the two 100k ohm divider resistors that feed STB are on the rectifier board then you have a TS520S and not a TS520. I thought we were working on a TS-520? I decided to post as your response came on Gordons thread about contesting?

Did you have a carbon track to board ground plane or what was the failure on the board? Did you swap boards or make a repair?

I assume R6 470 ohm is no longer smoking and you have good 210A screen grid voltage for the finals and the driver tube?

Terry K9TW

45532. Re: [TS-520_820_530_830] 520 versus 520S Short on 210

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-27 23:51:27 UTC
From: Ron
Topic: 45531 Message: 45532

Terry we are working on a ts 520 the two resistors are on the phenolic terminal strip

Ron KK4PWF

On Oct 27, 2013, at 6:23 PM, <wagstw46@...> wrote:

>
>
> Ron:
>
> If the two 100k ohm divider resistors that feed STB are on the rectifier board then you have a TS520S and not a TS520. I thought we were working on a TS-520? I decided to post as your response came on Gordons thread about contesting?
>
> Did you have a carbon track to board ground plane or what was the failure on the board? Did you swap boards or make a repair?
>
> I assume R6 470 ohm is no longer smoking and you have good 210A screen grid voltage for the finals and the driver tube?
>
> Terry K9TW
>
>
>
>
>

45533. Re: [TS-520_820_530_830] 520 versus 520S Short on 210

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 02:54:36 UTC
From: Ron
Topic: 45531 Message: 45533

Nope not yet lol

Ron KK4PWF

On Oct 27, 2013, at 6:23 PM, <wagstw46@yahoo.com> wrote:

>
>
> Ron:
>
> If the two 100k ohm divider resistors that feed STB are on the rectifier board then you have a TS520S and not a TS520. I thought we were working on a TS-520? I decided to post as your response came on Gordons thread about contesting?
>
> Did you have a carbon track to board ground plane or what was the failure on the board? Did you swap boards or make a repair?
>
> I assume R6 470 ohm is no longer smoking and you have good 210A screen grid voltage for the finals and the driver tube?
>
> Terry K9TW
>
>
>
>
>

45534. Recording working / nominal voltages from my working, nominal hybrid.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 04:00:54 UTC
From: Wes Will
Topic: 45531 Message: 45534

Greetings.

The mention of keeping a record of various voltages and / or waveforms found in a repaired or never-broken hybrid has come across the board now and again. That it should be done is easy, that's just good sense to do something like that.

Only question I have, and the reason is due to things such as bad diagrams and schematics among other things, is

WHICH voltages/waveforms, at WHAT test points, components, or terminals?

The default settings to use for various controls prior to making any measurements, that I can likely work out (but I would LOVE to hear advice on that as well). Mostly the same ones as are used as defaults for the schematics in the manuals, I would suspect.

Fine, but for one thing - those are "Receive Only" in the Kenwood literature; I would also like a set for Transmit, too. Dummy loaded, of course, and plate / finals properly loaded, too.

And what would change at various points, should measurements be taken on all of the bands the radio has? If so, which ones and what will also be adjusted (besides transmitter finals loading)??

If I can get answers for one radio (I've a TS-520SE, myself, so I'd like to start there if possible) then I can offer to make up a simple spreadsheet, document, form, or something, to record all of these things for troubleshooting later.

Maybe just a simple table or form that can be kept on the computer, or printed, filled in, and stored in the documentation for the equipment? Or keep it in both formats, if you like, one copy each way? My preference, for major convenience' sake, is both ways.

I suspect a LOT of things would be identical from one model to the next. This would make creating a model-specific form fairly simple, too. Once finished, the blank forms/spreadsheets could be stored on the Yahooligan group site, there seems to be plenty of room.

Should I start with the bits I find on the schematics and in the manual for the 520S? (The 520SE seems to be quite left out, documentation-wise. Sort of an "also-ran" a lot of ways. Most things just say "See the docs for the 520S.")

--
Wes Will
N9KDY

45535. RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 08:59:28 UTC
From: fpath fpath
Topic: 45490 Message: 45535

Terry,

Fully agree, I only jumped in because of the comment that no 2nd dip, which supported your comments of a 2nd dip due to the electrical properties of the tuning cap, I knew what you meant about the position of the pointer versus the position of the fins. Will send you some pictures off list to show my findings and supports your comments, albeit the pointer not exactly but the theory was perfect. Only thing I cannot work out is on the 530s one revolution of the dial\pointer is 360 exactly, but there is some form of reduction going on with the pointer, as when you go through different degrees of the pointer it doesn't match the pointer, but not going to get into the discussion until I've pulled the panel apart and done the physics on the drive.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@yahoo.com
Date: Sun, 27 Oct 2013 10:59:59 -0700
Subject: RE: Re: RE: [TS-520_820_530_830] ts530s tuning

Dave:

You are correct if you started with the plates 100 % open and dip occurred at 10% meshed CW then it would also occur at 10% meshed in the CCW direction and that would be significantly less than 180 degrees. Similarly if you continued to rotate shaft CW back to 10% mesh that would be much more than 180 degrees

Same with 3.5 mhz where plates are 100 % meshed at full CCW as indicated on the painted white arc semi circle travel. So to get back to 100% mesh you would have to turn the cap 360 degrees either direction to get back to max capacitance.

It depends on what band you are on as to how many degrees between the two dips.

I mispoke about the 180 degrees.

Point I am trying to make is the knob pointer will not be 180 degrees from the normal white painted arc dip location when you rotate the shaft and locate the 2nd dip. However at that point you will be at the same electrical point and have the same amount of capacitor plate mesh and the same capacitance to resonate with the particular tank coil tap you have selected with the band switch.

What got me into this discussion was the direction that was given to the Op to rotate the cap 180 degrees or rotate from North to South and he should see the other dip and that is not correct.

I was worried the Op would just turn the Tank cap 180 degrees and key rig in Tune and move knob a few degrees back and forth and find no dip and report back that he only has 1 dip.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐
Terry,

Just for interest, you said "So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance."

Take an example of the cap starting at 0% mesh.
If the dip is found at 10 % mesh cw, the dip will also be found at 10 % mesh ccw with a small angle between them, not 180%.
This leads to two possible cases of one dip per rotation of the cap if:

1) the dip occurs at 100% meshed
or
2) the dip occurs at 0% meshed

What's the probability of case 1 or 2?

Cheers
the other Dave f4eyk

45536. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 10:06:08 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45536

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:

8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv

D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the

noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

Unfortunately KW didnt provide a nice test point at the output of the Balanced Mod to measure the DSBSC signal in SSB mode or the Carrier in CW mode. However, you can get on the Drain of Q10 with a hat pin or floral arrangement pin and mini-grabber test lead. If you locate the BM ring diodes D26-D29 and then output Xfmr T10 you will see Q10. It is a metal can dual gate mosfet. Looking down on the can the Drain is the upper right lead. You should read approx 800mv P-P here. This signal is routed to the Xtal filter thru switcing diodes.

Do you have the CW filter installed. It is rare but could have a bad filter. More common to have a bad switching diode.

After signal passes thru the Xtal filter it is applied to Gate 1 of TIF amp Q1. It is also a metal can dual gate mosfet and sits outside and almost between the two filters at the inboard end. Looking down on Q1 Gate 1 is at 1200. Should have approx 160mv P-P here. The Drain is at 0600 and should have approx 1000mv P-P. TIF output is on Conn IF-3 Pin 2 and should have approx 850mv P-P here. You can jump right to measuring TIF output if you want and if good then off to the RF board

(Message over 64 KB, truncated)

45537. RE: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 10:11:29 UTC
From: <wagstw46@...>
Topic: 45490 Message: 45537

Dave:

I appreciate your help. Years ago I had Heath and Johnson rigs and they used Jackson drives for the VFO air variable caps. National also made Vernier drives. I never took one apart to see how they worked. I seem to recall most were 6 to 1 and 5 to 1 ratios. Jackson had ball bearings in them and people would take them apart and clean and re-assemble them.

No need to go to all that trouble unless you just have burning desire to see how it works. Appears it is a small package device.

We just need to get the Op to make sure his shaft couplers are all tight, the pointer is at far left side of the white arc when cap plates are fully meshed, and then run thru full 360 degrees in Tune mode to find both dips.

I know of no way that there can be only one dip if the cap is actually turning 360 degrees from full closed to full closed again. I suppose if there was plate damage at some point in that travel that shorted the plates at that location, but I would think that would be very noticeable as you traveled thru that location?

Terry
K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Fully agree, I only jumped in because of the comment that no 2nd dip, which supported your comments of a 2nd dip due to the electrical properties of the tuning cap, I knew what you meant about the position of the pointer versus the position of the fins. Will send you some pictures off list to show my findings and supports your comments, albeit the pointer not exactly but the theory was perfect. Only thing I cannot work out is on the 530s one revolution of the dial\pointer is 360 exactly, but there is some form of reduction going on with the pointer, as when you go through different degrees of the pointer it doesn't match the pointer, but not going to get into the discussion until I've pulled the panel apart and done the physics on the drive.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Sun, 27 Oct 2013 10:59:59 -0700
Subject: RE: Re: RE: [TS-520_820_530_830] ts530s tuning

Dave:

You are correct if you started with the plates 100 % open and dip occurred at 10% meshed CW then it would also occur at 10% meshed in the CCW direction and that would be significantly less than 180 degrees. Similarly if you continued to rotate shaft CW back to 10% mesh that would be much more than 180 degrees

Same with 3.5 mhz where plates are 100 % meshed at full CCW as indicated on the painted white arc semi circle travel. So to get back to 100% mesh you would have to turn the cap 360 degrees either direction to get back to max capacitance.

It depends on what band you are on as to how many degrees between the two dips.

I mispoke about the 180 degrees.

Point I am trying to make is the knob pointer will not be 180 degrees from the normal white painted arc dip location when you rotate the shaft and locate the 2nd dip. However at that point you will be at the same electrical point and have the same amount of capacitor plate mesh and the same capacitance to resonate with the particular tank coil tap you have selected with the band switch.

What got me into this discussion was the direction that was given to the Op to rotate the cap 180 degrees or rotate from North to South and he should see the other dip and that is not correct.

I was worried the Op would just turn the Tank cap 180 degrees and key rig in Tune and move knob a few degrees back and forth and find no dip and report back that he only has 1 dip.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐ Terry,

Just for interest, you said "So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance."
Take an example of the cap starting at 0% mesh.
If the dip is found at 10 % mesh cw, the dip will also be found at 10 % mesh ccw with a small angle between them, not 180%.
This leads to two possible cases of one dip per rotation of the cap if:

1) the dip occurs at 100% meshed
or
2) the dip occurs at 0% meshed

What's the probability of case 1 or 2?

Cheers
the other Dave f4eyk

45538. RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 10:16:17 UTC
From: fpath fpath
Topic: 45490 Message: 45538

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Sun, 27 Oct 2013 04:06:26 -0700
Subject: RE: RE: [TS-520_820_530_830] ts530s tuning

Dave

Thanks. Now can you please explain to us all how a air variable capacitor that can turn physically 360 degrees and be direct drive driven can have 2 dips that are not very close to 180 degrees using the knob pointer as an indicator? What I see is the actual fins are about 180 opposite phase, whilst this doesnt corrolate directly to pointer due to some form of reduction drive, the physical aspects are as you stated. The same amount of fins are being meshed just on the opposite side

If you remove the PA cage cover what will you see?

Are the plates meshed exactly same amount at each dip only on the opposite side of the rotation ie at the normal scribed dip the plates are meshed toward the load cap and at the 2nd dip at the 1700 pointer position the plates are meshed on the final tube side?

Do we have a cap that has a different linearity curve from one side to the other?

Or is there some kind of reduction device on the pointer?

I submit (despite being told there is no reduction drive) that there is some type of reduction device on the front panel behind the knob that drives the capacitor and pointer. If you look at the knob it should have a slit in it. If it does not then make a lite mark on it or affix piece of tape on it. Now turn the knob and take the pointer thru 360 degrees of rotation and count the number of times the knob travels 360 degrees. You should find it is a ratio somewhere between 5 to 1 and 6 to 1. On the TS-830 it is 5.5 to 1 reduction. You could also mark the fiber coupler at the PA cage and count turns or take the PA cage cover off.

That makes a lot more sense than building an air variable cap with a different linearity curve on opposite sides of rotation.

So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance. The pointer is just not at 180 degrees for each dip due to the drive ratio.

So Dave if you get time appreciate you putting this mystery to bed.

To the Op I submit he does have two dips and he just needs to do a complete 360 degree rotation in Tune mode to find both of them as I previously suggested. To best of my knowledge there is no padder cap used on the Tank capacitor on 20 meters that if bad could affect the normal plate dip location.

After looking at the diagram, yes concur that there is no addition capacitance from the padder caps, what is seen is VC2 part 2 of the air cap comes into play, this adds extra capacitance. Now with this information is it possible that there is a slight difference due to a previous arching issue, are the fins slightly out of alignment.

73s
Dave
VK5PDL

Thanks

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

G'day All,

Just for information and to support the statement that the plate has two dipping spots is correct. With the pointer at the appropriate band selection the dip is small but noticeable. The second dip is not at the 180 degree mark but more like 5 o'clock position for 20m and is more noticable, the output is still the same.

73s
Dave
VK5PDL

45539. RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 10:22:43 UTC
From: fpath fpath
Topic: 45490 Message: 45539

Terry,

Glad to be some sort of help. Yes one of the first things I suggested that the couplers are checked and are firm, which the OP did confirm, were OK. Yes have a desire now to confirm as want to work out the physics, I think from the information we have had so far is the plate is loading OK but as there have been new tubes inserted, is it possible the dip on the first (correct pointer location) is so minor, I know I only get about 5ma change on the first dip. I'll report back once I get batteries for cap meter and this may explain a little more.

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@yahoo.com
Date: Mon, 28 Oct 2013 03:11:29 -0700
Subject: RE: RE: [TS-520_820_530_830] ts530s tuning

Dave:

I appreciate your help. Years ago I had Heath and Johnson rigs and they used Jackson drives for the VFO air variable caps. National also made Vernier drives. I never took one apart to see how they worked. I seem to recall most were 6 to 1 and 5 to 1 ratios. Jackson had ball bearings in them and people would take them apart and clean and re-assemble them.

No need to go to all that trouble unless you just have burning desire to see how it works. Appears it is a small package device.

We just need to get the Op to make sure his shaft couplers are all tight, the pointer is at far left side of the white arc when cap plates are fully meshed, and then run thru full 360 degrees in Tune mode to find both dips.

I know of no way that there can be only one dip if the cap is actually turning 360 degrees from full closed to full closed again. I suppose if there was plate damage at some point in that travel that shorted the plates at that location, but I would think that would be very noticeable as you traveled thru that location?

Terry
K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Fully agree, I only jumped in because of the comment that no 2nd dip, which supported your comments of a 2nd dip due to the electrical properties of the tuning cap, I knew what you meant about the position of the pointer versus the position of the fins. Will send you some pictures off list to show my findings and supports your comments, albeit the pointer not exactly but the theory was perfect. Only thing I cannot work out is on the 530s one revolution of the dial\pointer is 360 exactly, but there is some form of reduction going on with the pointer, as when you go through different degrees of the pointer it doesn't match the pointer, but not going to get into the discussion until I've pulled the panel apart and done the physics on the drive.

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Sun, 27 Oct 2013 10:59:59 -0700
Subject: RE: Re: RE: [TS-520_820_530_830] ts530s tuning

Dave:

You are correct if you started with the plates 100 % open and dip occurred at 10% meshed CW then it would also occur at 10% meshed in the CCW direction and that would be significantly less than 180 degrees. Similarly if you continued to rotate shaft CW back to 10% mesh that would be much more than 180 degrees

Same with 3.5 mhz where plates are 100 % meshed at full CCW as indicated on the painted white arc semi circle travel. So to get back to 100% mesh you would have to turn the cap 360 degrees either direction to get back to max capacitance.

It depends on what band you are on as to how many degrees between the two dips.

I mispoke about the 180 degrees.

Point I am trying to make is the knob pointer will not be 180 degrees from the normal white painted arc dip location when you rotate the shaft and locate the 2nd dip. However at that point you will be at the same electrical point and have the same amount of capacitor plate mesh and the same capacitance to resonate with the particular tank coil tap you have selected with the band switch.

What got me into this discussion was the direction that was given to the Op to rotate the cap 180 degrees or rotate from North to South and he should see the other dip and that is not correct.

I was worried the Op would just turn the Tank cap 180 degrees and key rig in Tune and move knob a few degrees back and forth and find no dip and report back that he only has 1 dip.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

☐
Terry,

Just for interest, you said "So each dip is occurring at 180 degrees of rotation which is of course the same amount of plate mesh and capacitance."

Take an example of the cap starting at 0% mesh.
If the dip is found at 10 % mesh cw, the dip will also be found at 10 % mesh ccw with a small angle between them, not 180%.
This leads to two possible cases of one dip per rotation of the cap if:

1) the dip occurs at 100% meshed
or
2) the dip occurs at 0% meshed

What's the probability of case 1 or 2?

Cheers
the other Dave f4eyk

45540. RE: Recording working / nominal voltages from my working, nominal hybrid.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 10:46:26 UTC
From: <wagstw46@...>
Topic: 45531 Message: 45540

Wes

You already have the dc voltages in Rx and Tx mode for the active devices (DSG and CBE). and you have the TX Level Diagram that shows the RF voltage levels from the Bal Mod to the Finals control grids and the RX Level Diagrams that show what RF sig gen levels you must inject for a constant 50 milliwatt output. .

Problem is getting access to the device leads on component side of the board. TS-820 is probably the easiest as a little less dense and devices are spaced a little higher off the board.

Also some of the values listed are not correct. S-,meter driver comes to mind as you need to run RF gain thru its range and record the dc voltage at full ccw and at full cw.

Of course would be good to record DC and Signal voltages for a rig that is working to factory spec in Rx and Tx modes. Problem is how do you know it is aligned to spec absent some decent test gear. Can use Marker and S-meter as rough indication of performance or if you are happy based on your ear. .

It is also good to record the dc voltages at all the Mixer devices and the goes in and goes out signal voltages (IF, RF, and LO signal levels).

Another handy bit of info is to record all the power supply voltages under load, record the normal load current (requires lifting the load leads and inserting milli ampere meter in circuit), and/or recording the normal resistance to ground that each supply feeds. This comes in very handy trouble shooting the Rect boards and AVR boards.

If you have a rig that you are happy with its Rx and Tx performance you could run Rx and Tx level diagrams and record your results. However, you already have the base line data in the Service manual for this if you have a future need.

One thing I do notice is people struggle taking TX Level Diagrams to troubleshoot low or missing RF output. For that reason I think a more gainful exercise for any Hybrid owner who does own repair would be to run the TX Level diagrams when your rig is producing spec RF output into dummy load.. Do that and record your as found levels for future transmit problems.

I suggest you should do this to learn where the test points are at and how you can access them and how your RF measuring instrumentation will affect the results that you get.

How to use the RF measuring Instruments and instrument effect is a common problem that results in readings that vary from the service manual readings and confuses folks and causes them to go down wrong paths..

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Greetings.

The mention of keeping a record of various voltages and / or waveforms found in a repaired or never-broken hybrid has come across the board now and again. That it should be done is easy, that's just good sense to do something like that.

Only question I have, and the reason is due to things such as bad diagrams and schematics among other things, is

WHICH voltages/waveforms, at WHAT test points, components, or terminals?

The default settings to use for various controls prior to making any measurements, that I can likely work out (but I would LOVE to hear advice on that as well). Mostly the same ones as are used as defaults for the schematics in the manuals, I would suspect.

Fine, but for one thing - those are "Receive Only" in the Kenwood literature; I would also like a set for Transmit, too. Dummy loaded, of course, and plate / finals properly loaded, too.

And what would change at various points, should measurements be taken on all of the bands the radio has? If so, which ones and what will also be adjusted (besides transmitter finals loading)??

If I can get answers for one radio (I've a TS-520SE, myself, so I'd like to start there if possible) then I can offer to make up a simple spreadsheet, document, form, or something, to record all of these things for troubleshooting later.

Maybe just a simple table or form that can be kept on the computer, or printed, filled in, and stored in the documentation for the equipment? Or keep it in both formats, if you like, one copy each way? My preference, for major convenience' sake, is both ways.

I suspect a LOT of things would be identical from one model to the next. This would make creating a model-specific form fairly simple, too. Once finished, the blank forms/spreadsheets could be stored on the Yahooligan group site, there seems to be plenty of room.

Should I start with the bits I find on the schematics and in the manual for the 520S? (The 520SE seems to be quite left out, documentation-wise. Sort of an "also-ran" a lot of ways. Most things just say "See the docs for the 520S.")

--
Wes Will
N9KDY

45541. Re: [TS-520_820_530_830] Re: TS520s coil cores

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 13:13:59 UTC
From: peter lake
Topic: 45501 Message: 45541

On Sun, 27/10/13, Dave <dl.hedrick@...> wrote:

Subject: [TS-520_820_530_830] Re: TS520s coil cores
To: TS-520_820_530_830@yahoogroups.com
Date: Sunday, 27 October, 2013, 22:20

Thanks Dave I will look down that route, plenty of old CBs on the market

Peter
G8ZZL

Although it has been a while I was was not able to
find any for mine through normal channels. I was however
able to scavenge enough from old CB's that were the
correct size. I was still short so I was able to pull a
couple from the 160 meter band to get me up on 80-10. I now
have learned to never turn down free radio's, even CB
radios. Hope you find some.

Cheers,

Dave N6DLH

45542. RE: Re: [TS-520_820_530_830] 520 versus 520S Short on 210

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 13:34:07 UTC
From: <wagstw46@...>
Topic: 45531 Message: 45542

OK I thought I read about problems with 100k resistors on a "board" ?

Ron:

This is a very simple classic two resistor voltage divider. Couple of ways to provide a lower dc voltage from a higher dc voltage. 1. Use a series dropping resistor Or 2. Use a voltage divider. Series resistor method has poor regulation so can improve upon that somewhat by using a divider. ARRL Handbook under AC Power Supplies chapter describes Voltage Dividers and the associated calcs.

You need approx 105vdc for STB so KW takes two 100k ohm resistors and places them in series. At free end of 1st resistor R16 connect 210vdc and at free end of the 2nd resistor R17 connect it to chassis ground. Now at the center of the two the voltage divides in half. Current with no load connected to the center would be I= E/R or 210/200k = 1ma. So very little power is being dissipated by these resistors and they should never over heat or change value over time enough to present a 198 ohm short on your 210A supply.

In practice STB presents approx 600k load across the 2nd 100k resistor R17 so the equivalent resistance of R17 is 600 x 100/700 = 86k ohms. So the voltage does not divide exactly in half but very close.

You can lift the 210vdc lead off top of R16 and lift the 105vdc (STB feed) lead off the center and then measure the resistance of each 100k resistor.

It would be extremely rare for these resistors not to measure very close to 100k each.

More likely problem would be a carbon track on the back side of the phenolic terminal strip that would be out of your view. That track would almost have to be at the top of R16 to ground. Not a very likely failure.

You can also measure resistance of the lifted STB lead.

Pretty sure I suggested that you make these measurements some time ago?

If you lift the 210 feed off of R16 do you now get normal screen grid voltage on the finals and driver tube and no overheating of R6 470 ohm series resistor?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry we are working on a ts 520 the two resistors are on the phenolic terminal strip

Ron KK4PWF

On Oct 27, 2013, at 6:23 PM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

If the two 100k ohm divider resistors that feed STB are on the rectifier board then you have a TS520S and not a TS520. I thought we were working on a TS-520? I decided to post as your response came on Gordons thread about contesting?

Did you have a carbon track to board ground plane or what was the failure on the board? Did you swap boards or make a repair?

I assume R6 470 ohm is no longer smoking and you have good 210A screen grid voltage for the finals and the driver tube?

Terry K9TW

45543. RE: RE: [TS-520_820_530_830] ts530s tuning

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 13:50:12 UTC
From: <wagstw46@...>
Topic: 45490 Message: 45543

Dave:

As to 5ma initial dip that is another reason why I recommend new folks use an external wattmeter. The initial peak in RF output power on a wattmeter is much more discernable than the initial plate current dip. I also tell them to make sure that the Plate Load cap plates are fully meshed (full CCW on the TS530) so they can see this small dip. Of course after getting the initial dip then go to CW mode and now with full SG voltage applied will be able to see the dip much easier.

After they make that initial dip if they follow the operating manual instructions they will use relative RF output power to load the rig and not be concerned about plate current dip.

So in Tune mode the OP needs to make sure the Plate Load cap is full CCW and then rotate the Plate Tune cap thru its complete range to locate both dips.

I had not thought about that he might have the Plate load cap plates unmeshed.
Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Glad to be some sort of help. Yes one of the first things I suggested that the couplers are checked and are firm, which the OP did confirm, were OK. Yes have a desire now to confirm as want to work out the physics, I think from the information we have had so far is the plate is loading OK but as there have been new tubes inserted, is it possible the dip on the first (correct pointer location) is so minor, I know I only get about 5ma change on the first dip. I'll report back once I get batteries for cap meter and this may explain a little more.

73s
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Mon, 28 Oct 2013 03:11:29 -0700
Subject: RE: RE: [TS-520_820_530_830] ts530s tuning

Dave:

I appreciate your help. Years ago I had Heath and Johnson rigs and they used Jackson drives for the VFO air variable caps. National also made Vernier drives. I never took one apart to see how they worked. I seem to recall most were 6 to 1 and 5 to 1 ratios. Jackson had ball bearings in them and people would take them apart and clean and re-assemble them.

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K9TW.

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73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Sun, 27 Oct 2013 10:59:59 -0700
Subject: RE: Re: RE: [TS-520_820_530_830] ts530s tuning

Dave:

You are correct if you started with the plates 100 % open and dip occurred at 10% meshed CW then it would also occur at 10% meshed in the CCW direction and that would be significantly less than 180 degrees. Similarly if you continued to rotate shaft CW back to 10% mesh that would be much more than 180 degrees

Same with 3.5 mhz where plates are 100 % meshed at full CCW as indicated on the painted white arc semi circle travel. So to get back to 100% mesh you would have to turn the cap 360 degrees either direction to get back to max capacitance.

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point you will be at the same electrical point and have the same amount of capacitor plate mesh and the same capacitance to resonate with the particular tank coil tap you have selected with the band switch.

What got me into this discussion was the direction that was given to the Op to rotate the cap 180 degrees or rotate from North to South and he should see the other dip and that is not correct.

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Terry K9TW

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☐ Terry,

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1) the dip occurs at 100% meshed
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What's the probability of case 1 or 2?

Cheers
the other Dave f4eyk

45544. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 14:09:19 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45544

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

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The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram, only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Good job. Much better.

If I understand your chart you are telling me that you have approx 640mv P-P @ 8.83077 at TP-5 in CW mode with rig flipped to Send (heaters off and SG switch off). 900mv P-P is attainable by adjusting T1 on CAR-2 board, but can do later unless you want to peak it now. 640mv will work for testing.

If this is true then you have confirmed that you have the two things you need at the Balanced Mod to produce RF output from it in CW mode. 1. Offset bias voltage and 2. Proper Carrier freq and level.

From the BM output the CW signal is routed to the Crystal IF Filter and then to Q1 the Transmit IF Amp or TIF amp. TIF signal leaves the IF board and is routed to the RF board to the TX Mixer where it is mixed with VCO to produce the actual transmit rf drive signal. No TIF signal and there will be no RF drive and no RF output. Also no VCO or low VCO level and no rf drive. Lets validate that we have TIF signal in CW mode first.

45545. MC-60 mic issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 14:20:26 UTC
From: cliffro@bellsouth.net
Topic: 45545 Message: 45545

Hi,
I have an MC-60 mic that works great except for the lock button for transmit. It appears that a previous owner must have removed the mechanical linkage that makes the lock work. Does anyone have pictures of this mechanism or a link of where to get this part?

Thanks and 73's

KK4JRS

45546. Re: [TS-520_820_530_830] 520 versus 520S Short on 210

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 19:59:17 UTC
From: Ron
Topic: 45531 Message: 45546

Hey Terry when I replace the 100 ohm with 100k ohm I will get back with ya !!! Duh. Lol I gotta kick myself in the a@@ I guess I need to slow down an look at details. I did get a 3by 5 of the schematic of the 520 now I can see the whole thing Laters to all the newbies ; look closely at parts list !!!!

Ron KK4PWF

On Oct 27, 2013, at 6:23 PM, <wagstw46@...> wrote:

>
>
> Ron:
>
> If the two 100k ohm divider resistors that feed STB are on the rectifier board then you have a TS520S and not a TS520. I thought we were working on a TS-520? I decided to post as your response came on Gordons thread about contesting?
>
> Did you have a carbon track to board ground plane or what was the failure on the board? Did you swap boards or make a repair?
>
> I assume R6 470 ohm is no longer smoking and you have good 210A screen grid voltage for the finals and the driver tube?
>
> Terry K9TW
>
>
>
>
>

45547. Reducing the 520 & 520S Parts....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 21:00:55 UTC
From: <ke5ftf@...>
Topic: 45547 Message: 45547

We made the move to Wichita Falls Texas & enjoying my grandkids until they become teenagers.. :) ...
I plan on reducing my parts on the 520 & 520S so just give me a quick email on what you may need for a repair or just a spare board...
Will give you a reduced price...
All parts are clean & benched for proper operation...
Thanks
Bob
512-410-5092
ke5ftf...at.. mail.com

45548. YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-28 23:00:10 UTC
From: <bvelasquez@...>
Topic: 45548 Message: 45548

I'm new to the Kenwood Hybrid. I've been reading quite a bit about them, and one thing in particular I find is there are so many different ways people tune the transceiver. I was wondering if anyone here could recommend a YouTube video that demonstrates the best way to tune the hybrid for transmit. I've found a few YouTube videos. None of them seem to follow the manual when tuning.

73,

Barry
K0DDR

45549. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 02:22:30 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45549

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

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8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc

CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or

850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off
6. Flip to Send to take RF drive levels

So the differences in voltages may be due to where we each have our Car Level pot set at.

Suggest you measure the voltage and frequency of the TIF signal at IF-3 Pin 2 one more time and it should be approx 250mv rms or 700mv P-P @ 8830.7mhz.

If you have close to this time to move on to the RF board. I must say this is getting a little odd as you have good output ini SSB and FSK which tells us you have good TIF level and the TX Mixer on RF Board is working which means you have good VCO (LO to the mixer).

Are you 100% certain you have no CW RF output on all bands? If so, then proceed on to the RF board with Heaters On and SG off and rig peaked as noted above.

You should have close to the values noted on the TX Level Diagram. At Conn RF-1 Pin 10 the 8.830 TIF signal level is approx 38mv rms or 108 P-P.

At output of TX Mixer should have approx 1.5v rms or 4.2v P-P rf drive at MD. At MD frequency will now be 14.175mhz transmit frequency.

If you have no RF drive or very weak at MD then need to measure the VCO level and frequency at RF-1 pin 4 and on board at TP-1. Should be close to 1.0v rms level. If no VCO try on other bands.

We are making good progress. Your Tek 2445 is perfect scope for KW Hybrid work and you apparently know how to use it and can read a schematic and can locate points on these high density boards to take measurements. This really helps.

Based on your report of no RF output in CW mode I would have thought we would have found no TIF sig at output of the IF board. TIF is not band specific and often is caused by no output from the Bal Modulator, This is why I had you start by testing for bias voltage and LO signal available. Never expected that we would be at the RF board and TX Mixer based on good RF output on other modes.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I read a little over 700mV at the drain of Q18 (actually the backside of C92 feeding the coax). I think you meant Q18 instead of Q10.

D7 and D8 are the CW switching diodes. With the mode switch in CW position, I have 2.98 volts on the anode of D7 and 2.34 volts on the cathode. I have 10.0 volts on the anode of D8 and 9.40 volts on the cathode. These voltages are there in both RX and TX, just a few 10ths of a volt lower in TX mode.

Can you confirm how the 3 pin cable ofr IF2 is supposed to plug in? It only has 3 wires but there are 5 pins on the IF board at that point. According to the chassis wiring diagram,

only the first 3 pins are used as they come from S6-1.

I don't think there is anything wrong with the CW filter and the switching diodes as the CW filter works fine in RX mode.

I have 400mV P-P on Gate 1 of Q1 instead of the 160mV when flipping Send. I also have 2400mV P-P on the drain instead of 1000mV when flipping Send.

TIF signal on Conn IF-3 is 400mV P-P and the sine wave isn't quiet as clean there as it is on the drain of Q1.

Hopefully we are making progress.

Ray AB7HE

45550. RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 02:32:03 UTC
From: <glene77is@...>
Topic: 45548 Message: 45550

Barry
K0DDR
Tell me about it !
I am a CW operator normally at QRP.

So, I decided to put the Kenwood 830 'on line'.
I went through the whole SSB tuning sequence,
because that is all that was in my manual.
Then at the end they state something like
flip the switch to CW and you are ready to go.
NOT !
The SSB procedures have just canceled out your Carrier,
thus NO CW signal.

I thought I missed something, so I went back through all this several times.

Finally, I just rotated the Carrier Knob and gave myself some Carrier for the CW signal.

All went well after that.

Anyway, Kenwood 830 is a 1985 Cadillac of transceivers.
Glad to have one.
You just have to have more experience than the guy who wrote the manuals.

This is a good Group and the chatter about Kenwood topics is informative.
No magic, but good advice.

Thanks guys.
Glen Ellis, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I'm new to the Kenwood Hybrid. I've been reading quite a bit about them, and one thing in particular I find is there are so many different ways people tune the transceiver. I was wondering if anyone here could recommend a YouTube video that demonstrates the best way to tune the hybrid for transmit. I've found a few YouTube videos. None of them seem to follow the manual when tuning.

73,

Barry
K0DDR

45551. Re: [TS-520_820_530_830] RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 04:09:42 UTC
From: Joseph Stiles
Topic: 45548 Message: 45551

Barry,

There is really no need for you to find a "you tube video" regarding "tuning or loading up" your KW hybrid. The directions in the "operators manual" are pretty easy to follow. You can however, go look at Ken Kemski's web site: k4eaa.com there is lots of very good info on the KW hybrids, including some "simplified" instructions on "tuning up." I suggest that you practice a few "dry runs" with the controls..to get familiar with what is being told. Please use a dummy load connected to the rigs output...so you don't cause QRM. Once you get the hang of it...it's rather easy...and can be done quickly.

I do not think that "tuning up in SSB" works...as there is no input to cause any RF output, unless you inject the appropriate signal level into the microphone jack. The instructions clearly state to start out in "TUNE" this reduces voltage to the final amp tubes...so they don't get damaged by being out of tune and hit with full voltage...then go to "CW" and "fine tune" it. If you are going to use SSB...all you have to do is connect mic..select proper side band..etc
and use the MIC control to get output...while watching the "ALC reading." Again, read the manual!

Some guys will have their own "simplified" version(s)...but I suggest that, until you get familiar
with YOUR rig and how to operate it...stick to the operators manual. You, and you final tubes
will be much happier!

73 Joe
WB7UQU

On Monday, October 28, 2013 8:38 PM, "glene77is@..." <glene77is@...> wrote:

>
>Barry
>K0DDR
>Tell me about it !
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>
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>
>
>73,
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>
>Barry
>K0DDR
>
>
>

45552. Re: [TS-520_820_530_830] RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 07:32:29 UTC
From: Gordon JC Pearce
Topic: 45548 Message: 45552

On Mon, Oct 28, 2013 at 09:09:42PM -0700, Joseph Stiles wrote:
> Some guys will have their own "simplified" version(s)...but I suggest that, until you get familiar
> with YOUR rig and how to operate it...stick to the operators manual. You, and you final tubes
> will be much happier!

Very much so! The valve PAs used in these old boatanchors are quite forgiving and will put up with a bit of mistuning, but be careful all the same. If you follow the instructions in the manual it will take you ages to tune up at first, so keep one hand on the Standby switch whenever it's transmitting and be ready to drop it off at the first sign of distress.

Oh, and don't forget to give it a final little tweak on CW once your aerial is connected, because that won't be as well matched as the dummy load! I think sometimes people lose sight of this but the pi network on the output is a fairly specialised form of ATU - if your feeder and aerial were a couple of thousand ohms impedance, you could drive them directly, and squirrels wouldn't climb the wires :-)

--
Gordonjcp MM0YEQ

45553. RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 11:08:26 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45553

There is no SSB loading procedure in any TS830 operating manual that I have seen and no way to load with Mode Switch in LSB or USB unless you inject audio in to the mic jack? Dont know what manual you were reading.

There is Step 4.3 Transmission that clearly describes how to load the TS830 and that is done in CW mode. At Step 9 in clearly states you are now done and fully loaded and ready for CW operation. Need to go on to the CW section to learn how to zero beat but loading is done.

If you had literally followed this Step 4.3 you would not have turned your Car Level Pot back CCW at its conclusion. Where did it direct you to do that?

Only thing they could have added is if you want to run less than 100 watts out you can reduce the Carrier Level pot position to any output power level you desire. Apparently that is not intuitive.

Some points of clarification:

1. Manual says to check resting plate current and set to 60ma. No need to do that every time you load the rig. OK to do, but not required. Once set should not change for a long time. If rig is new to you then should clean the bias voltage adjust pot on rear panel with deoxit and blow out with canned air and adjust for 60ma. You are setting the zero signal operating point (Class AB1).

2. Almost everyone has a question about Step 5 adjusting the Drive control to peak the ALC indication. What ALC peak? Do they mean the printed black rectangular box or the full scale of the panel meter? IT DOES NO MATTER. You are not reading any of the meter scales. You are NOT setting grid current levels. You are adjusting the Transmit Mixer and Transmit Drive tuned circuits for resonance so you will have maximum RF drive (voltage swing) at the control grids of the 6146 finals. Videos will go to great length to show that you must keep ALC indication in the center of the black printed range or at the far right edge of it and to go back and check it after loading and if not to adjust it. All of this is bogus and shows no understanding of what this step is. Some of this comes from long time hams. Just advance the Car Level pot to get a decent indicated level that you can peak. If the level of carrier pegs the meter simply back the Car Pot down a little.

3. After adjusting the Plate Tune cap for a dip in Plate current (Ip) in Tune mode all the KW hybrid manuals have you flip meter to RF Relative Power position to load to maximum relative power output and as a last step go back to Ip meter position to make sure not exceeding maximum plate dissipation. 200ma for the 520/820 rigs and 265ma for the 530/830 rigs. Most 530/830 owners do not load much above 225ma in effort to extend tube life.

No where does KW recommend you load the radio using the plate current Dip and Load method. Old timers do this as they learned it from Class C grid leak bias CW transmitter days. It was only game in town as there were no external wattmeters and they had to watch grid current so they didnt exceed 6146 final tube control grid dissipation and damage the tubes. None of that applies to a KW Hybrid. It is a Class AB1 linear amp. For this reason KW gave

you the RF Relative Power meter position to load the radio. In Class AB1 loading to max rf output without exceeding max plate dissipation will result in the max load (best efficiency) occurring slightly to inductive side of true resonance. Hard to see the actual minimum dip in Class AB1 tetrode amps.

4. For all new folks I suggest that since you need a SWR bridge to trim your dipoles do yourself a favor and buy a wattmeter like a Drake W4 or Heath HM-102 and you now have your SWR bridge and a KW hybrid loading aid and test meter. Instead of using the RF meter position leave rig meter in IP and load for maximum RF output power on the external wattmeter (this will be approx 100 watts out or a little less) without exceeding approx 200 to 225 ma. 225ma is a level that Ken K4EAA recommends to ensure long tube life. It is not a hard number.

Using the Wattmeter gives a real power number to look at and simplifies loading and gives instant indication of problems with the rig or your antenna system. These are problems that you as a new person would not likely recognize or understand looking at the Ip meter indication.

Loading one of these radios can be accomplished literally in seconds.

If you pre-set the controls can be done even in CW mode to get that initial plate current dip. Not recommended until you gain some experience.

I have seen no You Tube videos that I would recommend. Most are flawed especially when it comes to peaking the ALC indication and that includes those posted by Extra class holders. Lots of good intentions and little technical understanding of what is happening on the ends of the control knob shafts.

Until you gain some knowledge and experience if you can read, read with comprehension, and observe literal procedure compliance, then the loading procedure steps in all the manuals works just fine.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Barry
K0DDR
Tell me about it !
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The SSB procedures have just canceled out your Carrier,
thus NO CW signal.

I thought I missed something, so I went back through all this several times.

Finally, I just rotated the Carrier Knob and gave myself some Carrier for the CW signal.

All went well after that.

Anyway, Kenwood 830 is a 1985 Cadillac of transceivers.
Glad to have one.
You just have to have more experience than the guy who wrote the manuals.

This is a good Group and the chatter about Kenwood topics is informative.
No magic, but good advice.

Thanks guys.
Glen Ellis, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I'm new to the Kenwood Hybrid. I've been reading quite a bit about them, and one thing in particular I find is there are so many different ways people tune the transceiver. I was wondering if anyone here could recommend a YouTube video that demonstrates the best way to tune the hybrid for transmit. I've found a few YouTube videos. None of them seem to follow the manual when tuning.

73,

Barry
K0DDR

45554. No ALC on 12 meters....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 12:44:41 UTC
From: Brian Allen
Topic: 45554 Message: 45554

I have never used my TS 830 on 12 meters. Yesterday it seemed to load up fine. The power would fall way back and I would not get any alc. I could peak the watt meter in tune to a few watts. I could switch to another band, come back and it would work correctly for a few seconds. Only happens on 12 meters.

The survival guide says it is the back to sections of the band switch. Use conductive paint between the stationary lub and the copper foil on the board. Has anyone done this fix with success? What paint do I need to use. I would rather use something other than paint, is there another method?

Thanks

45555. RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 13:19:35 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45555

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board
3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
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The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the

USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger

but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

Before I go I will mention that it is normal to not have a clean sine wave at TIF. It does have harmonic content and it is as you say due to LO mixing action. In this case it is coming from the VCO signal feeding back from the TX Mixer on RF board to the IF board.

This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

Dont worry about the complex waveform. Should still be able to get a reasonably close TIF measurement. It may not match exactly the levels on the TX Level Diagram,but you can compare it to the level you get with FSK carrier oscillator.

I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

I have a new digital O-scope and it has a variety of digital filters. If I set it for a LP filter with a roll off frequency of 10mhz I can get a pretty clean 8.830 TIF sine wave display.

I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA-2 at Carrier board and good CA-2 at TP-5 on IF board.

If good Level at TP-5 then should have proper level at the wiper of VR-5 on the Balanced Mod. As we have discussed. No dc bias from CV and no Carrier at wiper of VR-5 then no output from the Bal Modulator.

I am pretty confident that you do have proper bias voltage from CCW to full CW on the Car Pot, but I am not certain yet that you have proper carrier output from the BM in CW mode.

Good luck.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dave,

I have VFO set to 14.175. With Car pot at 1200, in CW mode I get 40mV P-P in RX mode. When I flip the Send switch, the signal stays at 40 mV but it is no longer a sine wave. It is some kind of more or less sine wave with a lot of noise on it. With the Car pot at max, the noisy sinewave increases to 60 mV P-P in Send mode.

In FSK mode with Car at 1200 I get 250mV P-P in Send mode. With Car at Max I get 800 mV P-P in Send mode.

At Conn RF1-10 I get 140mV P-P in CW Send mode. I get 800mV P-P in FSK Send mode.

At the mixer output (Q1 and Q8 side of C8) I get 100 mV P-P in CW Send mode. I get 1V P-P in FSK Send mode. The signal at that point is not a sinewave but seems to have multiple signals. Probably some LO feedthrough on the mixer. The frequency counter agrees with the Kendwood readout as 14.1748 MHz.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Sorry about Q10 vs Q18. My fingers work better than what is left of my brain.

The 3 conductor plug should be positioned in forward position toward the front panel.

One thing we did not talk about is whereiyou should have the Car Level Pot set to take these measurements.

The TX Level Diagram is shown in the Service Manual. These levels were taken by Kenwood by loading the rig to approx 100 watts out at 14.175mhz and then turn the SG switch off and leave Car pot alone and Drive control alone.

Since you have no RF output in CW mode I suggest you do this for remainder of the readings:

1. VFO 14.175
2. Peak the Drive Control on receiver noise or the marker signal
3. Car Level Pot 1200
4. Heater on
5. SG switch off

45556. RE: No ALC on 12 meters....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 13:28:49 UTC
From: <wagstw46@...>
Topic: 45554 Message: 45556

They are talking about the silver conductive pen repair method described on Ken K4EAA web site.

I dont silver anymore. I solder small wires from the window of the hair pin loop to the PC traces being careful not to use too much heat to hurt the spring temper.

Either method cannot be done in place. It is a major job. Look at the pictures on Kens website.

Dick W0NTA has lots of experience with the jumper method. Might write him and ask for any tips. I very good de-soldering tool really helps and much less chance of lifting a foil. Hakko 808 gun is about best I have ever used, but like all tools comes at a price. It can be done with solder wick. .

I would be 100 percent certain if it is bad bandswitch contact before pulling the RF board.

Did you try applying some Deoxit? Use artist brush, Q-tip, tooth pick and apply sparingly. Exercise and blow out with canned air.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have never used my TS 830 on 12 meters. Yesterday it seemed to load up fine. The power would fall way back and I would not get any alc. I could peak the watt meter in tune to a few watts. I could switch to another band, come back and it would work correctly for a few seconds. Only happens on 12 meters.

The survival guide says it is the back to sections of the band switch. Use conductive paint between the stationary lub and the copper foil on the board. Has anyone done this fix with success? What paint do I need to use. I would rather use something other than paint, is there another method?

Thanks

45557. Re: [TS-520_820_530_830] ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 11:47:06 UTC
From: Bryan Mbryan
Topic: 45323 Message: 45557

That is a very good question - why is it bent in the first place?? I THINK it's S5-2 the rotary switch 28/10 meter at the rear of the band shaft in the compartment with the antenna relay. I had no clue what the switch even did from the online pdf wiring diagrams. It wasn't until I looked at the original diagram with the orange print in the manual. I am confused (related to my lack of comfort/knowledge on wiring diagrams) are the three dashed lines connected on that switch telling me that VC2, C20, and (unmarked on my pdf) telling me that those three are in parallel whenever the switch is in one of two positions?
On the plus side, I have learned how to change the fuse and now have 4 correct spares in stock!

Bryan KB3YBU

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, October 26, 2013 1:53 PM
Subject: Re: [TS-520_820_530_830] ts-520 10 meter question general question

Brian,

Neutralizing your finals should be done when they are replaced, as you noted. Unless you do a major alignment, or suspect trouble with them(no need to go into that here)...no reason to mess with them.

 The "fingers" are made of several metals...and designed to be "springy." First question is:
"why is it bent out in the first place?" Also, WHICH band switch wafer? You can use a tuning tool or, other suitable item, to GENTLY apply pressure to the contact(s)

73 Joe
WB7UQU

On Saturday, October 26, 2013 10:37 AM, Bryan Mbryan <kb3ybu@...m> wrote:

>two more questions since I've gotten some more ideas about things that may be causing me problems to look into.
>1. Does it hurt to re-neutralize tubes (assuming they were neutralized correctly in the first place)? I don't see any WHEN to neutralize tubes OTHER than when replaced.
>2. If instead of "bent fingers" on the band switch there is a "straight finger" on the contact band that i'm having a problem with, besides trying to clean the contact, is there any way of trying to use a needle nose or something (after I discharge the voltage) to re-bend that finger, or am I just going to break it off if I try that? There's noticeable difference when placing a piece of paper under that finger as opposed to the next one which is bent similar to the others.
>
>Bryan kb3ybu
>
>

>From: John Davidson <k8jd@...>
>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
>Sent: Tuesday, October 15, 2013 1:39 PM
>Subject: Re: [TS-520_820_530_830] ts-520 10 meter question general question
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>First, it is good form to sign your posts with your first name and callsign.
>You should retune the final slightly when you go form you go from one end of a band to the other. SWR changes when you change frequency away from the antennas resonant point
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>If the SWR is higher on the low end , it means your longer than optimum, when it is low on the high end it is longer than optimum length.
>7j, John...K8JD
>From: Bryan Mbryan <kb3ybu@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Tuesday, October 15, 2013 11:30 AM
>Subject: [TS-520_820_530_830] ts-520 10 meter question general question
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45558. Re: [TS-520_820_530_830] No ALC on 12 meters....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 13:25:03 UTC
From: anthony jaen
Topic: 45554 Message: 45558

what i did was switching it back and forth

Anthony Christian Montinola Jaen
Keyboard Basher & Tinkerer

On Tuesday, October 29, 2013 5:48 AM, Brian Allen <bsa0791@...> wrote:

I have never used my TS 830 on 12 meters. Yesterday it seemed to load up fine. The power would fall way back and I would not get any alc. I could peak the watt meter in tune to a few watts. I could switch to another band, come back and it would work correctly for a few seconds. Only happens on 12 meters.

The survival guide says it is the back to sections of the band switch. Use conductive paint between the stationary lub and the copper foil on the board. Has anyone done this fix with success? What paint do I need to use. I would rather use something other than paint, is there another method?

Thanks

45559. Re: [TS-520_820_530_830] ts-520 10 meter question general question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 16:32:00 UTC
From: Joseph Stiles
Topic: 45323 Message: 45559

Brian,

I've been a bit busy...I'll have to dig out my schematic and take a look. I am not overly familiar
with the 520 off the top of my head...and don't want to guess. Maybe another member can answer you more quickly......

73 Joe
WB7UQU

On Tuesday, October 29, 2013 4:47 AM, Bryan Mbryan <kb3ybu@...> wrote:

>That is a very good question - why is it bent in the first place?? I THINK it's S5-2 the rotary switch 28/10 meter at the rear of the band shaft in the compartment with the antenna relay. I had no clue what the switch even did from the online pdf wiring diagrams. It wasn't until I looked at the original diagram with the orange print in the manual. I am confused (related to my lack of comfort/knowledge on wiring diagrams) are the three dashed lines connected on that switch telling me that VC2, C20, and (unmarked on my pdf) telling me that those three are in parallel whenever the switch is in one of two positions?
>On the plus side, I have learned how to change the fuse and now have 4 correct spares in stock!
>
>Bryan KB3YBU
>
>
>
>From: Joseph Stiles <stilesjoseph@yahoo.com>
>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
>Sent: Saturday, October 26, 2013 1:53 PM
>Subject: Re: [TS-520_820_530_830] ts-520 10 meter question general question
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45560. Re: [TS-520_820_530_830] RE: No ALC on 12 meters....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-29 16:44:17 UTC
From: Craig Roberts
Topic: 45554 Message: 45560

The silver conductive paint method of band switch repair runs no risk of destroying the temper of the delicate switch contacts with excessive heat but is allegedly less effective and permanent (at least according to one source). Nevertheless, it seems worth trying if simple switch contact cleaning does not work. The conductive paint in question is readily available at Radio Shack.

I have a TS-530S that, after many years of apparent disuse (not abuse) arrived DOA at my shack. After a thorough band switch cleaning, the last two switch wafers (nearest the finals) were removed, their contacts bridged to the board, and soldered. The radio has been trouble free since, though the surgery may have been purely elective and not really necessary.

Y'see, on the other hand, I have a TS-830S which was almost equally unresponsive when I bought it. In that case, an afternoon with DeoxIT, an artist's brush and an air compressor (at about 50 psi) brought it back to glitch-free life. Of course, I am told by some dark thinkers that the contact cleaning (not painting or soldering) will work only temporarily. We shall see.

I have hopes that, with regular use on all bands, the TS-830S will remain in fine fettle. I have reason for optimism. The previous owner told me that he had used the radio just once a year (Field Day) on one band only (40 meters) and had not operated on any other band for a couple of decades. Sure enough, the radio worked fine on 40 meters but the transmitter was dead on all others.

As has been pointed out numerous times on this forum, dirty contacts on switches and headers are the most common cause of Kenwood hybrid problems. Yaesus of a similar vintage suffer the same fate -- and you haven;t lived until you've had to clean every single metal-to-metal junction on a Drake TR-7 (a wonderful and woefully underrated radio, by the way).

Have fun!

73,

Craig
W3CRR

45561. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 01:14:29 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45561

Terry,

I won't be able to get to it this evening but tomorrow I am going to pull the CW filter out of the radio. I have looked at quite a few sites on the internet and it looks like the filter may be designed for 600 ohm in and out. I will setup my jig with those values and sweep it to see what the results are.

Let me know if you have any other thoughts. I see a couple of the filters on Ebay for around $90 so that may be the route I end up taking depending on what the sweep shows tomorrow. If it turns out the filter isn't bad I could always re-sale the one I bought.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board
3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

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8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose

silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

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Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

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(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger but maybe not.

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Where do I go from here?

Ray AB7HE

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Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

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This is easy to confirm with a TS-830 as you can easily unplug the VCO cable from the PLL board and the TIF signal will then be a nice clean 8.830mhz sine wave.

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I dont use a O-scope to run TX Level diagrams once I get to the output of the TIF amp. I use a Boonton RF Millivolt meter and measure levels in rms and the "dirty" TIF signal presents no problem.

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I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA

(Message over 64 KB, truncated)

45562. RE: RE: RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 01:23:04 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45562

Ray:

Ok dinner is over and grand kids gone and house quiet. I need a beer!

Here is what I did to sweep the CW filter:

1. Removed the Carrier Osc metal cover 2 screws and exposed CAR-2 board
2. Removed small screw in center of the board.
3. Gently wiggled and pulled on the 10 pin Molex connector and removed the board
4. Connected RF Sig Gen output cable to pins 4 and 3 . Hot lead to 4 and shield to 3 or ground
5. Powered rig on in CW mode. Heaters and SG switch off. Drive control at 1200. VFO at 14.2mhz, and CAR Level pot full CCW.
6. Connected RF millivolt meter to IF board TP-5 and adjusted RF Sig gen output for 300mv rms @ 8830.70.
7. Connected RF millivolt meter to Diode D7 at input to the CW filter and flipped rig to Send and increased Car Level Pot for approx 30 mv input. Car Pot level was at position "2" for 30 mv carrier level. .
8. Moved RF millivolt meter to Diode D8 and swept the RF sig gen from 8800 to 9000. Found peak in RF voltage at approx 15 mv at 8830.689.

So the Fc of my filter is very close to 8830.70 and the attenuation closely matches what is listed on the TX Level Diagram.

Suggest you do not use much more than 30mv rms or 85 mv p-p input at Diode D7.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board
3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also

still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

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I dont know the Tek 2445 capability in this regard.

One final reminder is that good TIF signal level of approx 38mv rms or 107mv P-P is based on the premise that you accurately measured CA2 at the iF board of approx 300mv rms or 850mv P-P.

If that signal is not there then you would need to repeat the testing I asked you to do at the Carrier Osc board to confirm the 9vdc CW diode switching voltage is available at D1 and Q2 Buffer amp is being turned on.

I have been providing direction based on your reporting back that you have good CA

(Message over 64 KB, truncated)

45563. RE: [TS-520_820_530_830] RE: No ALC on 12 meters....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 07:47:27 UTC
From: fpath fpath
Topic: 45554 Message: 45563

G'day,

Go with the solder method if you really want a good job. But as Terry suggests give the wafer switches on the RF boad a real good clean, you'll be amazed at how successful this is. Only other thing I can suggest is the last two wafer boards nearest to PA, have a very good close look at the fingers, these can twist or loose tension and if a small amount of grit/dirt gets in between then you have issues. No point in pulling the RF board out if you don't have to, do the simple things first as you can always do the more techically challenging things a a later time.

I do as Ken Kemski, does pull the board then throw it in the sink with soapy water, light scrub with tooth brush. I then shake\flick dry then risk life and limb in borrowing XYLs hair dryer and dry off the board really well. If you get caught using hairdryer, please don't mention me, LOL. Have had great success with this method

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Tue, 29 Oct 2013 06:28:49 -0700
Subject: [TS-520_820_530_830] RE: No ALC on 12 meters....

They are talking about the silver conductive pen repair method described on Ken K4EAA web site.

I dont silver anymore. I solder small wires from the window of the hair pin loop to the PC traces being careful not to use too much heat to hurt the spring temper.

Either method cannot be done in place. It is a major job. Look at the pictures on Kens website.

Dick W0NTA has lots of experience with the jumper method. Might write him and ask for any tips. I very good de-soldering tool really helps and much less chance of lifting a foil. Hakko 808 gun is about best I have ever used, but like all tools comes at a price. It can be done with solder wick. .

I would be 100 percent certain if it is bad bandswitch contact before pulling the RF board.

Did you try applying some Deoxit? Use artist brush, Q-tip, tooth pick and apply sparingly. Exercise and blow out with canned air.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I have never used my TS 830 on 12 meters. Yesterday it seemed to load up fine. The power would fall way back and I would not get any alc. I could peak the watt meter in tune to a few watts. I could switch to another band, come back and it would work correctly for a few seconds. Only happens on 12 meters.

The survival guide says it is the back to sections of the band switch. Use conductive paint between the stationary lub and the copper foil on the board. Has anyone done this fix with success? What paint do I need to use. I would rather use something other than paint, is there another method?

Thanks

45564. RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 00:54:00 UTC
From: <bvelasquez@...>
Topic: 45548 Message: 45564

Yes, the question of ALC is the most confusing to me. As you say, there are many of people that do various things to keep the meter within the black ALC range. A new driver tube with CAR set in the middle goes way past the ALC range on the meter. Do I then lower CAR to not go past this range, or you said it doesn't matter, and I just peak with the DRIVE control with CAR at center no matter where the meter goes???? I feel I'm destroying my driver tube and not knowing it because the manual doesn't show you what you should see, or what is optimal when you are doing the ALC step.

My understanding is that it is maximum meter deflection. In other words, you turn the DRIVE control until the needle doesn't go any higher... yes, no?? What you are looking for is the opposite of what you look for when you dip the PLATE?

Sorry, but all this is new to me and I'm learning as I'm going. The manual is not that straight forward and assumes a certain knowledge that was probably very common when this radio was made. Not so common now with all the solid state, turn on and play rigs.

Even K4EAA, has a different tuning procedure than what the manual defines. I cannot find an Elmer in my area that knows about these rigs, at least I haven't found someone yet.

If anyone wants to give me a call and explain some of this in more detail, call me at 559-272-6759. I'm in Pacific Standard Time, and usually up and about until after 11:00PM.

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Some points of clarification:

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operating point (Class AB1).

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No where does KW recommend you load the radio using the plate current Dip and Load method. Old timers do this as they learned it from Class C grid leak bias CW transmitter days. It was only game in town as there were no external wattmeters and they had to watch grid current so they didnt exceed 6146 final tube control grid dissipation and damage the tubes. None of that applies to a KW Hybrid. It is a Class AB1 linear amp. For this reason KW gave you the RF Relative Power meter position to load the radio. In Class AB1 loading to max rf output without exceeding max plate dissipation will result in the max load (best efficiency) occurring slightly to inductive side of true resonance. Hard to see the actual minimum dip in Class AB1 tetrode amps.

4. For all new folks I suggest that since you need a SWR bridge to trim your dipoles do yourself a favor and buy a wattmeter like a Drake W4 or Heath HM-102 and you now have your SWR bridge and a KW hybrid loading aid and test meter. Instead of using the RF meter position leave rig meter in IP and load for maximum RF output power on the external wattmeter (this will be approx 100 watts out or a little less) without exceeding approx 200 to 225 ma. 225ma is a level that Ken K4EAA recommends to ensure long tube life. It is not a hard number.

Using the Wattmeter gives a real power number to look at and simplifies loading and gives instant indication of problems with the rig or your antenna system. These are problems that you as a new person would not likely recognize or understand looking at the Ip meter indication.

Loading one of these radios can be accomplished literally in seconds.

If you pre-set the controls can be done even in CW mode to get that initial plate current dip. Not recommended until you gain some experience.

I have seen no You Tube videos that I would recommend. Most are flawed especially when it comes to peaking the ALC indication and that includes those posted by Extra class holders. Lots of good intentions and little technical understanding of what is happening on the ends of the control knob shafts.

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Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 09:57:39 UTC
From: fpath fpath
Topic: 45548 Message: 45565

G'day,

Turn heaters on and allow a few minutes for the tubes to warm up and get to operating stage.

Turn mode switch to tune and a dummy load and external watt meter connected.

place the plate marker to the band your going to tune on and the load control fully counter clockwise.

Meter switch to ALC

Flick send switch and peak the drive control, if the needle goes out of the ALC range use the carrier control to back it off until it is at maximum position of the ALC mark

switch meter to IP, then dip the needle using the plate control

switch meter to RF and then using the load control peak the needle

Send switch to rec position

mode switch to cw, either wide or narrow your choice.

flick send switch to send

Very quickly and I mean quickly while watching the watt meter, peak the output using the plate and load control, this should take no more than a few seconds, if your not able to do it in one go due to limited experience flick send switch back to rec for a few minutes.

Repeat this until you get maximum output, if you have low output then try and turn your carrier pot clock wise, you will see the output rise, on all of my 530s and 830s radios my car is set to less that half of the potentiometer's travel and this is subject to band being tuned.

This will take a few attempts but once mastered you will be able to tune within the 5 second timeframe.

The benefit of having an external watt meter is so you can easily see that you have maximum output and have the PA tuned properly thus taking a heap of pressure of you tubes and associated parts in the PA and final board.

Once your happy with output, turn send switch to receive, mode switch to USB\LSB, mic gain to about 10 o'clock position, meter to ALC, speak into mic and see if the meter moves in the ALC. Now if you have ALC movement back the mic gain off (CCW) until the ALC needle just moves, this will ensure you have good clean audio, check the output with whislt talking and if you want use a whistle unless of course you have a two tone generator.

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: bvelasquez@...
Date: Tue, 29 Oct 2013 17:54:00 -0700
Subject: [TS-520_820_530_830] RE: RE: RE: YouTube Video of Tuning procedure.

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Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 11:40:12 UTC
From: Mike
Topic: 45548 Message: 45566

/*Ignore*/ the ALC scale during TUNE mode adjustment of the DRIVE control for a peak meter "pointer" indication! If the meter pegs full scale to the right while adjusting the DRIVE control, simply adjust the CAR control CCW for a "reduction" in the meter "pointer" indication then continue adjusting the DRIVE control for a peak meter "pointer" indication, again, ignoring the ALC scale!

The driver and/or final tubes are NOT being damaged if the TUNE mode DRIVE control peak adjustment results in the meter "pointer" resting outside the top end of the ALC scale. Where did you get the idea the tubes are being damaged if the meter pointer, after achieving a DRIVE control peak adjustment indication in TUNE mode, rests outside the top end of the ALC scale?

73
Mike W5RKL

On 10/29/2013 7:54 PM, bvelasquez@... wrote:
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>
> 73,
>

> Barry
> K0DDR
>

45567. RE: RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 11:51:19 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45567

Barry:

I dont know how to say it any plainer the ALC indication level DOES NOT MATTER.
You can chose to believe me or not.

One exception is dont set it too low. Can be very touchy if too low and fall back to zero. Give yourself something to work with and if setting it to the top end of the black box gives you some comfort by all means do so. It is a perfect spot to see the peak.

You will not hurt your Driver Tube or the 6146 Final Tubes at this step in the loading procedure. Cannot exceed Driver Tube dissipation unless you leave rig in SEND position and walk away. I thought I made that very clear what you are doing. You are adjusting the Mixer and Drive parallel resonant tuned circuits to resonance which means maximum RF drive voltage swing available for the 6146 final tube grids which is what you need for maximum RF output to your dummy load or antenna.

Yes a peak is the opposite of a null or a dip in a meter indication.

A peak means you adjust the Drive Control for the maximum meter pointer deflection. For this reason you cannot have so much Carrier Level that the meter goes off the far right hand end of the meter scale. They call this FSD or full scale deflection. If the meter indicator was there you cannot see a peak.

So just give yourself enough indication (2/3 scale is fine) to see that when you adjust the Drive Control that the meter indicator will rise and then fall as you tune thru resonance. A well aligned rig this peak will occur pretty close to 1200 on the Drive Control knob with VFO at middle of its frequency range (200 to 250)

You will not hurt your Driver tube unless you flip to Send and leave it keyed a very long time. It only takes a few seconds (no more than 5 to 10 seconds) to peak the ALC indication. When you return the Send switch back to Receive or stand-by position the Driver tube is cut off and no plate current flows.

The Tune position is provided so that you can do the next step safely without damaging the 6146 final tubes. It cuts the screen grid voltage in half for the 6146 finals. What you are next doing in TUNE mode is "dipping" the plate current. Here you are adjusting the Pi-Network which serves as the parallel resonant tuned circuit in the Plate circuit of the 6146 tubes. If you have pre-set the Plate Tune control close to the white mark you will see very little dip maybe 5 to 10 ma. If it is set far away maybe 40 to 50 ma of dip.

You never want to leave the Pi-Network (called the Tank circuit) in an off resonant state for a long time as heavy plate current will flow and can exceed the plate dissipation of the tube ie overheat it. So in Tune mode you are limited to approx 100ma of plate current and can have longer key down times without damaging the tubes.

In TUNE mode and meter now switched from ALC to IP position you Flip to Send and adjust the Plate Tune control for a "dip" or "null" in the meter indication. You have now adjusted the

Tank circuit to resonance.

Need to do this step fairly quickly. Again 5 to 10 seconds is more than adequate.

Once you have Peaked the Drive and adjusted the Tank to resonance in TUNE mode you are ready now to place meter in RF position and CW mode and adjust Plate Load and Plate Tune for maximum indication on the meter. If meter pegs off scale have to adjust the RF sensitivity pot to bring it back on scale. Again none of the scales mean anything. It is just a sample of the RF voltage available at your SO-239 connector output to the dummy load. Again keep this step short and if experiencing problems unkey the rig and let it rest a few seconds.

If you are still struggling let me know and I will call you.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Yes, the question of ALC is the most confusing to me. As you say, there are many of people that do various things to keep the meter within the black ALC range. A new driver tube with CAR set in the middle goes way past the ALC range on the meter. Do I then lower CAR to not go past this range, or you said it doesn't matter, and I just peak with the DRIVE control with CAR at center no matter where the meter goes???? I feel I'm destroying my driver tube and not knowing it because the manual doesn't show you what you should see, or what is optimal when you are doing the ALC step.

My understanding is that it is maximum meter deflection. In other words, you turn the DRIVE control until the needle doesn't go any higher... yes, no?? What you are looking for is the opposite of what you look for when you dip the PLATE?

Sorry, but all this is new to me and I'm learning as I'm going. The manual is not that straight forward and assumes a certain knowledge that was probably very common when this radio was made. Not so common now with all the solid state, turn on and play rigs.

Even K4EAA, has a different tuning procedure than what the manual defines. I cannot find an Elmer in my area that knows about these rigs, at least I haven't found someone yet.

If anyone wants to give me a call and explain some of this in more detail, call me at 559-272-6759. I'm in Pacific Standard Time, and usually up and about until after 11:00PM.

Barry (K0DDR)

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

There is no SSB loading procedure in any TS830 operating manual that I have seen and no way to load with Mode Switch in LSB or USB unless you inject audio in to the mic jack? Dont know what manual you were reading.

There is Step 4.3 Transmission that clearly describes how to load the TS830 and that is done in CW mode. At Step 9 in clearly states you are now done and fully loaded and ready for CW operation. Need to go on to the CW section to learn how to zero beat but loading is done.

If you had literally followed this Step 4.3 you would not have turned your Car Level Pot back CCW at its conclusion. Where did it direct you to do that?

Only thing they could have added is if you want to run less than 100 watts out you can reduce the Carrier Level pot position to any output power level you desire. Apparently that is not intuitive.

Some points of clarification:

1. Manual says to check resting plate current and set to 60ma. No need to do that every time you load the rig. OK to do, but not required. Once set should not change for a long time. If rig is new to you then should clean the bias voltage adjust pot on rear panel with deoxit and blow out with canned air and adjust for 60ma. You are setting the zero signal operating point (Class AB1).

2. Almost everyone has a question about Step 5 adjusting the Drive control to peak the ALC indication. What ALC peak? Do they mean the printed black rectangular box or the full scale of the panel meter? IT DOES NO MATTER. You are not reading any of the meter scales. You are NOT setting grid current levels. You are adjusting the Transmit Mixer and Transmit Drive tuned circuits for resonance so you will have maximum RF drive (voltage swing) at the control grids of the 6146 finals. Videos will go to great length to show that you must keep ALC indication in the center of the black printed range or at the far right edge of it and to go back and check it after loading and if not to adjust it. All of this is bogus and shows no understanding of what this step is. Some of this comes from long time hams. Just advance the Car Level pot to get a decent indicated level that you can peak. If the level of carrier pegs the meter simply back the Car Pot down a little.

3. After adjusting the Plate Tune cap for a dip in Plate current (Ip) in Tune mode all the KW hybrid manuals have you flip meter to RF Relative Power position to load to maximum relative power output and as a last step go back to Ip meter position to make sure not exceeding maximum plate dissipation. 200ma for the 520/820 rigs and 265ma for the 530/830 rigs. Most 530/830 owners do not load much above 225ma in effort to extend tube life.

No where does KW recommend you load the radio using the plate current Dip and Load method. Old timers do this as they learned it from Class C grid leak bias CW transmitter days. It was only game in town as there were no external wattmeters and they had to watch grid current so they didnt exceed 6146 final tube control grid dissipation and damage the tubes. None of that applies to a KW Hybrid. It is a Class AB1 linear amp. For this reason KW gave you the RF Relative Power meter position to load the radio. In Class AB1 loading to max rf output without exceeding max plate dissipation will result in the max load (best efficiency) occurring slightly to inductive side of true resonance. Hard to see the actual minimum dip in Class AB1 tetrode amps.

4. For all new folks I suggest that since you need a SWR bridge to trim your dipoles do yourself a favor and buy a wattmeter like a Drake W4 or Heath HM-102 and you now have your SWR bridge and a KW hybrid loading aid and test meter. Instead of using the RF meter position leave rig meter in IP and load for maximum RF output power on the external wattmeter (this will be approx 100 watts out or a little less) without exceeding approx 200 to 225 ma. 225ma is a level that Ken K4EAA recommends to ensure long tube life. It is not a hard number.

Using the Wattmeter gives a real power number to look at and simplifies loading and gives instant indication of problems with the rig or your antenna system. These are problems that you as a new person would not likely recognize or understand looking at the Ip meter indication.

Loading one of these radios can be accomplished literally in seconds.

If you pre-set the controls can be done even in CW mode to get that initial plate current dip. Not recommended until you gain some experience.

I have seen no You Tube videos that I would recommend. Most are flawed especially when it comes to peaking the ALC indication and that includes those posted by Extra class holders. Lots of good intentions and little technical understanding of what is happening on the ends of the control knob shafts.

Until you gain some knowledge and experience if you can read, read with comprehension, and observe literal procedure compliance, then the loading procedure steps in all the manuals works just fine.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Barry
K0DDR
Tell me about it !
I am a CW operator normally at QRP.

So, I decided to put the Kenwood 830 'on line'.
I went through the whole SSB tuning sequence,
because that is all that was in my manual.
Then at the end they state something like
flip the switch to CW and you are ready to go.
NOT !
The SSB procedures have just canceled out your Carrier,
thus NO CW signal.

I thought I missed something, so I went back through all this several times.

Finally, I just rotated the Carrier Knob and gave myself some Carrier for the CW signal.

All went well after that.

Anyway, Kenwood 830 is a 1985 Cadillac of transceivers.
Glad to have one.
You just have to have more experience than the guy who wrote the manuals.

This is a good Group and the chatter about Kenwood topics is informative.
No magic, but good advice.

Thanks guys.
Glen Ellis, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I'm new to the Kenwood Hybrid. I've been reading quite a bit about them, and one thing in particular I find is there are so many different ways people tune the transceiver. I was wondering if anyone here could recommend a YouTube video that demonstrates the best way to tune the hybrid for transmit. I've found a few YouTube videos. None of them seem to follow the manual when tuning.

73,

Barry
K0DDR

45568. Re: [TS-520_820_530_830] RE: RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 12:26:54 UTC
From: crgrbrts@...
Topic: 45548 Message: 45568

Wow! A couple of you guys make asking for advice rather uninviting. I know that a repeated question or answer that's not readily comprehended can be a little irritating at times, but...

Come on. This is a hobby. Play nice, please.

73,

Craig
W3CRR

Wow! A couple of you guys
Sent via BlackBerry by AT&T

45569. RE: Re: [TS-520_820_530_830] RE: RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 13:02:41 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45569

Too many sissies today. We arent kindergarten kids getting "dissed". We are adults. My self esteem is just fine. My time is worth something and wont waste it on the "cants or wonts".

You havent see mean spirited here.

People can choose to accept and follow the advice or not. Dont expect blind obedience, but when I take the time to tell someone that setting the ALC peak indication at a particular level DOES NOT MATTER and then take the time to explain why in as simple a terms as I know how and they come back and ask me again if it matters I dont know how to answer that anyway other than restating it again in as firm a manner as I can without "dissing" the person or destroying their fragile self esteem.

I propose you let him speak for himself. He can let me know if his feelings are hurt.

I did not ask him if he had a reading comprehension problem.

I dont need a lecture from someone who makes no meaningful contributions or has no clue how the radio works.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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45570. Re: Re: [TS-520_820_530_830] RE: RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 13:19:45 UTC
From: CROOKS David
Topic: 45548 Message: 45570

Terry,

"I dont need a lecture from someone who makes no meaningful contributions or has no clue how the radio works."

Come on Terry, you're better than that.

Dave f4eyk

45571. RE: Re: Re: [TS-520_820_530_830] RE: RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 13:36:46 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45571

Dave:

I am tired of people like Roberts. The mentality of these people is a big part of what is wrong with this country, the education system, and this hobby. When you have no expectations or low expectations everyone is marginalized and reduced to mediocrity.

I have very high standards and expectations for my children, my family, my friends, and my associates. I would do them a dis-service if I did not. I praise and recognize them publicly when they meet those expectations and correct them when they do not. I dont waste much time on the "cants" and waste no time on the "wonts" in this life.

Not everyone can win the race, get a ribbon, or get an A on the exam. When that occurs you get what we see today.

In personal life and professional work life you do not get rewarded for effort. You get paid for results. If that hurts your feelings then you are in trouble.

I re-read my responses to this new person and if he was offended by what I wrote then I can be of no help to him. Again I dont think he needs Roberts as his advocate. Sounds like a union steward telling a worker that he has been grieved and he is not smart enough to know it.

This is the same fellow who recently penned the sarcastic litany mocking the advice that I and others have been giving. He did this while pouting over not getting his hand held.

If anyone adults want my help I will freely give of it. You can contact me off list if you are overly sensitive and dont want a public admonishment.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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Dave f4eyk

45572. RE: RE: Re: Re: [TS-520_820_530_830] RE: RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 14:01:53 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45572

Dave:

I forgot one thing.

It would be better to hear from the OP if he were to say something like..... "OK Terry I heard your response and I appreciate your advice, but now I would like to hear from others on this subject and will decide my operational practice based on the groups consensus".

I would be OK with that as he would be doing his due diligence. However, there can be risk in following the herd knowledge base and common practice as tribal myths abound in this hobby. It is a challenge to sort out the BS from the facts. Wait until you get cancer and Google on best course of action!

Fortunately in this case opinions and common practice does not mean a thing. The Op can peak the ALC indication anywhere he chooses and he will not damage his new Driver tube unless he leaves rig keyed and goes to lunch.

As they say IMO.

Terry K9TW

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45573. RE: RE: [TS-520_820_530_830] RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 12:04:16 UTC
From: <glene77is@...>
Topic: 45548 Message: 45573

Terry K9TW

Thanks for the tutorial. Very helpful.
I missed something in the SSB tune-up.

Am using an Antenna Tuner with calibrated Power Meters,
which work with the Knwd 830 "RF" meter relative readings.
That is a double-check against accidently overpowering.

On the Knwd 830, Currently, when changing bands,
1) I set the "Carrier" to the CW #6 or #8.
which produces maybe a 1 W Power Forward at the Antenna Tuner.
2) I begin adjusting Load / Plate / Drive, watching the "IP" and the Tuner Pwr.
I adjust the "Carrier" CCW towards #5 , then #4,
which gradually increases the Power Forward reading in the Antenna Tuner.
3) Back and forth a few times, to get 100 mA "IP" and 25 W Power Forward.
This allows me to sharply tune the antenna.
4) Lastly, I typically I back off towards 5 W Power Forward.

Other than the trusty HW8,
my former experience was with an ARC-5 running pair of 807 at 205 W.
Careful drive and tuning was required else the 807's would turn yellow !

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

G'day,

Turn heaters on and allow a few minutes for the tubes to warm up and get to operating stage.

Turn mode switch to tune and a dummy load and external watt meter connected.

place the plate marker to the band your going to tune on and the load control fully counter clockwise.

Meter switch to ALC

Flick send switch and peak the drive control, if the needle goes out of the ALC range use the carrier control to back it off until it is at maximum position of the ALC mark

switch meter to IP, then dip the needle using the plate control

switch meter to RF and then using the load control peak the needle

Send switch to rec position

mode switch to cw, either wide or narrow your choice.

flick send switch to send

Very quickly and I mean quickly while watching the watt meter, peak the output using the plate and load control, this should take no more than a few seconds, if your not able to do it in one go due to limited experience flick send switch back to rec for a few minutes.

Repeat this until you get maximum output, if you have low output then try and turn your carrier pot clock wise, you will see the output rise, on all of my 530s and 830s radios my car is set to less that half of the potentiometer's travel and this is subject to band being tuned.

This will take a few attempts but once mastered you will be able to tune within the 5 second timeframe.

The benefit of having an external watt meter is so you can easily see that you have maximum output and have the PA tuned properly thus taking a heap of pressure of you tubes and associated parts in the PA and final board.

Once your happy with output, turn send switch to receive, mode switch to USB\LSB, mic gain to about 10 o'clock position, meter to ALC, speak into mic and see if the meter moves in the ALC. Now if you have ALC movement back the mic gain off (CCW) until the ALC needle just moves, this will ensure you have good clean audio, check the output with whislt talking and if you want use a whistle unless of course you have a two tone generator.

73s

Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: bvelasquez@...
Date: Tue, 29 Oct 2013 17:54:00 -0700
Subject: [TS-520_820_530_830] RE: RE: RE: YouTube Video of Tuning procedure.

Yes, the question of ALC is the most confusing to me. As you say, there are many of people that do various things to keep the meter within the black ALC range. A new driver tube with CAR set in the middle goes way past the ALC range on the meter. Do I then lower CAR to not go past this range, or you said it doesn't matter, and I just peak with the DRIVE control with CAR at center no matter where the meter goes???? I feel I'm destroying my driver tube and not knowing it because the manual doesn't show you what you should see, or what is optimal when you are doing the ALC step.

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45574. difference between, a 530,and 530s, .

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 14:42:21 UTC
From: kenny
Topic: 45574 Message: 45574

Hi,
Can any of you nice people tell me if there is any difference between, a 530,and 530s,and if so what it is.
73s
Kenny
Scotland

45575. RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 16:47:42 UTC
From: <bvelasquez@...>
Topic: 45548 Message: 45575

Hello everyone. Sorry if my questions were upsetting, I didn't mean it that way, and was certainly not trying to offend anyone by attempting to reconfirm my understanding and to gain a little bit more understanding of the mechanics of this radio. If my posts seemed sarcastic or mocking to you Terry, then they were taken in the wrong way.

I'm not hurt or offended by Terry or anyone else, and I certainly appreciate Terry's confirmation that the ALC position does not matter and everything else he shared. It removes my doubts based on what I have read and seen through other sources, which made it seem that the position was critical. Lots of great information and explanation of the mechanics behind this radio in these posts, so I'm learning. Call me stupid, ignorant, or whatever... I can ignore that and collect the nuggets of great knowledge that is also shared at the same time. You need a tough hide to play on the Internet.

A phone conversation can be so much easier in many cases in the transfer of information. That is why I suggested it, but I'll take what I can get.

However, I'm pretty sure I understand now, and much has been clarified and I feel more confident.

Until my next question... 73!

Barry (K0DDR)

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dave:

I forgot one thing.

It would be better to hear from the OP if he were to say something like..... "OK Terry I heard your response and I appreciate your advice, but now I would like to hear from others on this subject and will decide my operational practice based on the groups consensus".

I would be OK with that as he would be doing his due diligence. However, there can be risk in following the herd knowledge base and common practice as tribal myths abound in this hobby. It is a challenge to sort out the BS from the facts. Wait until you get cancer and Google on best course of action!

Fortunately in this case opinions and common practice does not mean a thing. The Op can peak the ALC indication anywhere he chooses and he will not damage his new Driver tube unless he leaves rig keyed and goes to lunch.

As they say IMO.

Terry K9TW

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I am tired of people like Roberts. The mentality of these people is a big part of what is wrong with this country, the education system, and this hobby. When you have no expectations or low expectations everyone is marginalized and reduced to mediocrity.

I have very high standards and expectations for my children, my family, my friends, and my associates. I would do them a dis-service if I did not. I praise and recognize them publicly when they meet those expectations and correct them when they do not. I dont waste much time on the "cants" and waste no time on the "wonts" in this life.

Not everyone can win the race, get a ribbon, or get an A on the exam. When that occurs you get what we see today.

In personal life and professional work life you do not get rewarded for effort. You get paid for results. If that hurts your feelings then you are in trouble.

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If anyone adults want my help I will freely give of it. You can contact me off list if you are overly sensitive and dont want a public admonishment.

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☐ Terry,

"I dont need a lecture from someone who makes no meaningful contributions or has no clue how the radio works."

Come on Terry, you're better than that.

Dave f4eyk

45576. RE: Reducing the 520 & 520S Parts....

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 10:47:42 UTC
From: <peterlake2003@...>
Topic: 45547 Message: 45576

Hi Bob
Was wondering first of all would you be willing to send parts to England, If so would you please give me a price on the Assembly that holds the Drive Ant Mixer and Osc coils, (Located on the underside of the rig on the band change switch) If required will give you the part number.
My radio is a TS520s that is need of lost of restoration but these boards are the most urgent
Thanks
Peter G8ZZL

peterlake@mail.com

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

We made the move to Wichita Falls Texas & enjoying my grandkids until they become teenagers.. :) ...
I plan on reducing my parts on the 520 & 520S so just give me a quick email on what you may need for a repair or just a spare board...
Will give you a reduced price...
All parts are clean & benched for proper operation...
Thanks
Bob
512-410-5092
ke5ftf...at.. mail.com

45577. Re: [TS-520_820_530_830] difference between, a 530,and 530s, .

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 17:21:27 UTC
From: Joseph Stiles
Topic: 45574 Message: 45577

Kenny,

  I have never seen a plain "530" only the "S" and "SP" model. There is a difference between the 530S and the 530SP...the latter added a "notch filter. For a run down on KW hybrids models: k4eaa.com

73 Joe
WB7UQU

On Wednesday, October 30, 2013 10:17 AM, kenny <kenny.macdougall@...> wrote:

>Hi,
>Can any of you nice people tell me if there is any difference between, a 530,and 530s,and if so what it is.
>73s
>Kenny
>Scotland
>
>
>
>
>

45578. Requests for Help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 18:24:21 UTC
From: Bob Lazarow
Topic: 45578 Message: 45578

Having seen many "misconstrued" requests for help and subsequent responses in the Group,

I believe that the main issues are that "Newbies" don't always appreciate the complexity of their rigs, the difficulty of remote diagnosis and repair, the parts situation, the need for basic electronics knowledge and test equipment. No one in their right mind would say " I bought a 1957 Chevy on e-bay. It was in an accident, I think, and it doesn't run...can anyone fix it for me?"....but it happens here all of the time..

I think a few procedural items might make things easier on everyone. (Not looking for "volumes" of information) It can be kept short.

All correspondence should have a name and call, or an ex-call, or an indicator of level of interest (ie, CB, non-Ham hobby). Every single message should NAME the RIG in Question..

Perhaps a "read me first" explaining how difficult remote rig repair or solving power/SWR problems, etc are,,,AND what will expected from the requester

Requests for assistance might be accompanied by a short form designed to determine the tube and related experience of the requester, available test equipment, steps already taken, t, and other similar relevant information.

I have also suggested in the past the use of pictures, when it makes sense, to aid with remote diagnoses., especially if taken off-line

I also recommend that if the information is not clearly or accurately presented, people should simply refrain from responding and "move on" after the first or second "go-around" indicates that communications or reality are not pointing toward an amiable "give and take" scenario.

This is a highly technical part of a HOBBY; it's tough to be an "appliance operator" with an old rig, limited parts available, possible modifications, inacurrate or misleading documentation, and so on

My respect and thanks who try to help when they can.

Among my other related experiences, I ran Computer Remote Help Desks in all size companies up to "huge", and that experience,,especially in the early days when all of this stuff was new, and not commonly kept at home, is similar to what our guys face, except worse...

'73

Bob/WA2JAJ

45579. Re: [TS-520_820_530_830] difference between, a 530,and 530s, .

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 18:41:34 UTC
From: Mike
Topic: 45574 Message: 45579

I could be wrong but in the event that Kenny is referring to the 520 verses the 520S then here are some of the differences between those 2 models:

1. The 520S has 160 meters but the 520 does not.

2. The dial on the 520S is different than the 520.

3. RL1 on the GENERATOR Unit in the 520 was removed/replaced with a revised circuit on the 520S GENERATOR Unit.

4. The 520S had the PHONE PATCH IN/OUT sockets on the rear panel but the 520 did not.

5. The 520S has the HET/VFO/CAR sockets plus a 2 pin 13.6VDC socket for the DG-5 digital display but the 520 has none of these

6. The DC to DC converter, DS-1A, was an optional item in the 520S but was standard from the factory in the 520.

7. The 4 position crystal control (FIX) option was located to the right of the meter in the 520 but that switch was moved to an outer ring switch on the LOAD control in the 520S

8. The Meter switch was located on the LOAD control in the 520 but was moved to the right of the meter in the 520S

The TS-520SE is the same transceiver as the TS-520S except for 2 non-supported features:

1. The TS-520SE is designed to operate from 120/240VAC ONLY (the DC-1A DC to DC converter power option is not supported)

2. The HEATER switch was eliminated in the TS-520SE (driver and both final tube filaments were constantly lit as long as either 120VAC or 240VAC (switch selectable) is applied to the TS-520SE and the main power switch is set to ON).

73
Mike W5RKL

On 10/30/2013 12:21 PM, Joseph Stiles wrote:
> Kenny,
>
> I have never seen a plain "530" only the "S" and "SP" model. There
> is a difference between the 530S and the 530SP...the latter added a
> "notch filter. For a run down on KW hybrids models: k4eaa.com
>

> 73 Joe
> WB7UQU
>
>
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>
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> between, a 530,and 530s,and if so what it is.
> 73s
> Kenny
> Scotland
>
>
>
>

45580. Re: [TS-520_820_530_830] difference between, a 530,and 530s, .

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 17:48:40 UTC
From: kenny
Topic: 45574 Message: 45580

Thanks for the info Joe.
73s
Kenny
Scotland
----- Original Message -----
From: Joseph Stiles
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, October 30, 2013 5:21 PM
Subject: Re: [TS-520_820_530_830] difference between, a 530,and 530s, .

Kenny,

I have never seen a plain "530" only the "S" and "SP" model. There is a difference between the 530S and the 530SP...the latter added a "notch filter. For a run down on KW hybrids models: k4eaa.com

73 Joe
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Hi,
Can any of you nice people tell me if there is any difference between, a 530,and 530s,and if so what it is.
73s
Kenny
Scotland

45581. deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 17:15:07 UTC
From: <eire36@...>
Topic: 45581 Message: 45581

hi all i have ts530s that has had 100 watts of Rf inputted into the antenna socket before i purchased it i have rebuilt the rf amp for the TX and that is ok now but the rx takes 17 mv to get a signal 9 reading and 60 UV gives a zero reading but is barely heard if i inject a signal into the if board at connector 1 of 524 UV signal heard but no meter reading but 95 mv gives a signal 9 and at th ceramic filter input 524 uv gives signal 3 output s4 and the input to xtal filter s7 have checked all the components from the rif to the xtal filter and all seems ok but the if cans do not tune all measurements taken in cw mode and at 10 mhz with the narrow ssb filter in as the wide band one lowers the s meter from an s9 to an s7 the calibrator does not show a s meter reading but is heard and tune able any help greatly appreciated.

45582. RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 21:07:24 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45582

Barry

I did not take anything you said as mocking or sarcastic. I was not offended in any way. I simply did not know how tell you a second time that peaking at a particular level makes no difference. I gave a short bit of fundamentals to help you understand what you are doing this step. Hopefully there will come a time when you will be able to mentally visualize what is on the other end of each knob you are turning and what it is doing, how it does it, why you adjust it a certain way, and what happens if you do not. That will take some time and can be enhanced if you do some self study.

I was trying to tell you because there are so many different approaches to loading that absent a good video if you follow the loading instructions in your manual it is a method that is as good as any and closest to the ideal way to load a Class AB1 final. Only thing better would be if you had a screen grid current meter.

As I stated in my first response to you I can see why most people who read the manual have an immediate question as to what they mean when they say peak the Drive control for maximum meter indication. It begs the question " what maximum?" On what scale? Probably 10 years ago when I bought my first KW hybrid and I read the manual I had the same question. Absent an elmer or this forum I had to dig in and learn what I was doing when I was turning that knob. I had a little easier time as I had 40 years of experience at that time and grew up in the tube era. Before I understood we were just looking at RF voltage swing I probably was hung up on grid current as well as so many seem to be. We grew up with bold cautions never to exceed 3ma or 4ma and make sure you go back and check again after fully loaded. Different transmitter, different class of operation. Apples and oranges.

I did not and do not think you are stupid or ignorant. I have no problem with you questioning what I say or anyone else when you still do not understand or if your knowledge and experience base gives you a different perspective.

Yes talking over the phone can be better than emailing.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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shared at the same time. You need a tough hide to play on the Internet.

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However, I'm pretty sure I understand now, and much has been clarified and I feel more confident.

Until my next question... 73!

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I forgot one thing.

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I have very high standards and expectations for my children, my family, my friends, and my associates. I would do them a dis-service if I did not. I praise and recognize them publicly when they meet those expectations and correct them when they do not. I dont waste much time on the "cants" and waste no time on the "wonts" in this life.

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union steward telling a worker that he has been grieved and he is not smart enough to know it.

This is the same fellow who recently penned the sarcastic litany mocking the advice that I and others have been giving. He did this while pouting over not getting his hand held.

If anyone adults want my help I will freely give of it. You can contact me off list if you are overly sensitive and dont want a public admonishment.

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☐ Terry,

"I dont need a lecture from someone who makes no meaningful contributions or has no clue how the radio works."

Come on Terry, you're better than that.

Dave f4eyk

45583. Re: [TS-520_820_530_830] deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 22:44:19 UTC
From: n6wk@...
Topic: 45581 Message: 45583

On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
>
> 73,
> Gordon
> N6WK

--

45584. thanks to w5rkl for the videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 22:24:21 UTC
From: <danweed85@...>
Topic: 45584 Message: 45584

I'm not sure the gentleman's name but w5rkl has posted some very helpful videos for someone like me starting out in electronics and I just to say thanks! I've got a ways to go before I feel comfortable working on the radio (a ts-820 with a bad receiver) but these videos have helped me a lot so thanks again! http://www.n6wk.com/w5rkl/
http://www.n6wk.com/w5rkl/ the link if you havn't seen them.

Dan Weed
(still no call sign)

45585. RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 22:59:26 UTC
From: <glene77is@...>
Topic: 45548 Message: 45585

Terry K9TW
You are very knowledgeable
and really good with re-wording techy subjects.
Please continue.
Glen, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Barry

I did not take anything you said as mocking or sarcastic. I was not offended in any way. I simply did not know how tell you a second time that peaking at a particular level makes no difference. I gave a short bit of fundamentals to help you understand what you are doing this step. Hopefully there will come a time when you will be able to mentally visualize what is on the other end of each knob you are turning and what it is doing, how it does it, why you adjust it a certain way, and what happens if you do not. That will take some time and can be enhanced if you do some self study.

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Dave f4eyk

45586. question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 23:02:33 UTC
From: <danweed85@...>
Topic: 45586 Message: 45586

(sorry to admins about my posting mishaps not sure what was sent to yall but I kept hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.

Dan Weed
(no call sign yet)

I don't have a call sign because im waiting to get it when I join a local club and since I will be begging for some help on fixing this radio I want to learn a little more about electronics and some of the circuits in it.

45587. Re: [TS-520_820_530_830] question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 02:56:00 UTC
From: Joseph Stiles
Topic: 45586 Message: 45587

Dan,

  I think you just found out how important it is to take notes/pictures prior to removing any
connectors or wires.

With the rig turned bottom up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal

The next is a 5 wire connector: colors go from right to left: white...red...green...white w/grey stripe

73 Joe
WB7UQU

On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:

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about electronics and some of the circuits in it.
>
>
>

45588. Re: [TS-520_820_530_830] deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 03:05:35 UTC
From: Joseph Stiles
Topic: 45581 Message: 45588

eire36,

  I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

  Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

>
>On 10/30/2013 2:02 PM, n6wk@... wrote:
>> I'll bet L-41 on the RF unit is shorted!
>>
>> 73,
>> Gordon
>> N6WK
>
>--
>
>
>
>
>

45589. T6 45.05MHz could urgently needed for TS-440 RF unit (and maybe others)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 03:26:33 UTC
From: Chris Parnell
Topic: 45589 Message: 45589

Hi all

I am looking for T6 on the RF board of the Kenwood TS-440s. It's listed as a 45.05Mhz Coil - have posted in the 440 Yahoo Group too.

Kenwood Part no is L34-2283-05 but T3 - T7 are all 45.05 MHz coils.

If anyone has one they could sell me i would be most appreciative.

Thanks
Chris, ZL1CDP

Sent from my iPhone

45590. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 03:37:43 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45590

Terry,

OK, I ran the same test you did. I connected the generator to pin 4 of the CAR-2 board and set the output for 300mV rms at 8830.70. I am using my scope and doing the math to convert from peak-peak to rms.

At D7 anode I increased the Car Pot level to 30mV rms. This occurred at about 2-1/2 position.

I then moved to the anode of D8 and swept from 8830.0 to 8840.0 At those two frequencies the signal is virtually non-existent. The peak occurs at 8830.30 and is approximately 18mV. It is hard to tell exactly because the signal is jumping around on my scope.

Either side of that frequency the signal drops off fast. For example, if I change the frequency to 8830.32 of 8830.28, the signal drops about 16mV.

I guess this pretty much confirms the filter is bad. I can still remove it from the board and sweep it with 600 ohm terminations but I don't think it will change anything.

Do you think at this point I should just get another CW filter and try it?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Ok dinner is over and grand kids gone and house quiet. I need a beer!

Here is what I did to sweep the CW filter:

1. Removed the Carrier Osc metal cover 2 screws and exposed CAR-2 board
2. Removed small screw in center of the board.
3. Gently wiggled and pulled on the 10 pin Molex connector and removed the board
4. Connected RF Sig Gen output cable to pins 4 and 3 . Hot lead to 4 and shield to 3 or ground
5. Powered rig on in CW mode. Heaters and SG switch off. Drive control at 1200. VFO at 14.2mhz, and CAR Level pot full CCW.
6. Connected RF millivolt meter to IF board TP-5 and adjusted RF Sig gen output for 300mv rms @ 8830.70.
7. Connected RF millivolt meter to Diode D7 at input to the CW filter and flipped rig to Send and increased Car Level Pot for approx 30 mv input. Car Pot level was at position "2" for 30 mv carrier level. .
8. Moved RF millivolt meter to Diode D8 and swept the RF sig gen from 8800 to 9000. Found peak in RF voltage at approx 15 mv at 8830.689.

So the Fc of my filter is very close to 8830.70 and the attenuation closely matches what is listed on the TX Level Diagram.

Suggest you do not use much more than 30mv rms or 85 mv p-p input at Diode D7.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board
3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

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8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the

USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also have 100mV P-P. I would have thought the signal out of Q18 would have been stronger

but maybe not.

I have 340mV at the junction of the cathode of D7 and C14 on the IF board. I have 280mV on the side of C14 where it feeds the CW filter. The signal going into the filter measures 8.830755 MHz. I only have 6mV P-P coming out of the crystal filter. Is the crystal filter used for transmit?

I connected the antenna to the radio and 20 meters is open. Tuning in CW signals in USB mode and switching to CW mode drops the signal by about 1 S-Unit when the signal is peaked for max signal in both modes.

Where do I go from here?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Are you talking Dave or Terry ? If someone is helping you off list I can back away as I have a pretty full plate right now.

I am not clear where you are measuring this 40mv P-P signal at?

45591. Re: [TS-520_820_530_830] T6 45.05MHz could urgently needed for TS-440 RF unit (and maybe others)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 03:42:20 UTC
From: n6wk@...
Topic: 45589 Message: 45591

Chris,
I Have some. How much you wannna Pay? LOL
I have a few RF Parts boards here.

73,
Gordon
N6WK

On 10/30/2013 8:26 PM, Chris Parnell wrote:
>
> Hi all
>
> I am looking for T6 on the RF board of the Kenwood TS-440s. It's
> listed as a 45.05Mhz Coil - have posted in the 440 Yahoo Group too.
>
> Kenwood Part no is L34-2283-05 but T3 - T7 are all 45.05 MHz coils.
>
> If anyone has one they could sell me i would be most appreciative.
>
> Thanks
> Chris, ZL1CDP
>
> Sent from my iPhone
>
>

--

45592. RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 03:43:03 UTC
From: <rcbuckiii@...>
Topic: 45586 Message: 45592

Dan and Joe,

On my TS-820S, the 5 wire connector colors from right to left are:
white w/black stripe...grey...red...green...white w/grey stripe

Maybe different revision levels?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Dan,

I think you just found out how important it is to take notes/pictures prior to removing any connectors or wires.

With the rig turned bottom up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal

The next is a 5 wire connector: colors go from right to left: white...red...green...white w/grey stripe

73 Joe
WB7UQU

On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:

(sorry to admins about my posting mishaps not sure what was sent to yall but I kept hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.

Dan Weed
(no call sign yet)

I don't have a call sign because im waiting to get it when I join a local club and since I will be begging for some help on fixing this radio I want to learn a little more about electronics and some of the circuits in it.

45593. Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 03:53:02 UTC
From: Joseph Stiles
Topic: 45586 Message: 45593

Ray and Dan...quite possible...but the main body color matches...just as long as the proper connector gets connected to the RIF. terminal..one thing nice, is that these wires have been in the same position for possibly 30+ years...and have been know to almost fall back into place...hihi

73 Joe
WB7UQU

On Wednesday, October 30, 2013 8:43 PM, "rcbuckiii@yahoo.com" <rcbuckiii@...> wrote:

>Dan and Joe,
>
>On my TS-820S, the 5 wire connector colors from right to left are:
>white w/black stripe...grey...red...green...white w/grey stripe
>
>Maybe different revision levels?
>
>Ray AB7HE
>
>
>---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:
>
>
>Dan,
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> I think you just found out how important it is to take notes/pictures prior to removing any
>connectors or wires.
>
>With the rig turned bottom up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal
>
>The next is a 5 wire connector: colors go from right to left: white...red...green...white w/grey stripe
>
>
>
>
>73 Joe
>WB7UQU
>
>
>
>On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:
>

>
>>>(sorry to admins about my posting mishaps not sure what was sent to yall but I kept hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.
>>>
>>>
>>>Dan Weed
>>>(no call sign yet)
>>>
>>>I don't have a call sign because im waiting to get it when I join a local club and since I will be begging for some help on fixing this radio I want to learn a little more about electronics and some of the circuits in it.
>>>
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>

45594. Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 04:02:43 UTC
From: Joseph Stiles
Topic: 45586 Message: 45594

Dan,

Ray is correct about the "white w/black stripe" wire. I got curious...and took another look...mine indeed has the "white w/black stripe) wire versus...just "white." Thanks Ray!

73 Joe
WB7UQU

On Wednesday, October 30, 2013 8:55 PM, Joseph Stiles <stilesjoseph@...> wrote:

>Ray and Dan...quite possible...but the main body color matches...just as long as the proper
>connector gets connected to the RIF. terminal..one thing nice, is that these wires have been in the same position for possibly 30+ years...and have been know to almost fall back into place...hihi
>
>
>
>
>
>73 Joe
>WB7UQU
>
>
>
>On Wednesday, October 30, 2013 8:43 PM, "rcbuckiii@..." <rcbuckiii@...> wrote:
>
>
>>Dan and Joe,
>>
>>On my TS-820S, the 5 wire connector colors from right to left are:
>>white w/black stripe...grey...red...green...white w/grey stripe
>>
>>Maybe different revision levels?
>>
>>Ray AB7HE
>>
>>
>>---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:
>>
>>
>>Dan,
>>
>> I think you just found out how important it is to take notes/pictures prior to removing any
>>connectors or wires.

>>
>>With the rig turned bottom
up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal
>>
>>The next is a 5 wire connector: colors go from right to left:
white...red...green...white w/grey stripe
>>
>>
>>
>>
>>73 Joe
>>WB7UQU
>>
>>
>>
>>On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:
>>
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>>>>(sorry to admins about my posting mishaps not sure what was sent to yall but I kept hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.
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>>>>Dan Weed
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45595. RE: MC-60 mic issues

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 06:43:22 UTC
From: <james27613@...>
Topic: 45545 Message: 45595

hi Cliff,

the MC-60 uses pc board mounted switches, while the mc-50
used a spring type link.

I placed three photos in the section

MC-60 base inside circuit board

73 james ke4drn

---In ts-520_820_530_830@yahoogroups.com, <cliffro@...> wrote:

Hi,
I have an MC-60 mic that works great except for the lock button for transmit. It appears that a previous owner must have removed the mechanical linkage that makes the lock work. Does anyone have pictures of this mechanism or a link of where to get this part?

Thanks and 73's

KK4JRS

45596. Re: [TS-520_820_530_830] Requests for Help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 07:42:56 UTC
From: Gordon JC Pearce
Topic: 45578 Message: 45596

On Wed, Oct 30, 2013 at 02:24:21PM -0400, Bob Lazarow wrote:

> I believe that the main issues are that "Newbies" don't always
> appreciate the complexity of their rigs, the difficulty of remote
> diagnosis and repair, the parts situation, the need for basic
> electronics knowledge and test equipment. No one in their right mind
> would say " I bought a 1957 Chevy on e-bay. It was in an accident, I
> think, and it doesn't run...can anyone fix it for me?"....but it happens
> here all of the time..

Although to be fair, a 1957 Chevy (or any car, up to the late 80s) is about as technical as a hammer and can generally be got started if you can confirm the presence of roughly the right amounts of fuel, electricity and compression!

> This is a highly technical part of a HOBBY; it's tough to be an
> "appliance operator" with an old rig, limited parts available, possible
> My respect and thanks who try to help when they can.

As they say, "You can have a toolbox and not have an old Landrover, but you can't have an old Landrover and not have a toolbox". In the case of our beloved old boatanchors, the toolbox is more mental than physical (although a perspex knitting needle with the end filed to a screwdriver tip is invaluable for that neutralising cap).

--
Gordonjcp MM0YEQ

45597. Re: [TS-520_820_530_830] thanks to w5rkl for the videos

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 10:44:49 UTC
From: Mike
Topic: 45584 Message: 45597

You are most welcome Dan and I thank you for your support and comments
about my videos.

73
Mike W5RKL

On 10/30/2013 5:24 PM, danweed85@... wrote:
>
> I'm not sure the gentleman's name but w5rkl has posted some very
> helpful videos for someone like me starting out in electronics and I
> just to say thanks! I've got a ways to go before I feel comfortable
> working on the radio (a ts-820 with a bad receiver) but these videos
> have helped me a lot so thanks again! http://www.n6wk.com/w5rkl/ the
> link if you havn't seen them.
>
> Dan Weed
>
> (still no call sign)
>
>

45598. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 11:30:59 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45598

Ray:

I obviously did not witness your test so can only go by what you report back.
I dont understand why your signal is jumping around on the scope. Dont know how you are triggering the sweep? Should be a stable waveform display.

However with 30 mv input and 18 mv output that agrees with attenuation you should expect.

My test revealed that my filter was very close to 8830.7 khz Fc.

Any of these filter sweeps depend on the accuracy of the test gear you have. Ideally you would need a Sweep generator with accurate KW markers, or a Spectrum analyzer with a tracking generator, or a 2 port VNA (make some nice USB ones today). Absent these classic test gear then you have to use the old fashioned manual method you just employed. It has been done this way for years and plotted on graph paper (before PC and Excel!) .

However results are no better than the accuracy of your RF sig gen output frequency.

One other thing you could try is to key the rig with heater and SG switch on into dummy load and see if you now get out good RF output with your test 8830.30 injected at pin 4 in lieu the rigs carrier oscillator. You know with the 8830.7 applied by the CAR-2 board it doesnt produce any RF output in CW mode so if your filter Fc has shifted to 8830.3 you should see good RF output power by injecting that carrier oscillator frequency. Actual transmit RF output freq will be off a little but not of concern.

Other wise you can remove the filter and sweep in on bench terminated with the 600 ohm source resistor and the 600 load resistor.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

OK, I ran the same test you did. I connected the generator to pin 4 of the CAR-2 board and set the output for 300mV rms at 8830.70. I am using my scope and doing the math to convert from peak-peak to rms.

At D7 anode I increased the Car Pot level to 30mV rms. This occurred at about 2-1/2 position.

I then moved to the anode of D8 and swept from 8830.0 to 8840.0 At those two frequencies the signal is virtually non-existent. The peak occurs at 8830.30 and is approximately 18mV. It is hard to tell exactly because the signal is jumping around on my scope.

Either side of that frequency the signal drops off fast. For example, if I change the frequency to 8830.32 of 8830.28, the signal drops about 16mV.

I guess this pretty much confirms the filter is bad. I can still remove it from the board and sweep it with 600 ohm terminations but I don't think it will change anything.

Do you think at this point I should just get another CW filter and try it?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Ok dinner is over and grand kids gone and house quiet. I need a beer!

Here is what I did to sweep the CW filter:

1. Removed the Carrier Osc metal cover 2 screws and exposed CAR-2 board
2. Removed small screw in center of the board.
3. Gently wiggled and pulled on the 10 pin Molex connector and removed the board
4. Connected RF Sig Gen output cable to pins 4 and 3 . Hot lead to 4 and shield to 3 or ground
5. Powered rig on in CW mode. Heaters and SG switch off. Drive control at 1200. VFO at 14.2mhz, and CAR Level pot full CCW.
6. Connected RF millivolt meter to IF board TP-5 and adjusted RF Sig gen output for 300mv rms @ 8830.70.
7. Connected RF millivolt meter to Diode D7 at input to the CW filter and flipped rig to Send and increased Car Level Pot for approx 30 mv input. Car Pot level was at position "2" for 30 mv carrier level. .
8. Moved RF millivolt meter to Diode D8 and swept the RF sig gen from 8800 to 9000. Found peak in RF voltage at approx 15 mv at 8830.689.

So the Fc of my filter is very close to 8830.70 and the attenuation closely matches what is listed on the TX Level Diagram.

Suggest you do not use much more than 30mv rms or 85 mv p-p input at Diode D7.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board
3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

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8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also

still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx 100mv P-P TIF you are good.

Output of the TX Mixer is 1.4v rms or 4.0v P-P. This RF drive level is now 14.175 mhz.

If you plan on doing a lot of this work suggest you invest in a RF Millivolt meter. I use a Boonton 92E. I find it loads the circuits less and just easier and faster to use.

Of coures once you get to the 1.4 volts at output of the TX Mixer the old fashioned RF probe and VTVM works great. Just have to use multi-diode probe at plate of Driver tube and control grids of the Finals. I used a Heath 309C and PK-3 probes and a IM-18 VTVM for years and still have them for fall back.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Are the transmit levels on page 42 of the service manual correct? Are those RMS values?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Thanks Terry. I have been talking to you since you have been helping. I don't know what made me put Dave on the last message (old age maybe).

I decided to start over from the beginning and go stage by stage this afternoon. This is what I did:
(All measurements taken with Send switch operated and Mode switch in CW position. Also, the measurements are the same in both CW and FSK modes.)

I suspected D1 or L1 was bad on the CAR-II board was bad but that is not the case. I have 720mV on CA2 leaving the CAR-II board in both CW and FSK send modes. I also have 720mV P-P on CA2 (IF5-13) on the IF board. I have 100mV P-P at the coax that connects to C92 on the IF board. On the other end of that coax where it connects to the top of T4 on the IF board I also ha

(Message over 64 KB, truncated)

45599. RE: RE: RE: [TS-520_820_530_830] RE: RE: RE: YouTube Video of Tuning procedure.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 13:40:25 UTC
From: <wagstw46@...>
Topic: 45548 Message: 45599

Glen:

Thanks for the compliment. Please accept what I am about to say in the spirit that it is given. I am trying to help you and not quite sure where to begin.

1. I assume you have some form of wire dipole that you are multi-banding thus the need for the Tuner? That is OK but when learning to load a KW hybrid I recommend you place the Tuner in bypass and learn to load into a dummy load. Using the Tuners watt meter is fine for that. Worry about learning how to adjust the Tuner when feeding an antenna after you have mastered loading in to a dummy load.

2. Your procedure seems needlessly complex and convoluted. Frankly I have no idea what you are doing. Wish I could observe it and give you some feedback.

3. I repeat you did not "miss something in the SSB tune-up". There is NO SSB tune up. If you literally follow Step 4.3 Transmission procedure you are loading or tuning the radio in CW mode.

4. There is no correlation between your Tuner wattmeter and the rigs RF relative power meter indications. I suppose you could load to 100 watts out as indicated by your Tuner wattmeter and then adjust your RF meter sensitivity pot for a full scale reading or pick any level on the meter scale and record that value and then always come back to that point. Making sure your Tuner wattmeter and rigs RF relative power meter match has nothing to do with preventing "over powering" the radio. If you mean by "overpowering" exceeding the 6146 final tube plate dissipation the way that you ensure you do not do that is to avoid long off resonance key down time and do not exceed a maximum of 265ma of plate current in the IP position of the meter. If you are using the Tuner wattmeter to load with (a very good idea) then you will want to leave your panel meter in the IP position. In this way when you load to approx 100 watts out you can see at what plate current that occurs at. On most TS830 rigs with good tubes and good alignment that will occur at approx 200ma to 225ma. You can load to around 250ma with no ill effects, but most fellows limit the plate current to approx 225ma (actually is cathode current which includes screen grid current). So I repeat there is no reason to make any comparisons between the Tuner wattmeter and rigs RF relative power readings. Apples and oranges.

5. In your Step 1 you say you set the CAR level pot at around 6 to 8 and obtain 1 watt output on your Tuner wattmeter. I assume this is adjusting the Drive level in TUNE mode? If it is, then your rig has some issues. At 14.200 mhz you should be able to peak the Drive control to obtain full scale ALC deflection at approx #4 on the CAR pot and should see something on the order of 15 to 17 watts out into the dummy load. Any less than this and you likely have Driver tube issues and/or poor coil pack alignment. Both easy fixes.

6. Your Step 2 makes no sense to me. When reducing the CAR level pot (CCW rotation) the output power indicated on your Tuner wattmeter should fall and not increase.

I cant comment any further on the remainder of your procedure as I am not sure what you are doing and why.

What you need to do is:

1. Peak the Drive control in Tune Mode. Should be close to 1200 at mid VFO range. You can pick any level of ALC indication that you like for this ie middle of black printed scale, far right end of black printed scale, or meter full scale. With good 830 should take no more Car level than approx # 4 on 20 meters. It will vary on each band, but typically should never have to run more than 1200 position.

2. Dip the Plate current in Tune Mode. Do this with the Plate Load cap full CCW (plates fully meshed). You will see something on order of 40 to 50 ma dip. You do this so that when you next move on to CW mode to complete the loading that you are not far off resonance and would have very heavy plate current when you key the rig.

3. You now go to CW mode and leave the meter in IP position. You flip to Send and alternately adjust the Plate Tune and Plate Load controls for a maximum RF output on your Tuner wattmeter. It should be approx 100 watts and IP should read approx 200 to 225 ma.

You are done loading in CW Mode. It cannot get any simpler than this. Three simple steps in no more than 10 seconds or so total key down time.

You now place a code key in the key jack and key the rig and adjust the CAR pot for any level of output power that you want to operate at. Make no other adjustments.

Once you master this then you can learn how to use a small amount of RF drive to adjust the Tuner caps and inductor so your antenna system presents a 50 ohm load to the rig input of the Tuner. You cannot change what the antenna system looks like to the antenna input of the Tuner. You are not "sharply" tuning the antenna with your Tuner. You are taking whatever load impedance that the feed line presents (combination of resistance and reactance) and converting it to 50 ohm resistive load that your rig likes to see. This is why "Trans-Match" is a better name than Tuner. Too complex to go in much detail here.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry K9TW

Thanks for the tutorial. Very helpful.
I missed something in the SSB tune-up.

Am using an Antenna Tuner with calibrated Power Meters,
which work with the Knwd 830 "RF" meter relative readings.
That is a double-check against accidently overpowering.

On the Knwd 830, Currently, when changing bands,
1) I set the "Carrier" to the CW #6 or #8.
which produces maybe a 1 W Power Forward at the Antenna Tuner.
2) I begin adjusting Load / Plate / Drive, watching the "IP" and the Tuner Pwr.
I adjust the "Carrier" CCW towards #5 , then #4,
which gradually increases the Power Forward reading in the Antenna Tuner.
3) Back and forth a few times, to get 100 mA "IP" and 25 W Power Forward.

This allows me to sharply tune the antenna.
4) Lastly, I typically I back off towards 5 W Power Forward.

Other than the trusty HW8,
my former experience was with an ARC-5 running pair of 807 at 205 W.
Careful drive and tuning was required else the 807's would turn yellow !

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

G'day,

Turn heaters on and allow a few minutes for the tubes to warm up and get to operating stage.

Turn mode switch to tune and a dummy load and external watt meter connected.

place the plate marker to the band your going to tune on and the load control fully counter clockwise.

Meter switch to ALC

Flick send switch and peak the drive control, if the needle goes out of the ALC range use the carrier control to back it off until it is at maximum position of the ALC mark

switch meter to IP, then dip the needle using the plate control

switch meter to RF and then using the load control peak the needle

Send switch to rec position

mode switch to cw, either wide or narrow your choice.

flick send switch to send

Very quickly and I mean quickly while watching the watt meter, peak the output using the plate and load control, this should take no more than a few seconds, if your not able to do it in one go due to limited experience flick send switch back to rec for a few minutes.

Repeat this until you get maximum output, if you have low output then try and turn your carrier pot clock wise, you will see the output rise, on all of my 530s and 830s radios my car is set to less that half of the potentiometer's travel and this is subject to band being tuned.

This will take a few attempts but once mastered you will be able to tune within the 5 second timeframe.

The benefit of having an external watt meter is so you can easily see that you have maximum output and have the PA tuned properly thus taking a heap of pressure of you tubes and associated parts in the PA and final board.

Once your happy with output, turn send switch to receive, mode switch to USB\LSB, mic gain to about 10 o'clock position, meter to ALC, speak into mic and see if the meter moves in the ALC. Now if you have ALC movement back the mic gain off (CCW) until the ALC needle just moves, this will ensure you have good clean audio, check the output with whislt talking and

if you want use a whistle unless of course you have a two tone generator.

73s

Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: bvelasquez@...
Date: Tue, 29 Oct 2013 17:54:00 -0700
Subject: [TS-520_820_530_830] RE: RE: RE: YouTube Video of Tuning procedure.

Yes, the question of ALC is the most confusing to me. As you say, there are many of people that do various things to keep the meter within the black ALC range. A new driver tube with CAR set in the middle goes way past the ALC range on the meter. Do I then lower CAR to not go past this range, or you said it doesn't matter, and I just peak with the DRIVE control with CAR at center no matter where the meter goes???? I feel I'm destroying my driver tube and not knowing it because the manual doesn't show you what you should see, or what is optimal when you are doing the ALC step.

My understanding is that it is maximum meter deflection. In other words, you turn the DRIVE control until the needle doesn't go any higher... yes, no?? What you are looking for is the opposite of what you look for when you dip the PLATE?

Sorry, but all this is new to me and I'm learning as I'm going. The manual is not that straight forward and assumes a certain knowledge that was probably very common when this radio was made. Not so common now with all the solid state, turn on and play rigs.

Even K4EAA, has a different tuning procedure than what the manual defines. I cannot find an Elmer in my area that knows about these rigs, at least I haven't found someone yet.

If anyone wants to give me a call and explain some of this in more detail, call me at 559-272-6759. I'm in Pacific Standard Time, and usually up and about until after 11:00PM.

Barry (K0DDR)

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

There is no SSB loading procedure in any TS830 operating manual that I have seen and no way to load with Mode Switch in LSB or USB unless you inject audio in to the mic jack? Dont know what manual you were reading.

There is Step 4.3 Transmission that clearly describes how to load the TS830 and that is done in CW mode. At Step 9 in clearly states you are now done and fully loaded and ready for CW operation. Need to go on to the CW section to learn how to zero beat but loading is done.

If you had literally followed this Step 4.3 you would not have turned your Car Level Pot back CCW at its conclusion. Where did it direct you to do that?

Only thing they could have added is if you want to run less than 100 watts out you can reduce the Carrier Level pot position to any output power level you desire. Apparently that is not intuitive.

Some points of clarification:

1. Manual says to check resting plate current and set to 60ma. No need to do that every time you load the rig. OK to do, but not required. Once set should not change for a long time. If rig is new to you then should clean the bias voltage adjust pot on rear panel with deoxit and blow out with canned air and adjust for 60ma. You are setting the zero signal operating point (Class AB1).

2. Almost everyone has a question about Step 5 adjusting the Drive control to peak the ALC indication. What ALC peak? Do they mean the printed black rectangular box or the full scale of the panel meter? IT DOES NO MATTER. You are not reading any of the meter scales. You are NOT setting grid current levels. You are adjusting the Transmit Mixer and Transmit Drive tuned circuits for resonance so you will have maximum RF drive (voltage swing) at the control grids of the 6146 finals. Videos will go to great length to show that you must keep ALC indication in the center of the black printed range or at the far right edge of it and to go back and check it after loading and if not to adjust it. All of this is bogus and shows no understanding of what this step is. Some of this comes from long time hams. Just advance the Car Level pot to get a decent indicated level that you can peak. If the level of carrier pegs the meter simply back the Car Pot down a little.

3. After adjusting the Plate Tune cap for a dip in Plate current (Ip) in Tune mode all the KW hybrid manuals have you flip meter to RF Relative Power position to load to maximum relative power output and as a last step go back to Ip meter position to make sure not exceeding maximum plate dissipation. 200ma for the 520/820 rigs and 265ma for the 530/830 rigs. Most 530/830 owners do not load much above 225ma in effort to extend tube life.

No where does KW recommend you load the radio using the plate current Dip and Load method. Old timers do this as they learned it from Class C grid leak bias CW transmitter days. It was only game in town as there were no external wattmeters and they had to watch grid current so they didnt exceed 6146 final tube control grid dissipation and damage the tubes. None of that applies to a KW Hybrid. It is a Class AB1 linear amp. For this reason KW gave you the RF Relative Power meter position to load the radio. In Class AB1 loading to max rf output without exceeding max plate dissipation will result in the max load (best efficiency) occurring slightly to inductive side of true resonance. Hard to see the actual minimum dip in Class AB1 tetrode amps.

4. For all new folks I suggest that since you need a SWR bridge to trim your dipoles do yourself a favor and buy a wattmeter like a Drake W4 or Heath HM-102 and you now have your SWR bridge and a KW hybrid loading aid and test meter. Instead of using the RF meter position leave rig meter in IP and load for maximum RF output power on the external wattmeter (this will be approx 100 watts out or a little less) without exceeding approx 200 to 225 ma. 225ma is a level that Ken K4EAA recommends to ensure long tube life. It is not a hard number.

Using the Wattmeter gives a real power number to look at and simplifies loading and gives instant indication of problems with the rig or your antenna system. These are problems that you as a new person would not likely recognize or understand looking at the Ip meter indication.

Loading one of these radios can be accomplished literally in seconds.

If you pre-set the controls can be done even in CW mode to get that initial plate current dip. Not recommended until you gain some experience.

I have seen no You Tube videos that I would recommend. Most are flawed especially when it comes to peaking the ALC indication and that includes those posted by Extra class holders. Lots of good intentions and little technical understanding of what is happening on the ends of the control knob shafts.

Until you gain some knowledge and experience if you can read, read with comprehension, and observe literal procedure compliance, then the loading procedure steps in all the manuals works just fine.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Barry
K0DDR
Tell me about it !
I am a CW operator normally at QRP.

So, I decided to put the Kenwood 830 'on line'.
I went through the whole SSB tuning sequence,
because that is all that was in my manual.
Then at the end they state something like
flip the switch to CW and you are ready to go.
NOT !
The SSB procedures have just canceled out your Carrier,
thus NO CW signal.

I thought I missed something, so I went back through all this several times.

Finally, I just rotated the Carrier Knob and gave myself some Carrier for the CW signal.

All went well after that.

Anyway, Kenwood 830 is a 1985 Cadillac of transceivers.
Glad to have one.
You just have to have more experience than the guy who wrote the manuals.

This is a good Group and the chatter about Kenwood topics is informative.
No magic, but good advice.

Thanks guys.
Glen Ellis, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I'm new to the Kenwood Hybrid. I've been reading quite a bit about them, and one thing in particular I find is there are so many different ways people tune the transceiver. I was wondering if anyone here could recommend a YouTube video that demonstrates the best way to tune the hybrid for transmit. I've found a few YouTube videos. None of them seem to follow the manual when tuning.

73,

Barry
K0DDR

45601. Re: [TS-520_820_530_830] difference between, a 530,and 530s, .

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 05:49:40 UTC
From: kenny
Topic: 45574 Message: 45601

Hi Mike,
Thanks for getting back with that helpful info. I was under the impression there was a 530, and 530s,i was wrong,i must have been thinking of a 520 and 520s
73s
Kenny
Scotland.

----- Original Message -----
From: Mike
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, October 30, 2013 6:41 PM
Subject: Re: [TS-520_820_530_830] difference between, a 530,and 530s, .

I could be wrong but in the event that Kenny is referring to the 520 verses the 520S then here are some of the differences between those 2 models:

1. The 520S has 160 meters but the 520 does not.

2. The dial on the 520S is different than the 520.

3. RL1 on the GENERATOR Unit in the 520 was removed/replaced with a revised circuit on the 520S GENERATOR Unit.

4. The 520S had the PHONE PATCH IN/OUT sockets on the rear panel but the 520 did not.

5. The 520S has the HET/VFO/CAR sockets plus a 2 pin 13.6VDC socket for the DG-5 digital display but the 520 has none of these

6. The DC to DC converter, DS-1A, was an optional item in the 520S but was standard from the factory in the 520.

7. The 4 position crystal control (FIX) option was located to the right of the meter in the 520 but that switch was moved to an outer ring switch on the LOAD control in the 520S

8. The Meter switch was located on the LOAD control in the 520 but was moved to the right of the meter in the 520S

The TS-520SE is the same transceiver as the TS-520S except for 2 non-supported features:

1. The TS-520SE is designed to operate from 120/240VAC ONLY (the DC-1A DC to DC converter power option is not supported)

2. The HEATER switch was eliminated in the TS-520SE (driver and both final tube filaments were constantly lit as long as either 120VAC or 240VAC (switch selectable) is applied to the TS-520SE and the main power switch is set to ON).

73
Mike W5RKL

On 10/30/2013 12:21 PM, Joseph Stiles wrote:

Kenny,

I have never seen a plain "530" only the "S" and "SP" model. There is a difference between the 530S and the 530SP...the latter added a "notch filter. For a run down on KW hybrids models: k4eaa.com

73 Joe
WB7UQU

On Wednesday, October 30, 2013 10:17 AM, kenny <kenny.macdougall@...> wrote:

Hi,
Can any of you nice people tell me if there is any difference between, a 530,and 530s,and if so what it is.
73s
Kenny
Scotland

45602. Re: [TS-520_820_530_830] deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-30 21:02:25 UTC
From: n6wk@...
Topic: 45581 Message: 45602

I'll bet L-41 on the RF unit is shorted!

73,
Gordon
N6WK

On 10/30/2013 10:15 AM, eire36@... wrote:
>
> hi all i have ts530s that has had 100 watts of Rf inputted into the
> antenna socket before i purchased it i have rebuilt the rf amp for the
> TX and that is ok now but the rx takes 17 mv to get a signal 9 reading
> and 60 UV gives a zero reading but is barely heard if i inject a
> signal into the if board at connector 1 of 524 UV signal heard but no
> meter reading but 95 mv gives a signal 9 and at th ceramic filter
> input 524 uv gives signal 3 output s4 and the input to xtal filter s7
> have checked all the components from the rif to the xtal filter and
> all seems ok but the if cans do not tune all measurements taken in cw
> mode and at 10 mhz with the narrow ssb filter in as the wide band one
> lowers the s meter from an s9 to an s7 the calibrator does not show a
> s meter reading but is heard and tune able any help greatly appreciated.
>
>

--

45603. RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 14:45:47 UTC
From: <danweed85@...>
Topic: 45586 Message: 45603

Ok well thanx for the responses everyone but apparently the plugs were not in the right place to begin with. This radio had the 3 pin connector with the clear wire, blank space, then gray (my wire is gray with some black heat shrink near the connector) wire was reversed with the 5 pin white with black stripe etc... before I unplugged the connectors. Now I have I have two pins on the IF board with no connections. Here's what I have now from the RIF pin 1 from radio rear to front. The 3 pin connector clear wire, empty, gray wire. Then the 5 pin connector white with black stripe, gray, red, green, white with gray stripe. Then a 3 pin connector green, purple, gray. then pins 4 and 5 on IF 2 are blank. is this correct now? Id be interested in turning it on again after I get this right.

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Dan,

Ray is correct about the "white w/black stripe" wire. I got curious...and took another look...mine indeed has the "white w/black stripe) wire versus...just "white." Thanks Ray!

73 Joe
WB7UQU

On Wednesday, October 30, 2013 8:55 PM, Joseph Stiles <stilesjoseph@...> wrote:

Ray and Dan...quite possible...but the main body color matches...just as long as the proper connector gets connected to the RIF. terminal..one thing nice, is that these wires have been in the same position for possibly 30+ years...and have been know to almost fall back into place...hihi

73 Joe
WB7UQU

On Wednesday, October 30, 2013 8:43 PM, "rcbuckiii@..." <rcbuckiii@...> wrote:

Dan and Joe,

On my TS-820S, the 5 wire connector colors from right to left are:
white w/black stripe...grey...red...green...white w/grey stripe

Maybe different revision levels?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Dan,

I think you just found out how important it is to take notes/pictures prior to removing any connectors or wires.

With the rig turned bottom up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal

The next is a 5 wire connector: colors go from right to left: white...red...green...white w/grey stripe

73 Joe
WB7UQU

On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:

(sorry to admins about my posting mishaps not sure what was sent to yall but I kept hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.

Dan Weed
(no call sign yet)

I don't have a call sign because im waiting to get it when I join a local club and since I will be begging for some help on fixing this radio I want to learn a little more about electronics and some of the circuits in it.

45604. Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 17:59:12 UTC
From: Joseph Stiles
Topic: 45586 Message: 45604

Dan,

  Look in the "operating manual," Pg 34, Section 6.2...it tells you what you need to know.

73 Joe
WB7UQU

On Thursday, October 31, 2013 10:56 AM, "danweed85@..." <danweed85@...> wrote:

>Ok well thanx for the responses everyone but apparently the plugs were not in the right place to begin with. This radio had the 3 pin connector with the clear wire, blank space, then gray (my wire is gray with some black heat shrink near the connector) wire was reversed with the 5 pin white with black stripe etc... before I unplugged the connectors. Now I have I have two pins on the IF board with no connections. Here's what I have now from the RIF pin 1 from radio rear to front.   The 3 pin connector clear wire, empty, gray wire. Then the 5 pin connector white with black stripe, gray, red, green, white with gray stripe. Then a 3 pin connector green, purple, gray. then pins 4 and 5 on IF 2 are blank. is this correct now? Id be interested in turning it on again after I get this right.
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>---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:
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>Dan,
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>Ray is correct about the "white w/black stripe" wire. I got curious...and took another look...mine indeed has the "white w/black stripe) wire versus...just "white." Thanks Ray!
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>73 Joe
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>On Wednesday, October 30, 2013 8:55 PM, Joseph Stiles <stilesjoseph@...> wrote:
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>>>Ray and Dan...quite possible...but the main body color matches...just as long as the proper
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>>>>Ray AB7HE
>>>>
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>>>>---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:
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>>>>
>>>>Dan,
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>>>> I think you just found out how important it is to take notes/pictures prior to removing any
>>>>connectors or wires.
>>>>
>>>>With the rig turned bottom up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal
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>>>>The next is a 5 wire connector: colors go from right to left:
white...red...green...white w/grey stripe
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>>>>
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>>>>73 Joe
>>>>WB7UQU
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>>>>
>>>>On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:
>>>>
>>>>
>>>>>>>>(sorry to admins about my posting mishaps not sure what was sent to yall but I kept

hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.
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>>>>>>
>>>>>>Dan Weed
>>>>>>(no call sign yet)
>>>>>>
>>>>>>I don't have a call sign because im waiting to get it when I join a local club and since I will be begging for some help on fixing this radio I want to learn a little more about electronics and some of the circuits in it.
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45605. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 18:16:17 UTC
From: <eire36@...>
Topic: 45581 Message: 45605

ok thank you for the help it is greatly appreciated and sorry for the lack of ID i will try and contact Gordon through the do i pm or just leave a message on the board once again thank you both

peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
>
> 73,
> Gordon
> N6WK

--

45606. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 18:19:49 UTC
From: <eire36@...>
Topic: 45581 Message: 45606

how do you see my findings on the if board is that normal and i am chasing a red herring? what is the micro Henry reading of l41 normally as i have an LCR meter and i can check this out
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

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> 73,
> Gordon
> N6WK

--

45607. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 18:19:54 UTC
From: <eire36@...>
Topic: 45581 Message: 45607

by the way i am in Alabama
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

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WB7UQU
Group Co-owner

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On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
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> 73,
> Gordon
> N6WK

--

45608. Re: [TS-520_820_530_830] RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 18:33:24 UTC
From: Joseph Stiles
Topic: 45581 Message: 45608

Peter,

  You can send Gordon-n6wk a direct "off-list" email using this "yahoo group." Copy & paste his address or use: n6wk at n6wk dot com. As far as the uh reading(s) of L-41?...I am not sure of the answer...Gordon is way more knowledgeable about this particular item.

  Thanks for your understanding of identification regarding this group. Good luck in your repair efforts. Please post updates on your progress..so others down the line may benefit.

73 Joe
WB7UQU

On Thursday, October 31, 2013 11:24 AM, "eire36@..." <eire36@juno.com> wrote:

>by the way i am in Alabama
>
> peter
>kf4jia
>
>
>
>---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:
>
>
>eire36,
>
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>>>> N6WK
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45609. Kenwood MC-50

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 18:38:44 UTC
From: <danbbower@...>
Topic: 24055 Message: 45609

Hi all

First can I just say I am very impressed with the technical knowledge in this group and people's willingness to help out newbies like myself.

I am trying to take it all in and am about to embark on some light renovation of my 830S so there may be more questions incoming!

In the meantime an easy starter. I have acquired an MC-50 to go with my 830S but it did not come with the lead to connect the base unit to the radio. Does anyone know where I can get a lead from or at least that funny 5 pin plug it uses.

Any suggestions will be gratefully received.

73

Danny M6YDB

45610. RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 20:04:28 UTC
From: <rcbuckiii@...>
Topic: 45375 Message: 45610

Terry,

I guess the final test you suggested confirms the CW filter is bad. I will pull it out just to confirm.

My signal generator is DDS controlled and is adjustable in 1 Hz steps. I calibrated my Frequency Counter about 3 months ago against a OCXO. According to the counter, my DDS generator is 32 Hz high at 8.830000.

With the generator set to 8.830300 feeding pin 4 on the CAR-2 board, I am able to load the transmitter to full power in CW mode. At this frequency the TS-820S display is reading 14.199.6. Changing the frequency to 8.830400 or 8.830200 cuts the power in half. If I set the generator to 8.830700, I get the 60 ma resting plate current.

After I remove the filter and confirm it is bad, I will order a replacement.

Thanks for all your help with this. I still have to solve the issue of the dip on 40 meters not being correct. I will open a separate topic for this in a couple of days.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I obviously did not witness your test so can only go by what you report back.
I dont understand why your signal is jumping around on the scope. Dont know how you are triggering the sweep? Should be a stable waveform display.

However with 30 mv input and 18 mv output that agrees with attenuation you should expect.

My test revealed that my filter was very close to 8830.7 khz Fc.

Any of these filter sweeps depend on the accuracy of the test gear you have. Ideally you would need a Sweep generator with accurate KW markers, or a Spectrum analyzer with a tracking generator, or a 2 port VNA (make some nice USB ones today). Absent these classic test gear then you have to use the old fashioned manual method you just employed. It has been done this way for years and plotted on graph paper (before PC and Excel!) .

However results are no better than the accuracy of your RF sig gen output frequency.

One other thing you could try is to key the rig with heater and SG switch on into dummy load and see if you now get out good RF output with your test 8830.30 injected at pin 4 in lieu the rigs carrier oscillator. You know with the 8830.7 applied by the CAR-2 board it doesnt produce any RF output in CW mode so if your filter Fc has shifted to 8830.3 you should see good RF output power by injecting that carrier oscillator frequency. Actual transmit RF output freq will be off a little but not of concern.

Other wise you can remove the filter and sweep in on bench terminated with the 600 ohm source resistor and the 600 load resistor.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

OK, I ran the same test you did. I connected the generator to pin 4 of the CAR-2 board and set the output for 300mV rms at 8830.70. I am using my scope and doing the math to convert from peak-peak to rms.

At D7 anode I increased the Car Pot level to 30mV rms. This occurred at about 2-1/2 position.

I then moved to the anode of D8 and swept from 8830.0 to 8840.0 At those two frequencies the signal is virtually non-existent. The peak occurs at 8830.30 and is approximately 18mV. It is hard to tell exactly because the signal is jumping around on my scope.

Either side of that frequency the signal drops off fast. For example, if I change the frequency to 8830.32 of 8830.28, the signal drops about 16mV.

I guess this pretty much confirms the filter is bad. I can still remove it from the board and sweep it with 600 ohm terminations but I don't think it will change anything.

Do you think at this point I should just get another CW filter and try it?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Ok dinner is over and grand kids gone and house quiet. I need a beer!

Here is what I did to sweep the CW filter:

1. Removed the Carrier Osc metal cover 2 screws and exposed CAR-2 board
2. Removed small screw in center of the board.
3. Gently wiggled and pulled on the 10 pin Molex connector and removed the board
4. Connected RF Sig Gen output cable to pins 4 and 3 . Hot lead to 4 and shield to 3 or ground
5. Powered rig on in CW mode. Heaters and SG switch off. Drive control at 1200. VFO at 14.2mhz, and CAR Level pot full CCW.
6. Connected RF millivolt meter to IF board TP-5 and adjusted RF Sig gen output for 300mv rms @ 8830.70.
7. Connected RF millivolt meter to Diode D7 at input to the CW filter and flipped rig to Send and increased Car Level Pot for approx 30 mv input. Car Pot level was at position "2" for 30 mv carrier level. .
8. Moved RF millivolt meter to Diode D8 and swept the RF sig gen from 8800 to 9000. Found peak in RF voltage at approx 15 mv at 8830.689.

So the Fc of my filter is very close to 8830.70 and the attenuation closely matches what is listed on the TX Level Diagram.

Suggest you do not use much more than 30mv rms or 85 mv p-p input at Diode D7.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board
3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

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8.8305 - -26.4 dB
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8.8307 - -42.5 dB

8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2

So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the

USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Yes they are RMS.

I take them at around 14.175 to 14.200 mhz with the Car Level pot advanced to the point that with the Drive Control adjusted for a peak in ALC indication at panel meter full scale deflection. Then switch to CW mode and load to approx 100 watts out and turn off SG switch. Leave Car Level and Drive control alone.

Measured values will vary depending on what test instrument you are using, length of any test jumper leads used to access the test points, line voltage.

For example 8.830mhz TIF output at the IF board and input at the RF board is shown as 0.038v. This is 38.0 mv rms rf volts or 38 x 2.828 = 107 mv P-P. So if you have approx

(Message over 64 KB, truncated)

45611. RE: RE: TS-820 strange transmit problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 21:21:17 UTC
From: <wagstw46@...>
Topic: 45375 Message: 45611

OK Ray been a real pleasure working with you. Clearly you are a step or two above average and have the test gear. I think I have only seen one bad filter in my approx 10 years of experience, but have seen several others report on this forum experiencing problems.

I dont know what other test you could perform. If you are confident that your DDS sig gen is producing a 8830.30 carrier then filter Fc has shifted.

Let me know the closure and we will see of someone else can run with the 40 meter dip issue. If not I will try to help you.

73s Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I guess the final test you suggested confirms the CW filter is bad. I will pull it out just to confirm.

My signal generator is DDS controlled and is adjustable in 1 Hz steps. I calibrated my Frequency Counter about 3 months ago against a OCXO. According to the counter, my DDS generator is 32 Hz high at 8.830000.

With the generator set to 8.830300 feeding pin 4 on the CAR-2 board, I am able to load the transmitter to full power in CW mode. At this frequency the TS-820S display is reading 14.199.6. Changing the frequency to 8.830400 or 8.830200 cuts the power in half. If I set the generator to 8.830700, I get the 60 ma resting plate current.

After I remove the filter and confirm it is bad, I will order a replacement.

Thanks for all your help with this. I still have to solve the issue of the dip on 40 meters not being correct. I will open a separate topic for this in a couple of days.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

I obviously did not witness your test so can only go by what you report back.
I dont understand why your signal is jumping around on the scope. Dont know how you are triggering the sweep? Should be a stable waveform display.

However with 30 mv input and 18 mv output that agrees with attenuation you should expect.

My test revealed that my filter was very close to 8830.7 khz Fc.

Any of these filter sweeps depend on the accuracy of the test gear you have. Ideally you would need a Sweep generator with accurate KW markers, or a Spectrum analyzer with a

tracking generator, or a 2 port VNA (make some nice USB ones today). Absent these classic test gear then you have to use the old fashioned manual method you just employed. It has been done this way for years and plotted on graph paper (before PC and Excel!) .

However results are no better than the accuracy of your RF sig gen output frequency.

One other thing you could try is to key the rig with heater and SG switch on into dummy load and see if you now get out good RF output with your test 8830.30 injected at pin 4 in lieu the rigs carrier oscillator. You know with the 8830.7 applied by the CAR-2 board it doesnt produce any RF output in CW mode so if your filter Fc has shifted to 8830.3 you should see good RF output power by injecting that carrier oscillator frequency. Actual transmit RF output freq will be off a little but not of concern.

Other wise you can remove the filter and sweep in on bench terminated with the 600 ohm source resistor and the 600 load resistor.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

OK, I ran the same test you did. I connected the generator to pin 4 of the CAR-2 board and set the output for 300mV rms at 8830.70. I am using my scope and doing the math to convert from peak-peak to rms.

At D7 anode I increased the Car Pot level to 30mV rms. This occurred at about 2-1/2 position.

I then moved to the anode of D8 and swept from 8830.0 to 8840.0 At those two frequencies the signal is virtually non-existent. The peak occurs at 8830.30 and is approximately 18mV. It is hard to tell exactly because the signal is jumping around on my scope.

Either side of that frequency the signal drops off fast. For example, if I change the frequency to 8830.32 of 8830.28, the signal drops about 16mV.

I guess this pretty much confirms the filter is bad. I can still remove it from the board and sweep it with 600 ohm terminations but I don't think it will change anything.

Do you think at this point I should just get another CW filter and try it?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray:

Ok dinner is over and grand kids gone and house quiet. I need a beer!

Here is what I did to sweep the CW filter:

1. Removed the Carrier Osc metal cover 2 screws and exposed CAR-2 board
2. Removed small screw in center of the board.
3. Gently wiggled and pulled on the 10 pin Molex connector and removed the board
4. Connected RF Sig Gen output cable to pins 4 and 3 . Hot lead to 4 and shield to 3 or

ground
5. Powered rig on in CW mode. Heaters and SG switch off. Drive control at 1200. VFO at 14.2mhz, and CAR Level pot full CCW.
6. Connected RF millivolt meter to IF board TP-5 and adjusted RF Sig gen output for 300mv rms @ 8830.70.
7. Connected RF millivolt meter to Diode D7 at input to the CW filter and flipped rig to Send and increased Car Level Pot for approx 30 mv input. Car Pot level was at position "2" for 30 mv carrier level. .
8. Moved RF millivolt meter to Diode D8 and swept the RF sig gen from 8800 to 9000. Found peak in RF voltage at approx 15 mv at 8830.689.

So the Fc of my filter is very close to 8830.70 and the attenuation closely matches what is listed on the TX Level Diagram.

Suggest you do not use much more than 30mv rms or 85 mv p-p input at Diode D7.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Apparently I am wrong about in situ sweeping of the CW filter by injecting inside Anode of D7 and measuring inside Anode of D8 and using no series source resistor at the input and no shunt load resistor at the output.

As I previously mentioned using these resistors is standard practice for testing crystal lattice filters on the bench. If you know the values of the internal input and output capacitors (not likely unless you are homebrewing the filters) there are formulas for calculating the resistance values absent knowing the factory impedance values. I have had good success using two resistor divider at input and output or using a pot to ground on each end and connecting the sig gen and rf measuring device to the wipers of the pots. Can then adjust the pots to get the optimum signal levels.

I had hoped this short cut method would show if the Fc had radically shifted and/or if there was an inordinate amount of signal attenuation.

I performed your test method on my TS820 CW filter early this am and the peak RF voltage occurred at 8830.52 and not 8830.70. By those results we would say my filter is bad and I know it is not as I get full CW output with it and my CA-2 carrier frequency is spot on 8830.7.

A couple of other in situ methods come to mind:

1. Rig powered off
2. Apply 12vdc from a dc bench supply or couple of lantern batteries to Molex Conn IF-2 Pins 4 and 5. This will turn on D7 and D8 filter switching diodes.
3. Inject test Rf signal at Cathode of D7 and measure the RF output at cathode of D8.

4. This method inserts the source and load resistance that the filter sees in operation.

OR

1. Rig powered on
2. Disable CA-2 8830.7 input to IF board

3. Inject test RF signal at TP-5
4. Measure RF output at cathode of D8.

I have a pretty full plate today so will think about this and perhaps after dinner tonite can try one or both of these above methods.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Ray

Much better got it all this time.

Yes the diode barrier voltages will vary as the dc supply and line voltage will also vary. As long at the diodes are the original silicon diodes then 0.6vdc to 0.7vdc is typical. You are looking for gross differences between what I read. I looked at your readings and I agree the diodes are fine and the switching voltage supply to them is there.

Yes for most accurate sweep should terminate filter input and output in its characteristic impedance, but for this test what you have should be OK as we are only interested in relative rf voltages. I dont know what the input/output impedance of this filter is. Most of the KW filters have impedances that range from 300 ohms to 2k ohms that I have seen. You could experiment and repeat test with resistor divider on each end.

When I sweep a KW filter out of the rig on the bench I look at service manual for the input/output impedance. I then make a 2 resistor divider at each side of the filter. For example if the filter Z is 600 ohms I will place a 600 ohm resistor in series with the filter input and a 50 ohm resistor in shunt to ground. I connect the sig gen to the free end of the 600 ohm series resistor. Do same at output and connect the O-scope or RF millivolt meter to the free end of the 600 ohm resistor.

You can see that if your CW TX carrier frequency is 8830.7 as it should be then it will be outside the -6dB bandpass of the filter if the measured FC is 8830.3.

I will try to get time tomorrow and sweep my filter in place using same method you employed for comparison.

What you know for sure is :
1. D7/D8 are being biased on in CW mode.
2. With .047 cap bridging the filter you get full RF output in CW mode
3. With cap removed no RF output

Sure looks like filter is the culprit.

You are doing some good work here. Absent test gear, knowing how to use it, ability to read a schematic, and some familiarization with the board layouts this is a challenging task for any hybrid owner.

I will get back with my sweep results.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

Let me try again. The unreadable post has been happening a lot since Yahoo went to this new format last month.

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

Do you know the impedance of the crystal filters in the TS-820? This is the signal source I have to use to test with:
http://www.oocities.org/hagtronics/source/index.html
It has a 50 ohm output. I also have a HP 3314A I could use but it is also 50 ohms out.

With the signal source set to -1 dB out and in and out connections at the anodes of D7 and D8, I get these are the readings I get:
8.8300 - -46.9 dB
8.8301 - -33.3 dB
8.8302 - -19.5 dB
8.8303 - -14.4 dB
8.8304 - -17.5 dB
8.8305 - -26.4 dB
8.8306 - -28-5 dB
8.8307 - -42.5 dB
8.8308 - -49.5 dB
8.8309 - -49.7 dB
8.8310 - -50.0 dB

The filter FC appears to be at 8.8303. My scope with 1 meg load agrees with this as I see the peak on it at the same frequency. I don't know how much the 50 ohm generator and power meter loads are affecting the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray

I cannot read your post as nothing appears when I click on it. Can you try again or send via email to me. Maybe need to close this thread and open a new one?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

With the .047 cap on the anodes of D7 and D8 I am able to obtain full output in CW mode. Also, both diodes are forward biased in CW Send mode as I see approximately .6 volts drop across them in Pos C. The voltages are about .1 volt lower than what you are showing.

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Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ray that is because you have the test cap on the Cathode sides of D7 and D8. Move the cap to the Anode sides of each and the plug to Pos C. Now you are checking the diodes as well.

This test proves that you have sufficient RF carrier level from the BM available at the Cathode of D7 to produce full output in CW.

Problem is if jumpering the filter works then which is bad? The CW filter or one or both diodes or the bias supply to the diodes?

I would focus all my efforts with the plug in Pos C to simplify reading taking.

In Pos C you need to ensure that each diode is forward biased.

D7 Cathode = 2.85vdc
D7 Anode = 2.25vdc

D8 Cathode = 9.8vdc
D8 Anode = 9.2vdc

Pretty sure you have already done this and confirmed you have diode supply voltage and good diodes so that just the filter.

Do you have an RF sig generator? If you do you can sweep the filter. It will tell you couple of things.
1. Where is Fc at (center frequency)
2. What is its attenuation

Doesnt have to be a sophisticated or accurate RF sig gen.

Can set it at around 8.0 mhz as measured by your Simpson Freq counter and set the rf output level to approx 200mv as measured by your O-scope.

Connect the output from RF sig gen to Anode of D7 and your O-scope at Anode of D8 (rig power is off) and slowly raise the frequency and see where the peak RF output voltage occurs at. Should be close to 8830.7khz. This assumes your sig gen output voltage doesnt vary greatly for small change in frequency. If it does you would need two ways to measure RF so you could ride the sig gen output to keep it constant.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry, with a .047 capacitor across the CW filter, I get full output in CW mode regardless of what position the IF2 connector is in.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <rcbuckiii@...> wrote:

Terry,

These are the readings taken with IF2 connector in all three positions (P-P values):
Position A: D7 cathode: 800mV CW, 800 mV FSK --- D8 cathode: 600mV CW, 400mV FSK
Position B: D7 cathode: 600mV CW, 800 mV FSK --- D8 cathode: 44mV CW, 400 mV FSK
Position C: D7 cathode: 260mV CW, 800 mv FSK --- D8 cathode: 40mV CW, 400 mV FSK
All readings were taken with my scope with the probe in the 10X position to prevent loading of the circuit.

These are the DC readings for D7 and D8 in all three positions (RMS values):
Position A: CW - D7 anode: -3.6V, cathode: 2.0V -- D8 anode: 0V, cathode: 9.0V
Position A: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode 8.5V
Position B: CW - D7 anode: 2.8V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.7V
Position B: FSK - D7 anode: 0V, cathode: 2.0V -- D8 anode: 0V, cathode: 8.5V
Position C: CW - D7 anode: 2.8V, cathode: 2.2V -- D8 anode: 9.3V, cathode: 8.6V
Position C: FSK - D7 anode: 2.7V, cathode: 2.1V -- D8 anode: 9.3V, cathode: 8.6V

The only position I get output in CW mode is when the connector is in position A.

The CW filter is a TRIO YG-88C and I have re-soldered all connections on the filter.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I meant Cathode voltages but I think you get the idea. Measure the Anode and Cathode to ensure both diodes are being switched on. Should see approx 0.65 vdc drop across D7 and D8 as they are silicon diodes.

Not likely bad but if you need to replace I offer the following:

Should you need a diode do not use a NTE 177 sub. These are 1S1587 fast switching diodes with a fast reverse recovery time of approx 2 ns so I would not use a general purpose silicon diode as NTE sub guide suggests. Can use a NTE 519, but it has a recovery time of approx 70 ns.

I think a 1N914 or 1N4148 would be better choice at 4ns..These are still pretty commonly available.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

OK I forgot to give you the Anode voltages of D7 and D8 but you can just subtract approx 0.65vdc for the turn on voltage.

280mv P-P is high by my measurements, but if you read close to same in FSK-T then call it good. Certainly better than be too low.

6 mv P-P at output in CW-T is definitely a problem. As I said you can jumper the filter with a .047uf cap and see if you get CW Tx.

Is this the factory YG-88C filter?

I believe it has center frequency of 8830.7 mhz.and bandwidth of 500hz at -6dB.
I have never swept one.

It would not seem likely that you would have bad solder connections if the filter is working in FSK mode. Are you 100% certain you are not using the SSB filter in FSK mode?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

My voltages at D7 and D8 are virtually identical to yours. I had previously measured the levels at D7 and D8. I measured 280mV P-P where C14 connects to the CW filter and only 6mV P-P out of the filter. But that was before I changed the cable to position A. I will have to move the cable back to C and re-measure tomorrow. I will also pull the IF board out and resolder the CW crystal filter connections. It may be bad solder connections as you suggest.

I just made my first contact in 17 years on 7.020 with W5TZC about 30 mins ago. He gave me a 579 which is pretty good considering my antenna is only 8 feet off the ground. I also still have to address why they final isn't tuning properly on 40 meters. It tuned max power with plate knob pointer sitting on the 5 of 3.5. It dips at 14 on 20 meters.

If I can get the CW filter issue worked out I will go through a complete tuneup of the radio following the service manual procedures.

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

It is easy to test CW filter switching diodes D7 and D8. I thought you already did this and reported good?

As previously noted my plug is in C all the way toward the front panel.

Conn IF-2 pins 4 and 5 have approx 12.9vdc on them in Rx and Tx for CW-R, CW-T, FSK-R, and FSK-T.

The cathode of D7 is:
CW-R and FSK-R = 2.90vdc
CW-T and FSK- T = 2.90vdc

The cathode of D8 is : (Note: When you connect voltmeter back ground noise will drop significantly).
CW-R and FSK-R = 10.0vdc
CW-T and FSK-T = 9.80vdc

The reading will be different as the diodes are biased to different current levels. You can see the difference in the supply resistors for each diode.

I have never been able to measure TX level diagram RF voltages accurately using a 1X scope probe. It will pull your ALC indication down from FSD (40 over) to approx 25 over.

You should be able to measure the 8.830mhz TIF signal level at the input and output of the CW Xtal filter. I thought we did this a long time ago?

It is normal for the filters to have an insertion loss. Should have a minimum of approx 25mv rms at D7 input and minimum of approx 19mv rms at D8 output.

Here are my RF level measurements at D7 and D8:

Test conditons: 14.175mhz, Heater on , SG switch off, CW mode, Drive control peaked, Car Pot at 2.5 (for full scale ALC deflection or 40 over)

Boonton 92E (using 10x scope probe very close to same levels)
D7 = 58mv
D8 = 25mv

You can jumper across your CW filter with a couple of mini-grabber test leads with a 0.047uf capacitor in series.

Could have good switching diodes and good filter but bad solder connections at the filter?

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry,

I have made a discovery that will probably tell us where the actual problem is. I was googling how to replace CW filter and found this link:
http://www.eham.net/ehamforum/smf/index.php?topic=4925.0;wap2
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So I downloaded the operators manual and looked at page 34. Kenwood is perfectly clear about this. If the plug is in position A, the CW filter is bypassed.

I put the plug in position A and can tune to full power out in CW mode. If I place the plug in position B or C I get no power out when in CW mode.

Does this indicate a bad CW filter? The filter works fine in receive mode. The only thing I have noticed is that if I switch from USB to CW the signal drops 1 S-unit when peaked for max signal in both modes.

Ray AB7HE

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Terry,

At this point I am using my scope with 1 meg input. If is become suspicious of the reading I switch the 10X on and take the reading that way.

An immediate problem I see is I only have 10mV P-P at the drain of Q1 in FSK mode and 0 output in CW mode. The diagram says there should be 250 mV rms there. If I pull the CW filter out of the radio, how does the CW transmit work? Does the signal then go through the USB filter or do I need to install a jumper where the CW filter was?

Ray AB7HE

45612. RE: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 22:10:27 UTC
From: <danweed85@...>
Topic: 45586 Message: 45612

Thanks you Joe. that page was the answer. The connectors were in the wrong place when I got the radio. This also fixed the radio and I got to hear some feint CW and then had to run some errands came back to add a better antenna to do some listening for the first time and when I got back turned it on to warm up al looked good then a few seconds later the screen went blank and the sweet sounds faded. But thanks anyways it was fun for a few minutes.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Look in the "operating manual," Pg 34, Section 6.2...it tells you what you need to know.

73 Joe
WB7UQU

On Thursday, October 31, 2013 10:56 AM, "danweed85@..." <danweed85@...> wrote:

Ok well thanx for the responses everyone but apparently the plugs were not in the right place to begin with. This radio had the 3 pin connector with the clear wire, blank space, then gray (my wire is gray with some black heat shrink near the connector) wire was reversed with the 5 pin white with black stripe etc... before I unplugged the connectors. Now I have I have two pins on the IF board with no connections. Here's what I have now from the RIF pin 1 from radio rear to front. The 3 pin connector clear wire, empty, gray wire. Then the 5 pin connector white with black stripe, gray, red, green, white with gray stripe. Then a 3 pin connector green, purple, gray. then pins 4 and 5 on IF 2 are blank. is this correct now? Id be interested in turning it on again after I get this right.

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Dan,

Ray is correct about the "white w/black stripe" wire. I got curious...and took another look...mine indeed has the "white w/black stripe) wire versus...just "white." Thanks Ray!

73 Joe
WB7UQU

On Wednesday, October 30, 2013 8:55 PM, Joseph Stiles <stilesjoseph@...> wrote:

Ray and Dan...quite possible...but the main body color matches...just as long as the proper connector gets connected to the RIF. terminal..one thing nice, is that these wires have been in the same position for possibly 30+ years...and have been know to almost fall back into place...hihi

73 Joe
WB7UQU

On Wednesday, October 30, 2013 8:43 PM, "rcbuckiii@..." <rcbuckiii@...> wrote:

Dan and Joe,

On my TS-820S, the 5 wire connector colors from right to left are:
white w/black stripe...grey...red...green...white w/grey stripe

Maybe different revision levels?

Ray AB7HE

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Dan,

I think you just found out how important it is to take notes/pictures prior to removing any connectors or wires.

With the rig turned bottom up...front panel to your left: the terminal RIF on the IF BOARD is at far RIGHT (or to the rear of the rig), A 3 hole connector with a "clear" wire, middle hole empty, and a "black wire go here...the "clear wire goes to the RIF terminal

The next is a 5 wire connector: colors go from right to left: white...red...green...white w/grey stripe

73 Joe
WB7UQU

On Wednesday, October 30, 2013 4:38 PM, "danweed85@..." <danweed85@...> wrote:

(sorry to admins about my posting mishaps not sure what was sent to yall but I kept hitting enter and not tab) a quick reminder of who I am, names Daniel Weed im 28 and new to electronics and radio. I was gifted a ts820s with a bad receiver and after receiving the advice from yall im better off having a club help me before I turn it on again its been sitting on the bench. As im ordering test equipment, so far I have a signal generator combo with a tracer and a vtvm, I got some deoxit to clean some of the connections and after labeling all the plugs I didn't take notice of the pins on the IF board. The plugs that attach to IF 2 and IF 1 leave one pin remaining that isn't plugged into anything im guessing its the pin labeled RIF on IF 1 but I just want to be sure.

Dan Weed
(no call sign yet)

I don't have a call sign because im waiting to get it when I join a local club and since I will be begging for some help on fixing this radio I want to learn a little more about electronics and some of the circuits in it.

45613. Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 23:04:11 UTC
From: Joseph Stiles
Topic: 45586 Message: 45613

Dan,

  Glad I could help...but sorry to hear that your rig died. If you could make some observations/notes as to what happened or is happining, it may help in diagnosing and possibly fixing your rig. Sometimes...a removal and cleaning of connectors can, and has solved some problems, especially if it has sat around unused for years. It's up to you.

73 Joe
WB7UQU

On Thursday, October 31, 2013 3:52 PM, "danweed85@yahoo.com" <danweed85@...> wrote:

>Thanks you Joe. that page was the answer. The connectors were in the wrong place when I got the radio. This also fixed the radio and I got to hear some feint CW and then had to run some errands came back to add a better antenna to do some listening for the first time and when I got back turned it on to warm up al looked good then a few seconds later the screen went blank and the sweet sounds faded.   But thanks anyways it was fun for a few minutes.
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45614. Kenwood Hybrids and a telex boom microphone

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 23:05:33 UTC
From: Brian Allen
Topic: 45614 Message: 45614

I dug out my old boom headset mic out of the attic to finally use. I believe it was used in aircraft, not sure about that, has an audio and a mic 1/4 stereo plug. I spent the afternoon converting it to the 4pin plug. I can hear audio and key the rig fine. There is no modulation speaking into the mic element. Before I start tearing into the unit, I was wanting to know if this type mic element will work with the hybrids. I pried the mic element enclosure open as much as I could. Its about the size of a nickel, with green magnet wire coming from the element. Should it work with the hybrids?

Thanks

45615. RE: RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-10-31 23:51:04 UTC
From: <wagstw46@...>
Topic: 45581 Message: 45615

Peter:

It appears you replaced Q1 dual gate mosfet RF amp. Not sure how you determined it was bad?

There is no reason to guess if your L41 step up xfmr is bad. Easy to test it in circuit.

The transformer provides approx 10dB gain which is approx 3X voltage step up ratio.

To test do this with rig powered off:

1. Apply 5mv rms or -33dBm @ 14.200 mhz at TP-1 on the RF board.

2. Locate deck S1-2 bandswitch wiper. If you follow the heavy black line on the schematic from the hot end of L41 to the junction of coupling cap C42 and the wiper of S1-2 you will find it very easy to connect a mini-grabber test lead at this point to measure the transformer output level. S1-2 is the first vertical red/brown pc board from the rigs front panel. Looking straight down on this board at approx the 1130 position you will see the bronze hair pin loop of S1-2. It has a small rectangular window cut in the loop where you can connect the test lead. Connect your RF millivolt meter or O-scope here.

With 5mv @14.2mhz injected at TP-1 you will measure approx 18 to 22 mv output at S1-2 if L41 is good. Any voltage step up ratio between 3 to 1 and 4 to 1 is good.

There are two other possiblities:
1. Bad L1 2.7uhy shunt choke in the BCB filter. This is easy to check after you remove L41 by injecting 5mv @2.0mhz at TP-1 and monitoring the RF voltage at the solder pad where the hot lead of L41 was previously connected. Slowly lower the RF sig gen frequency. As the BCB filter is a high pass filter should see the filter roll off at approx 1.6mhz.

2. Bad D2 internal TX protection shunt diode. This diode shunts rig produced RF to ground when the Driver tube is conducting to protect Q1 RF amp. It gets its turn on bias from IR drop across Driver tube cathode resistors divider. It has nothing to do with protecting the rig from accidental TX RF or nearby lightning as some believe. To test D2 do this:
A. Rig powered off
B. Inject 20 mv @14.2mhz at S1-2.
C. Monitor this signal level at Gate 1 of Q1 RF amp. Gate 1 is the lower left lead on the flat pack device. Can prod at the lead hole as it enters component side of the board with a floral pin or hat pin.
D. Connect negative lead from 3 vdc from bench supply or flashlite batteries to chassis ground. While monitoring the rf voltage at G1 tap the plus lead to resistor R35 or R41 near the Driver tube socket. Monitor the 20mv signal at Gate 1 and as you tap the dc voltage on and off the resistors a good D2 diode will be biased on and shunt a good portion of the 20mv signal to ground.

Accidental RF can hurt L41, Q1, D2 and L1. Never seen it hurt the 8.830 wave traps or the Molex connectors.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

ok thank you for the help it is greatly appreciated and sorry for the lack of ID i will try and contact Gordon through the do i pm or just leave a message on the board once again thank you both

peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
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> 73,
> Gordon
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--

45616. RE: RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 00:02:27 UTC
From: <wagstw46@...>
Topic: 45581 Message: 45616

Approx values (out of circuit) are:

Primary
Resistance = 0.25 ohms
Inductance = 0.85uhy

Secondary
Resistance = 1.00 ohms
Inductance = 15.5uhy

You can also perform a excitation test out of circuit:
1. Inject 5mv @ 10.00mhz into the Primary winding. That is 10 mhz and not 1 mhz.
2. Connect RF millivolt meter or O-scope across the Secondary.
3. Adjust the slug tuned core for maximum RF output voltage. Should see approx 40mv with the core approx 1 turn outside the top of the shield can.

I would never remove L41 without testing in circuit to confirm it is bad. The above is suggested post rewind testing prior to re-installing in the rig.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

how do you see my findings on the if board is that normal and i am chasing a red herring? what is the micro Henry reading of l41 normally as i have an LCR meter and i can check this out
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

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45617. RE: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 00:44:32 UTC
From: <danweed85@...>
Topic: 45586 Message: 45617

Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Glad I could help...but sorry to hear that your rig died. If you could make some observations/notes as to what happened or is happining, it may help in diagnosing and possibly fixing your rig. Sometimes...a removal and cleaning of connectors can, and has solved some problems, especially if it has sat around unused for years. It's up to you.

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45618. TS-520 Carrier Freq Adjustmernts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 03:08:54 UTC
From: k7mks@...
Topic: 45618 Message: 45618

Am unable to locate adjustment proceedure, and resultant frequencies, for carrier adjustments TC-1, TC-2, and TC-3. This info does not appear in my 520 manual or the 520 service manual. If it did a Halloween ghost likely took them! Thanks for help.

joe k7mks

45619. Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 03:48:13 UTC
From: Joseph Stiles
Topic: 45586 Message: 45619

Dan,

  Simple question to start: Did any of the panel lights work prior to the loss of the digital readout and the loss of audio...and if so...do they still work?.

Also, try this simple check...is there a small round 9 pin plug or a piece of wire between pins 8 & 9 of the socket in the back of the rig where the remote VFO would plug into? If so, remove and re-install the plug several times...see what happens. Without this plug properly making contact or wire jumper being there...you lose power to the VFO...no digital readout and no signals heard.
Usually...it just won't work...versus just fades out. Try the above first

73 Joe
WB7UQU

On Thursday, October 31, 2013 5:44 PM, "danweed85@..." <danweed85@...> wrote:

> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks
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45620. Re: [TS-520_820_530_830] TS-520 Carrier Freq Adjustmernts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 05:14:10 UTC
From: Lou Blasco
Topic: 45618 Message: 45620

Hi Joe,

I've looked for similar notes without success.

What I did was adjust each to match the frequency specified for each crystals. Be careful because the the CW crystal X1 oscillates at two different frequencies depending on TX / RX. Look at the circuit and you'll see the CWR and CWT lines switch that crystal. I'm not a CW guy so I left that one well alone but I expect if you get that wrong you'll find it hard to net to other operators. It seems to me that you would probably net X1 for the right TX frequency and let CWR land where it may.

Maybe one of the other guys has a better idea regarding these adjustments.

Also, make sure the crystals start correctly once you adjust them. On one radio I couldn't get the LSB crystal to start reliably if tuned to the right frequency.

Regards

Lou
VK3ALB

At 14:08 01/11/2013, you wrote:
>
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>
>Am unable to locate adjustment proceedure, and resultant
>frequencies, for carrier adjustments TC-1, TC-2, and TC-3. This
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45621. Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 08:20:56 UTC
From: Gordon JC Pearce
Topic: 45586 Message: 45621

On Thu, Oct 31, 2013 at 05:44:32PM -0700, danweed85@... wrote:
> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45622. RE: TS-520 Carrier Freq Adjustmernts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 10:48:13 UTC
From: <wagstw46@...>
Topic: 45618 Message: 45622

Look at Step 3-26 around page 14 of the Service Manual.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Am unable to locate adjustment proceedure, and resultant frequencies, for carrier adjustments TC-1, TC-2, and TC-3. This info does not appear in my 520 manual or the 520 service manual. If it did a Halloween ghost likely took them! Thanks for help.

joe k7mks

45623. RE: RE: TS-520 Carrier Freq Adjustmernts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 11:36:26 UTC
From: <wagstw46@...>
Topic: 45618 Message: 45623

I forgot to mention there are at least two other ways to adjust LSB and USB carrier oscillators

Some would say that only way is the method described in the service manual by setting the roll off equally in TX mode.

There are two other ways if you lack stable accurate audio generator and wattmeter:.

1. Refer to the TS-830 Survival Guide Maintenance Section and you will find a method described that employs the Marker signal and S-meter. This is not as precise but works fine. Make sure to place AGC in Fast and need a lite touch on the VFO knob as you approach zero beat.

2, The other is to use your lap top and a diode noise bridge and audio spectrum analyzer software like Spectrogram. Lacking the diode noise bridge can just find a clear frequency. You take audio from the headphone jack and input into your line or mic input on your sound card. I use free version of Spectrogram. You can see a sample trace in the Files section. This is poor mans spectrum analyzer but fun to see your passband.

Remember how you adjust LSB and USB trimmers in Rx mode is how you will sound it TX mode. Some like a more bass presence and others like a more communications style audio.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Look at Step 3-26 around page 14 of the Service Manual.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Am unable to locate adjustment proceedure, and resultant frequencies, for carrier adjustments TC-1, TC-2, and TC-3. This info does not appear in my 520 manual or the 520 service manual. If it did a Halloween ghost likely took them! Thanks for help.

joe k7mks

45624. Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 13:53:20 UTC
From: Mike
Topic: 45624 Message: 45624

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
You have tuned up your TS-520 into a 50 ohm dummy load. The meter (meter switch set to IP), after completing the tune up steps, is indicating 200ma in CW mode.

Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45625. RE: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 13:40:32 UTC
From: <danweed85@...>
Topic: 45586 Message: 45625

thanks for responses Joe and Gordon When I turned the radio back on after following both of your suggestion and the display and the static came back. Then a few seconds later the both the relays on the bottom started clicking randomly and I could see the mechanisms inside moving and the frequency display starting jumping around. Then the relays stop clicking the freq display responded to the knob but there was no static or response on the af gain knob. Then the relays started clicking again static came back af gain response came back and the display would sometimes respond to the main tuning knob and would also jump around. It looked like the jumping frequency was in unison with the relays clicking. I turned it off after this.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Thu, Oct 31, 2013 at 05:44:32PM -0700, danweed85@... mailto:danweed85@... wrote:
> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45626. RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 15:15:19 UTC
From: <tjb813@...>
Topic: 45624 Message: 45626

The answers are simple if you ASSUME some things.

1. the correct answer for 1 is less than 1 volt (very slightly, but none the less - less than1v). IF you assume that the 3.3k resistor is still part of the circuit, and it is because you stated it was reading the CATHODE current. If the meter is not in the circuit AND we assume the resistors are really 10 ohms each AND we assume there is little resistance in the wires and connection, then we can assume the voltage is nomally 1 volt.
2. Here you must ASSUME again. IF the resistors are exactly 10 ohams AND we assume they are exctly equal (which in reality we know is not true), AND we assume the meter is correct, we hap-hazaradly apply Kircoffs current law and ASSUME the current splits equally. The theoretical answer would be 100mA. THe real answer is unknown.
3. IF you assume equal resistor values, AND assume the meter is accurate (which it is NOT), again applying Kircoffs law, we get P=I^2 R or one tenth of one watt per resistor.

What you learn by this exercise is theory and actual real-world measurements are two different things.

Gee, and I didn't even graduate highschool!

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
You have tuned up your TS-520 into a 50 ohm dummy load. The meter (meter switch set to IP), after completing the tune up steps, is indicating 200ma in CW mode.

Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45627. RE: RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 15:44:51 UTC
From: <wagstw46@...>
Topic: 45624 Message: 45627

Cathode meter shunt resistors are 5% tolerance, the series meter multiplier is 5%, the ua meter movement internal resistance is nominal and varies slightly from meter to meter, VTVMs, VOMs, and DMMs have a % accuracy, test leads have resistance, what is the ambient temperature? and on and on and on in the real world.

I dont think any of the above has anything to do with the fundamentals that this exercise is trying to address.

I once told a young man that nothing was impossible and he smugly replied "try lighting a bar of soap under water". He missed the message and I hope he had a nice life flipping burgers. Not that that is not an honorable profession!

Maybe I am missing something?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The answers are simple if you ASSUME some things.

1. the correct answer for 1 is less than 1 volt (very slightly, but none the less - less than1v). IF you assume that the 3.3k resistor is still part of the circuit, and it is because you stated it was reading the CATHODE current. If the meter is not in the circuit AND we assume the resistors are really 10 ohms each AND we assume there is little resistance in the wires and connection, then we can assume the voltage is nomally 1 volt.
2. Here you must ASSUME again. IF the resistors are exactly 10 ohams AND we assume they are exctly equal (which in reality we know is not true), AND we assume the meter is correct, we hap-hazaradly apply Kircoffs current law and ASSUME the current splits equally. The theoretical answer would be 100mA. THe real answer is unknown.
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What you learn by this exercise is theory and actual real-world measurements are two different things.

Gee, and I didn't even graduate highschool!

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45628. Re: [TS-520_820_530_830] Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 16:17:24 UTC
From: Karl Schwab
Topic: 45624 Message: 45628

Hi Mike; Boy, this is tough, hi hi! 73, de KO8S, Karl

On Friday, November 1, 2013 9:53 AM, Mike <w5rkl@...> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
You have tuned up your TS-520 into a 50 ohm dummy load. The meter
(meter switch set to IP), after completing the tune up steps, is
indicating 200ma in CW mode.

Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4,
in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in
the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45629. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 15:40:29 UTC
From: <eire36@...>
Topic: 45581 Message: 45629

ok thank you all for the help and i will execute all the information over the weekend and the let you know the results after this.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Approx values (out of circuit) are:

Primary
Resistance = 0.25 ohms
Inductance = 0.85uhy

Secondary
Resistance = 1.00 ohms
Inductance = 15.5uhy

You can also perform a excitation test out of circuit:
1. Inject 5mv @ 10.00mhz into the Primary winding. That is 10 mhz and not 1 mhz.
2. Connect RF millivolt meter or O-scope across the Secondary.
3. Adjust the slug tuned core for maximum RF output voltage. Should see approx 40mv with the core approx 1 turn outside the top of the shield can.

I would never remove L41 without testing in circuit to confirm it is bad. The above is suggested post rewind testing prior to re-installing in the rig.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

how do you see my findings on the if board is that normal and i am chasing a red herring? what is the micro Henry reading of l41 normally as i have an LCR meter and i can check this out
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
>
> 73,
> Gordon
> N6WK

--

45630. Re: [TS-520_820_530_830] Kenwood Hybrids and a telex boom microphone

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 00:02:40 UTC
From: John Davidson
Topic: 45614 Message: 45630

Maybe it is a carbon mic, commonly used in older telephone gear. needs bias voltage and a low Z load to work.

On Thursday, October 31, 2013 7:05 PM, Brian Allen <bsa0791@...> wrote:

I dug out my old boom headset mic out of the attic to finally use. I believe it was used in aircraft, not sure about that, has an audio and a mic 1/4 stereo plug. I spent the afternoon converting it to the 4pin plug. I can hear audio and key the rig fine. There is no modulation speaking into the mic element. Before I start tearing into the unit, I was wanting to know if this type mic element will work with the hybrids. I pried the mic element enclosure open as much as I could. Its about the size of a nickel, with green magnet wire coming from the element. Should it work with the hybrids?

Thanks

45631. RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 23:42:39 UTC
From: <danweed85@...>
Topic: 45624 Message: 45631

Ok here goes nothing. Now I have a few things that are confusing me right away. Im not sure whether the 50 ohm dummy load's was added to the total resistance or not, I did it both ways. I used the schematic from the 820 final, I am hoping the resistors that are labeled R3 R4 are the same as the 520 because in one of your videos you said the Cathode and IP meter circuit (and im not sure if the meter adds a load)were the same. I also wasn't sure if should add in the resistance from the IP meter, I did it both ways as well. The first answer I do not my believe is affected by my confusion and I got 1 volt after getting the total resistance from the two 10 ohm resistors R2 R3 and with the 200 milliamps I applied ohms law E = IR or 1 = .2 x 5. the second question for R3 I got .1 amps after I applied I = E/R or .1 = 1/10 (here I wasn't sure if used just the 10 ohms from R3 or the total resistance from R2 and R3 or 5 ohms for 5 ohms its .2), for R4 at 3300 ohms the current would be .000303 amps at 3350ohms (if you add the 50 ohm dummy load) current would be .000299 If you add the 800 ohms from the ip meter to the resistance the current at 4100 ohms would be .000243 amps and for 4150 ohms (again w/ dummy load if needed) the current would be .000240 amps. I got those value by applying I = E/R. The power drop for R3 I got .1 watts (using 10ohms for 5 ohms or the total resistance of R2 and R3 it would be .05). for R4 for 303 micro amps the power drop is .000303 watts, for 299 micro amps the power drop is .000299 watts for 243 micro amps the power drop is .000242 watts and for 240 micro amps the power drop would be .000239. I got these by multiplying resistance value at each resistor to the squared value of the current at each resistor. or P = I^2 x R

This is my first attempt and I wasn't sure on a lot of it but this was a great exercise and all but 1 or 2 of the books have don't have any exercises after chapters so this is especially helpful and the ones that do im not ready to read yet. so thanks again mike your really helping me out. And I usually need to get things wrong a few time before they start clicking, so all you gurus, take it eeeaasyy on me ok.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
You have tuned up your TS-520 into a 50 ohm dummy load. The meter (meter switch set to IP), after completing the tune up steps, is indicating 200ma in CW mode.

Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45632. Re: [TS-520_820_530_830] Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 02:34:40 UTC
From: clifford wright
Topic: 45624 Message: 45632

They are all fair enough questions. A sensible answer would show at least 4 things-
1. A basic knowledge of Ohms law.
2. A basic understanding of voltage and current.
3. An idea of real world component values and tolerances.
4. Understanding that seriously dangerous voltages exist in tube transmitters.

Now, I really feel that I must say this.
What on Earth is someone who cannot give a reasonable answer to the questions posed doing trying to service or repair an older piece of gear like a Kenwood hybrid?
If you want to be an "appliance operator" then do so, but accept the fact that you are NOT going to be able to repair (or fully understand) the workings of your equipment and the hobby is going to be more expensive for you.
It seems like learning to swim by jumping into the deep end!
So might I suggest that if a bit of study or effort is too much trouble then this might not be the right hobby for you. In fact most hobbies require some and that to me is what makes them worthwhile.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45633. Re: [TS-520_820_530_830] Kenwood Hybrids and a telex boom microphone

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 02:41:57 UTC
From: clifford wright
Topic: 45614 Message: 45633

Its probably an electret mic. Especially if it is VERY small and light.
In which case it will need a supply voltage trough about a 4k7 Ohm
resistor with the audio taken off the mic side thru a capacitor of 0.1
uF or more. I use one with my Kenwood 820S quite successfully but iI use
an external 9 volt battery controlled by a PTT switch (I don't like VOX).
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45634. Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 03:07:59 UTC
From: Joseph Stiles
Topic: 45586 Message: 45634

Dan,

Gordon does have a point...but...the 820S will receive just fine even though the digital display is disconnected....it's called the 820. The 820 started out with NO digital display...but it could be added "after market." There was such a demand..that they came out with the "S" model..which came from the factory with the digital display and associated components already installed.

Since it appears that you may have purchased this rig from a "well know auction site," you do not know the whole history and/or care of this rig. So with that in mind...let's start simple...as you stated that your knowledge/skill level is very basic...that's ok...I'm NOT an
expert either...but I do have some experience with this rig....so...we do not know right know what exact fault(s) that is/are causing your problem. The rigs can and will suffer from NOT being used!

Get some good tuner/contact cleaner...I use DEOXIT...others have their favorite...and a can of "canned air," aka... "air duster" The DEOXIT can be found at Radio Shack...the "canned air" at Walmart or decent computer/office supply stores and some "stiff card stock." Just about any good, clean,stiff, unlined paper will do.

With rig UNPLUGGED from power...remove top and bottom covers....turn rig bottom UP. In the middle you will see a couple of round capacitors with a RELAY next to them...remove the relay...it un-plugs. The plastic cover can be removed with the use of a small screwdriver. Just be careful. You will see numerous contacts...saturate the card stock with some contact cleaner...insert the paper between the relay
contacts...and move the paper back and forth numerous times...you will notice..possibly some "black stuff" on the paper...that's good...your getting rid of it...you will have to use your fingers to manually operate the relay armature to get them all clean...use different clean parts of the paper...blow off with "canned air." Clean the relay socket too.. reinstall relay cover...reinstall relay.

The other relay is at the rear corner, by the final amplifier board, under the metal shield. remove shield, remove relay, remove relay cover...clean and blow off contacts as stated above. Put it all back together...Check for operation.

A note of CAUTION: you will be working around some HIGH VOLTAGE AREAS!(900VDC) Check with voltmeter for HIGH VOLTAGE at the capacitors just behind the "relay board" or the "800" terminal on the HV UNIT. The voltage will bleed off over time..usually 10 minutes or less...but ALWAYS CHECK ANYWAY! You
can find them on the picture of the underside of the rig in the "operation manual." The functions of these relays is a topic for another time..but they control a bunch of stuff.

If you do not feel comfortable with this...that's OK too..maybe you can find some help.

Thanks to my "yahoo mail" crashing...it only took me 4 hours to write this.....

73 Joe
WB7UQU

On Friday, November 1, 2013 8:02 AM, "danweed85@..." <danweed85@...> wrote:

>thanks for responses Joe and Gordon When I turned the radio back on after following both of your suggestion and the display and the static came back. Then a few seconds later the both the relays on the bottom started clicking randomly and I could see the mechanisms inside moving and the frequency display starting jumping around. Then the relays stop clicking the freq display responded to the knob but there was no static or response on the af gain knob. Then the relays started clicking again static came back af gain response came back and the display would sometimes respond to the main tuning knob and would also jump around. It looked like the jumping frequency was in unison with the relays clicking. I turned it off after this.
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TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
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>> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks
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>>There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.
>
>--
>Gordonjcp MM0YEQ
>
>
>

45635. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 05:26:36 UTC
From: William Houghton
Topic: 45624 Message: 45635

Daniel,

On the TS-520 schematic, R3 & R4 are the cathode resistors in the final amp section. The test questions are asking for the DC currents, voltages, and power related to the resistors. You can ignore the 50 dummy load for your calculations as it is in the output circuit and is coupled through a capacitor (no DC current flows through the capacitor and to the antenna) and for other reasons.

Technically the IP (plate current) meter is reading cathode current. If all is going well the cathode current is a close approximation of the plate current.

You can ignore the load of the meter. Why? The meter is connected to the cathode resistors through a 3.3K resistor. The meter also has a resistance, but lets assume it is zero. So, as you recognized, the current will divide between each 10 ohm resistor and the 3.3K resistor, inversely proportional to the resistance. How much of the cathode current goes through the cathode resistors? The two 10 ohm resistors in parallel form 5 ohms. It will be:

3300/ (3300+5) = 0.999847 times the cathode current. This number will be even larger if we include the resistance of the meter in our calculations.

As you can see, ignoring the load of the meter circuit introduces an error of less than 0.1%

Now, go back and try the questions again using only the two 10 ohm cathode resistors and the 200mA plate current.

73,

Bill, WA6NEQ

From: "danweed85@..." <danweed85@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 1, 2013 4:42 PM
Subject: [TS-520_820_530_830] RE: Question for newbies

Ok here goes nothing. Now I have a few things that are confusing me right away. Im not sure whether the 50 ohm dummy load's was added to the total resistance or not, I did it both ways. I used the schematic from the 820 final, I am hoping the resistors that are labeled R3 R4 are the same as the 520 because in one of your videos you said the Cathode and IP meter circuit (and im not sure if the meter adds a load)were the same. I also wasn't sure if should add in the resistance from the IP meter, I did it both ways as well. The first answer I do not my believe is affected by my confusion and I got 1 volt after getting the total resistance from the two 10 ohm resistors R2 R3 and with the 200 milliamps I applied ohms law E = IR or 1 = .2 x 5. the second question for R3 I got .1 amps after I applied I = E/R or .1 = 1/10 (here I wasn't sure if used just the 10 ohms from

R3 or the total resistance from R2 and R3 or 5 ohms for 5 ohms its .2),
for R4 at 3300 ohms the current would be .000303 amps at 3350ohms (if you add the 50 ohm dummy load) current would be .000299 If you add the 800 ohms from the ip meter to the resistance the current at 4100 ohms would be .000243 amps and for 4150 ohms (again w/ dummy load if needed) the current would be .000240 amps. I got those value by applying I = E/R. The power drop for R3 I got .1 watts (using 10ohms for 5 ohms or the total resistance of R2 and R3 it would be .05). for R4 for 303 micro amps the power drop is .000303 watts, for 299 micro amps the power drop is .000299 watts for 243 micro amps the power drop is .000242 watts and for 240 micro amps the power drop would be .000239. I got these by multiplying resistance value at each resistor to the squared value of the current at each resistor. or P = I^2 x R

This is my first attempt and I wasn't sure on a lot of it but this was a great exercise and all but 1 o! r 2 of the books have don't have any exercises after chapters so this is especially helpful and the ones that do im not ready to read yet. so thanks again mike your really helping me out. And I usually need to get things wrong a few time before they start clicking, so all you gurus, take it eeeaasyy on me ok.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
You have tuned up your TS-520 into a 50 ohm dummy load. The meter
(meter switch set to IP), after completing the tune up steps, is
indicating 200ma in CW mode.

Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4,
in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in
the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45636. Re: [TS-520_820_530_830] TS-520 Carrier Freq Adjustmernts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-01 03:37:00 UTC
From: Joseph Stiles
Topic: 45618 Message: 45636

Joe,

All I could find was to connect RF VTVM to "OUT" of the carrier board....function switch to "VFO" and adjust T-1 for maximum

I think that you can check the frequencies directly on the board...if I remember there is an X-ray view with the terminals marked and shows the crystal frequencies in the service manual I looked at(it's a 520S) They should be:

USB = 3396.5kHz

LSB = 3393.5

CW(R) = 3394.3

CW(T) = 3395.0

You should be able to adjust the frequencies if they are off by using TC-1, 2 & 3.

I could be wrong...it's been quite a while since a looked at a 520(s)

73 Joe
WB7UQU

On Thursday, October 31, 2013 8:08 PM, "k7mks@comcast.net" <k7mks@...> wrote:

>
>Am unable to locate adjustment proceedure, and resultant frequencies, for carrier adjustments TC-1, TC-2, and TC-3. This info does not appear in my 520 manual or the 520 service manual. If it did a Halloween ghost likely took them! Thanks for help.
>
>joe k7mks
>
>
>

45637. RE: Re: [TS-520_820_530_830] TS-520 Carrier Freq Adjustmernts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 13:04:40 UTC
From: <wagstw46@...>
Topic: 45618 Message: 45637

Any time you set the Carrier Osc frequencies for LSB and USB modes to the frequencies listed in the manual you are just at the starting point. The CW Carrier Osc is only one you would set and leave at the listed frequency.

There are two requirements 1. Correct output level set first and then 2. Bring the carrier oscillators to the Xtal IF Filter Fc as you cannot change the filter response and cannot assume it is spot on.

The service manuals all provide the procedure. Some call it adjusting the Carrier Point. Some call it adjusting the SSB Frequency Response. Typically you would go to the Balanced Mod trimmer cap and trimmer pot and adjust the LSB and USB Carrier Balance first. Then perform the LSB/USB Carrier Osc adjustment procedure.

After completing these adjustments it is a good idea to go back and re-check the Carrier Suppression.

I have previously described 3 ways to do this:
1. Watt meter and audio generator (preferred method described in SM)
2. Marker and S-meter (see TS830 Survival Guide maintenance section)
3. Audio spectrum analyzer software. (Have described it numerous times)

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Joe,

All I could find was to connect RF VTVM to "OUT" of the carrier board....function switch to "VFO" and adjust T-1 for maximum

I think that you can check the frequencies directly on the board...if I remember there is an X-ray view with the terminals marked and shows the crystal frequencies in the service manual I looked at(it's a 520S) They should be:

USB = 3396.5kHz

LSB = 3393.5

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You should be able to adjust the frequencies if they are off by using TC-1, 2 & 3.

I could be wrong...it's been quite a while since a looked at a 520(s)

73 Joe
WB7UQU

On Thursday, October 31, 2013 8:08 PM, "k7mks@..." <k7mks@...> wrote:

Am unable to locate adjustment proceedure, and resultant frequencies, for carrier adjustments TC-1, TC-2, and TC-3. This info does not appear in my 520 manual or the 520 service manual. If it did a Halloween ghost likely took them! Thanks for help.

joe k7mks

45638. RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 14:56:44 UTC
From: <danbbower@...>
Topic: 45624 Message: 45638

This is exactly the kind of thing I would like to learn.

Has anyone got any suggested reading that would be useful for me to grasp the basics?

Thanks

Danny M6YDB

---In ts-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Daniel,

On the TS-520 schematic, R3 & R4 are the cathode resistors in the final amp section. The test questions are asking for the DC currents, voltages, and power related to the resistors. You can ignore the 50 dummy load for your calculations as it is in the output circuit and is coupled through a capacitor (no DC current flows through the capacitor and to the antenna) and for other reasons.

Technically the IP (plate current) meter is reading cathode current. If all is going well the cathode current is a close approximation of the plate current.

You can ignore the load of the meter. Why? The meter is connected to the cathode resistors through a 3.3K resistor. The meter also has a resistance, but lets assume it is zero. So, as you recognized, the current will divide between each 10 ohm resistor and the 3.3K resistor, inversely proportional to the resistance. How much of the cathode current goes through the cathode resistors? The two 10 ohm resistors in parallel form 5 ohms. It will be:

3300/ (3300+5) = 0.999847 times the cathode current. This number will be even larger if we include the resistance of the meter in our calculations.

As you can see, ignoring the load of the meter circuit introduces an error of less than 0.1%

Now, go back and try the questions again using only the two 10 ohm cathode resistors and the 200mA plate current.

73,

Bill, WA6NEQ

From: "danweed85@..." <danweed85@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 1, 2013 4:42 PM
Subject: [TS-520_820_530_830] RE: Question for newbies

Ok here goes nothing. Now I have a few things that are confusing me right away. Im not sure whether the 50 ohm dummy load's was added to the total resistance or not, I did it both ways. I used the schematic from the 820 final, I am hoping the resistors that are labeled

R3 R4 are the same as the 520 because in one of your videos you said the Cathode and IP meter circuit (and im not sure if the meter adds a load)were the same. I also wasn't sure if should add in the resistance from the IP meter, I did it both ways as well. The first answer I do not my believe is affected by my confusion and I got 1 volt after getting the total resistance from the two 10 ohm resistors R2 R3 and with the 200 milliamps I applied ohms law E = IR or 1 = .2 x 5. the second question for R3 I got .1 amps after I applied I = E/R or .1 = 1/10 (here I wasn't sure if used just the 10 ohms from R3 or the total resistance from R2 and R3 or 5 ohms for 5 ohms its .2), for R4 at 3300 ohms the current would be .000303 amps at 3350ohms (if you add the 50 ohm dummy load) current would be .000299 If you add the 800 ohms from the ip meter to the resistance the current at 4100 ohms would be .000243 amps and for 4150 ohms (again w/ dummy load if needed) the current would be .000240 amps. I got those value by applying I = E/R. The power drop for R3 I got .1 watts (using 10ohms for 5 ohms or the total resistance of R2 and R3 it would be .05). for R4 for 303 micro amps the power drop is .000303 watts, for 299 micro amps the power drop is .000299 watts for 243 micro amps the power drop is .000242 watts and for 240 micro amps the power drop would be .000239. I got these by multiplying resistance value at each resistor to the squared value of the current at each resistor. or P = I^2 x R

This is my first attempt and I wasn't sure on a lot of it but this was a great exercise and all but 1 o! r 2 of the books have don't have any exercises after chapters so this is especially helpful and the ones that do im not ready to read yet. so thanks again mike your really helping me out. And I usually need to get things wrong a few time before they start clicking, so all you gurus, take it eeeaasyy on me ok.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
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Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45639. RE: Re: [TS-520_820_530_830] Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 15:13:34 UTC
From: <danweed85@...>
Topic: 45624 Message: 45639

I think that's why he entitled it questions for newbies not questions for people with years of experience.

Daniel
a newbie

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

They are all fair enough questions. A sensible answer would show at
least 4 things-
1. A basic knowledge of Ohms law.
2. A basic understanding of voltage and current.
3. An idea of real world component values and tolerances.
4. Understanding that seriously dangerous voltages exist in tube
transmitters.

Now, I really feel that I must say this.
What on Earth is someone who cannot give a reasonable answer to the
questions posed doing trying to service or repair an older piece of gear
like a Kenwood hybrid?
If you want to be an "appliance operator" then do so, but accept the
fact that you are NOT going to be able to repair (or fully understand)
the workings of your equipment and the hobby is going to be more
expensive for you.
It seems like learning to swim by jumping into the deep end!
So might I suggest that if a bit of study or effort is too much trouble
then this might not be the right hobby for you. In fact most hobbies
require some and that to me is what makes them worthwhile.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com http://www.avast.com

45640. RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 15:31:50 UTC
From: <danweed85@...>
Topic: 45624 Message: 45640

Ok lets try this again with much friendlier values this time and thanks for the clarification from William.

1) E = .2amps(5ohms) = 1 volt

2) I = 1/10 = .1 amps for both R3 and R4

3) P = (.1)(.1)(10) = .1 watts of power dissipation from R3 and R4

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Here's a simple exercise for those newbies wanting to learn.

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3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45641. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 16:23:10 UTC
From: Mike
Topic: 45624 Message: 45641

Dan,

Great job!!!

If you are interested in reading/studying, may I recommend the following:

1. Basic Radio Course by John T. Frye.

There's an eBay seller selling the late 40's edition of this book. I highly recommend it.

2. ARRL Handbook - late 60's and earlier editions

3. Radio Handbook by William Orr W6SAI (Bill's an SK)

Bill Orr's book is a similar book as the ARRL Handbook. You can find this book quite often on eBay. I found my excellent condition hardback copy on eBay for $19 free shipping.

You can also use my videos at

www.n6wk.com/w5rkl/

Click on the appropriate link/folder then select the video you would like to watch.

I might also recommend you purchasing a breadboard. The breadboard can have it's own built in power supply or be powered by an external supply. I found my breadboard with built in supply at

http://www.allelectronics.com/index.php

You can power the breadboard from lantern batteries.

Don't make the mistake of ignoring having to learning the basics as many hams have done. Learn and have a solid foundation on the basics before you attempt to move into more advanced and complex areas of electronics. While today's electronics are mostly solid state there are still plenty of uses for vacuum tubes. Learn vacuum tube theory, how a simple diode, triode, tetrode, and pentode vacuum tube works. It's not as difficult as you may think.

Again, congratulations on answering all the question correctly in the simple exercise.

73
Mike W5RKL

On 11/2/2013 10:31 AM, danweed85@... wrote:
>
> Ok lets try this again with much friendlier values this time and
> thanks for the clarification from William.
>
> 1) E = .2amps(5ohms) = 1 volt
>
> 2) I = 1/10 = .1 amps for both R3 and R4
>
> 3) P = (.1)(.1)(10) = .1 watts of power dissipation from R3 and R4
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
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>
> Exercise description:
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>
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>
> 2. What is the current flowing through each resistor, R3 and R4, in
> the Final Unit?
>
> 3. What is the power dissipated by each resistor, R3 and R4, in the
> Final Unit?
>
> Please show your steps, in detail, how you arrived at each answer.
>
>
>
> 73
> Mike W5RKL
>
>

45642. 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 16:28:56 UTC
From: Jude Domanski
Topic: 45642 Message: 45642

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45643. RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 17:00:48 UTC
From: <paw_paw44036@...>
Topic: 45642 Message: 45643

price please.

---In ts-520_820_530_830@yahoogroups.com, <wd9fum@...> wrote:

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45644. RE: Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 17:02:57 UTC
From: <wagstw46@...>
Topic: 45624 Message: 45644

Dan:

I agree. I like the interest, the persistence, and the results.

Great Job!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Great job!!!

If you are interested in reading/studying, may I recommend the following:

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Bill Orr's book is a similar book as the ARRL Handbook. You can find this book quite often on eBay. I found my excellent condition hardback copy on eBay for $19 free shipping.

You can also use my videos at

www.n6wk.com/w5rkl/ http://www.n6wk.com/w5rkl/

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I might also recommend you purchasing a breadboard. The breadboard can have it's own built in power supply or be powered by an external supply. I found my breadboard with built in supply at

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You can power the breadboard from lantern batteries.

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Again, congratulations on answering all the question correctly in the simple exercise.

73
Mike W5RKL

On 11/2/2013 10:31 AM, danweed85@... mailto:danweed85@... wrote:

Ok lets try this again with much friendlier values this time and thanks for the clarification from William.

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---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> mailto:ts-520_820_530_830@yahoogroups.com wrote:

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Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45645. RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 16:12:37 UTC
From: <hardedge@...>
Topic: 45624 Message: 45645

My TS-520 is out for repair. It doesn't transmit. I'll let you know as soon as I hear from the repair tech.

-21st Century O'B.
ex-KA2MKI
(Not to worry. The barber in town keeps a bowl full of leeches at the ready.)

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
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Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45646. RE: RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 16:21:51 UTC
From: <danweed85@...>
Topic: 45624 Message: 45646

http://www.n6wk.com/w5rkl/ http://www.n6wk.com/w5rkl/ are some videos Mike w5rkl did that helped me. If you doo a google search for "Orr radio pdf" there a good book on radio and electronics. Well I just started on this one but Mike also has some suggested readings on that link and this was one of them I found for free in PDF form.
http://www.tubebooks.org/technical_books_online.htm
http://www.tubebooks.org/technical_books_online.htm I think the Orr Radio Handbook can be found at this link along with several other books concerning radios and electronics many if not all in PDF all for free. Hope this helps. Based on all my confusion on answering the questions I need to read lots more still. Though this stuff is pretty basic I tend to get a little nervous at test time.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

This is exactly the kind of thing I would like to learn.

Has anyone got any suggested reading that would be useful for me to grasp the basics?

Thanks

Danny M6YDB

---In ts-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Daniel,

On the TS-520 schematic, R3 & R4 are the cathode resistors in the final amp section. The test questions are asking for the DC currents, voltages, and power related to the resistors. You can ignore the 50 dummy load for your calculations as it is in the output circuit and is coupled through a capacitor (no DC current flows through the capacitor and to the antenna) and for other reasons.

Technically the IP (plate current) meter is reading cathode current. If all is going well the cathode current is a close approximation of the plate current.

You can ignore the load of the meter. Why? The meter is connected to the cathode resistors through a 3.3K resistor. The meter also has a resistance, but lets assume it is zero. So, as you recognized, the current will divide between each 10 ohm resistor and the 3.3K resistor, inversely proportional to the resistance. How much of the cathode current goes through the cathode resistors? The two 10 ohm resistors in parallel form 5 ohms. It will be:

3300/ (3300+5) = 0.999847 times the cathode current. This number will be even larger if we include the resistance of the meter in our calculations.

As you can see, ignoring the load of the meter circuit introduces an error of less than 0.1%

Now, go back and try the questions again using only the two 10 ohm cathode resistors and the 200mA plate current.

73,

Bill, WA6NEQ

From: "danweed85@..." <danweed85@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 1, 2013 4:42 PM
Subject: [TS-520_820_530_830] RE: Question for newbies

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Daniel

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Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45647. RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 16:29:03 UTC
From: <danweed85@...>
Topic: 45586 Message: 45647

Hey joe I cleaned the relays (the plugs were a little blackened but inside was shiny and clean) and no change, once I turned it back on they started clicking randomly again with the frequency jumping around on the display each time they clicked. Im not even sure what the relays do so Ive got some reading to do before ill try anything. Im not ready to do any real work on this beast yet. So far Ive only been able to locate one of the relays on the schematic and there's a lot there I don't understand, including tracing the circuits in line with the relay. And the only description in the service manual is for the relay unit and its a brief description that gives me a little on what to start reading about. Any information would be helpful.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Gordon does have a point...but...the 820S will receive just fine even though the digital display is disconnected....it's called the 820. The 820 started out with NO digital display...but it could be added "after market." There was such a demand..that they came out with the "S" model..which came from the factory with the digital display and associated components already installed.

Since it appears that you may have purchased this rig from a "well know auction site," you do not know the whole history and/or care of this rig. So with that in mind...let's start simple...as you stated that your knowledge/skill level is very basic...that's ok...I'm NOT an expert either...but I do have some experience with this rig....so...we do not know right know what exact fault(s) that is/are causing your problem. The rigs can and will suffer from NOT being used!

Get some good tuner/contact cleaner...I use DEOXIT...others have their favorite...and a can of "canned air," aka... "air duster" The DEOXIT can be found at Radio Shack...the "canned air" at Walmart or decent computer/office supply stores and some "stiff card stock." Just about any good, clean,stiff, unlined paper will do.

With rig UNPLUGGED from power...remove top and bottom covers....turn rig bottom UP.
In the middle you will see a couple of round capacitors with a RELAY next to them...remove the relay...it un-plugs. The plastic cover can be removed with the use of a small screwdriver. Just be careful. You will see numerous contacts...saturate the card stock with some contact cleaner...insert the paper between the relay contacts...and move the paper back and forth numerous times...you will notice..possibly some "black stuff" on the paper...that's good...your getting rid of it...you will have to use your fingers to manually operate the relay armature to get them all clean...use different clean parts of the paper...blow off with "canned air." Clean the relay socket too.. reinstall relay cover...reinstall relay.

The other relay is at the rear corner, by the final amplifier board, under the metal shield. remove shield, remove relay, remove relay cover...clean and blow off contacts as stated above. Put it all back together...Check for operation.

A note of CAUTION: you will be working around some HIGH VOLTAGE AREAS!(900VDC) Check with voltmeter for HIGH VOLTAGE at the capacitors just behind the "relay board" or the "800" terminal on the HV UNIT. The voltage will bleed off over time..usually 10 minutes or less...but ALWAYS CHECK ANYWAY! You can find them on the picture of the underside of the rig in the "operation manual." The functions of these relays is a topic for another time..but they control a bunch of stuff.

If you do not feel comfortable with this...that's OK too..maybe you can find some help.

Thanks to my "yahoo mail" crashing...it only took me 4 hours to write this.....

73 Joe
WB7UQU

On Friday, November 1, 2013 8:02 AM, "danweed85@..." <danweed85@...> wrote:

thanks for responses Joe and Gordon When I turned the radio back on after following both of your suggestion and the display and the static came back. Then a few seconds later the both the relays on the bottom started clicking randomly and I could see the mechanisms inside moving and the frequency display starting jumping around. Then the relays stop clicking the freq display responded to the knob but there was no static or response on the af gain knob. Then the relays started clicking again static came back af gain response came back and the display would sometimes respond to the main tuning knob and would also jump around. It looked like the jumping frequency was in unison with the relays clicking. I turned it off after this.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Thu, Oct 31, 2013 at 05:44:32PM -0700, danweed85@... mailto:danweed85@... wrote:
> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45648. Re: [TS-520_820_530_830] RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 17:34:56 UTC
From: Jude Domanski
Topic: 45642 Message: 45648

Oh yeah, that's pretty important isn't it? I'd like $300.00 for it. I'll send pictures if you'd like.

From: "paw_paw44036@..." <paw_paw44036@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 2, 2013 12:00 PM
Subject: [TS-520_820_530_830] RE: 830 For Sale

price please.

---In ts-520_820_530_830@yahoogroups.com, <wd9fum@...> wrote:

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45649. Re: [TS-520_820_530_830] 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 17:38:27 UTC
From: R Oler
Topic: 45642 Message: 45649

I probably am not the one buying it...I am in Dhaka Bangladesh just getting my S2 and going to have a few more months before I get hom...but I would love to see pictures...I want one to end out my classic Kenwood but probably January. I am bringing my 530 over with my 2000 ....thanks orbitjet at hotmail dot com...Robert WB5MZO

Sent from my iPad

> On Nov 2, 2013, at 10:29 PM, "Jude Domanski" <wd9fum@yahoo.com> wrote:
>
> Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.
>

45650. Re: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 17:39:14 UTC
From: Joseph Stiles
Topic: 45586 Message: 45650

Daniel,

  Ok...well...read up...and feel free to come back when ready to tackle. I'm going to go through some notes I have...to see if I have any info on this. Also, it may take some time...but cruise through the "files" section...which is available through the "HOME" page. You can use "search" to try and locate associated problems.

73 Joe
WB7UQU

On Saturday, November 2, 2013 10:30 AM, "danweed85@..." <danweed85@yahoo.com> wrote:

> Hey joe I cleaned the relays (the plugs were a little blackened but inside was shiny and clean) and no change, once I turned it back on they started clicking randomly again with the frequency jumping around on the display each time they clicked. Im not even sure what the relays do so Ive got some reading to do before ill try anything. Im not ready to do any real work on this beast yet. So far Ive only been able to locate one of the relays on the schematic and there's a lot there I don't understand, including tracing the circuits in line with the relay. And the only description in the service manual is for the relay unit and its a brief description that gives me a little on what to start reading about. Any information would be helpful.
>
>Daniel
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> Since it
appears that you may have purchased this rig from a "well know auction site," you do not know the whole history and/or care of this rig. So with that in mind...let's start simple...as you stated that your knowledge/skill level is very basic...that's ok...I'm NOT an
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I turned it off after this.
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>>>
>>>--
>>>Gordonjcp MM0YEQ
>>>
>>>
>
>
>

45651. RE: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 18:07:04 UTC
From: <wagstw46@...>
Topic: 45586 Message: 45651

Dan:

I should not be sticking my nose in Joe and Gordons thread but just one suggestion. Did someone already mention to make sure the Vox paddle switch is turned off or down to Manual position?

If VOX is on and VOX gain pot (under the VFO knob) is turned up can cause your relays to cycle.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45652. Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 18:15:02 UTC
From: Joseph Stiles
Topic: 45586 Message: 45652

Terry & Daniel

  No problem Terry...that's a valid question/observation....had not even crossed my mind...but it makes perfect sense!

  Daniel.....check the controls that Terry mentioned!

   TNX Terry!

73 Joe
WB7UQU

On Saturday, November 2, 2013 11:07 AM, "wagstw46@..." <wagstw46@...> wrote:

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45653. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 20:10:57 UTC
From: M. J. Synowiec
Topic: 45624 Message: 45653

Hi Dan, Mike, Terry, and all on the list. I hope this finds you well,

If you are interested in books, textbooks, old, & out-of-print books, there is a web seller/broker called www.abebooks.com. It appears they act as a clearing-house for many booksellers/dealers. They give info & ratings for the sellers. They do have 4 copies of Frye's book at this time rangong from $30.20 shipped(pretty good) to $115.00 shipped(This happens when a seller deals with the collector's market where the need to have over-rides all common sense.) We found the site while we were putting our 4 children through college and it helped defray a lot of textbook cost. The sellers give a pretty fair appraisal of the condition of the copy so you've got an idea what you're getting. I searched on ARRL handbooks and found many pages of league handbooks of all varieties. There was even a 1948 course in fundamentals by George Grammer with experiments & exercises basd on The Handbook for 1948 for around 46.00 shipped. (It was on page 10 of my
search for arrl handbooks) The inventory at any time changes based on what becomes available so it pays to visit every once-in-a-while. Some of the newer handbooks are quite cheap(no collectors value) and will save you some dough. Don't forget the Goodwill, Salvation Army Stores and garage sales as possible sources either. You never know when some good samaritan is going to clean out Grama & Grampas's attic. I collect and love books but I'm too cheap (& broke) to pay collector prices but abe has served me well. The detailed book listing will give you pub dates and conditon info for each book so you aren't buying a "pig in a poke".

In any event I thought I'd toss the info out. Hope it helps.

Vy 73,
mjsyn (Mike)

K8SYN

45654. RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 19:02:37 UTC
From: <hardedge@...>
Topic: 45642 Message: 45654

You'd like $300 but what would take take with careful packaging (I received a 520 a few weeks ago wrapped in a single laye of small-bubble bubble wrap and a light sprinkling of newspaper pages in the rest of the box --it did NOT survive the trip) and shipping to 07626 in NJ? And, of course, do you take Paypal?

-O'B.
ex-KA2MKI
hardedge-at-optonline-dot-net

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45655. RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 19:47:06 UTC
From: <danweed85@...>
Topic: 45586 Message: 45655

checked the VOX still no change. Thanx guys.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry & Daniel

No problem Terry...that's a valid question/observation....had not even crossed my mind...but it makes perfect sense!

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---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Gordon does have a point...but...the 820S will receive just fine even though the digital display is disconnected....it's called the 820. The 820 started out with NO digital display...but it could be added "after market." There was such a demand..that they came out with the "S" model..which came from the factory with the digital display and associated components already installed.

Since it appears that you may have purchased this rig from a "well know auction site," you do not know the whole history and/or care of this rig. So with that in mind...let's start simple...as you stated that your knowledge/skill level is very basic...that's ok...I'm NOT an expert either...but I do have some experience with this rig....so...we do not know right know what exact fault(s) that is/are causing your problem. The rigs can and will suffer from NOT being used!

Get some good tuner/contact cleaner...I use DEOXIT...others have their favorite...and a can of "canned air," aka... "air duster" The DEOXIT can be found at Radio Shack...the "canned air" at Walmart or decent computer/office supply stores and some "stiff card stock." Just about any good, clean,stiff, unlined paper will do.

With rig UNPLUGGED from power...remove top and bottom covers....turn rig bottom UP.
In the middle you will see a couple of round capacitors with a RELAY next to them...remove the relay...it un-plugs. The plastic cover can be removed with the use of a small screwdriver. Just be careful. You will see numerous contacts...saturate the card stock with some contact cleaner...insert the paper between the relay contacts...and move the paper back and forth numerous times...you will notice..possibly some "black stuff" on the paper...that's good...your getting rid of it...you will have to use your fingers to manually operate the relay armature to get them all clean...use different clean parts of the paper...blow off with "canned air." Clean the relay socket too.. reinstall relay cover...reinstall relay.

The other relay is at the rear corner, by the final amplifier board, under the metal shield. remove shield, remove relay, remove relay cover...clean and blow off contacts as stated above. Put it all back together...Check for operation.

A note of CAUTION: you will be working around some HIGH VOLTAGE AREAS!(900VDC) Check with voltmeter for HIGH VOLTAGE at the capacitors just behind the "relay board" or the "800" terminal on the HV UNIT. The voltage will bleed off over time..usually 10 minutes or less...but ALWAYS CHECK ANYWAY! You can find them on the picture of the underside of the rig in the "operation manual." The functions of these relays is a topic for another time..but they control a bunch of stuff.

If you do not feel comfortable with this...that's OK too..maybe you can find some help.

Thanks to my "yahoo mail" crashing...it only took me 4 hours to write this.....

73 Joe
WB7UQU

On Friday, November 1, 2013 8:02 AM, "danweed85@..." <danweed85@...> wrote:

thanks for responses Joe and Gordon When I turned the radio back on after following both of your suggestion and the display and the static came back. Then a few seconds later the both the relays on the bottom started clicking randomly and I could see the mechanisms inside moving and the frequency display starting jumping around. Then the relays stop clicking the freq display responded to the knob but there was no static or response on the af gain knob.

Then the relays started clicking again static came back af gain response came back and the display would sometimes respond to the main tuning knob and would also jump around. It looked like the jumping frequency was in unison with the relays clicking. I turned it off after this.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Thu, Oct 31, 2013 at 05:44:32PM -0700, danweed85@... mailto:danweed85@... wrote:
> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45656. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 21:49:23 UTC
From: Wes Will
Topic: 45624 Message: 45656

On 11/02/2013 03:10 PM, M. J. Synowiec wrote:
>
>
> Hi Dan, Mike, Terry, and all on the list. I hope this finds you well,
>
> If you are interested in books, textbooks, old, & out-of-print books,
> there is a web seller/broker called www.abebooks.com. It appears they

They USED to be a clearing-house, and fiercely independent, one small book shop competing with and helping out the other.

Until the owners sold out to Amazon, and now they are a wholly-owned subsidiary with only profit maximization for the parent company as a goal. A lot of the smaller sellers pulled out, two in my little neck of the woods alone, rather than pay the Danegeld which Amazon wanted.

Add in the Amazon policy towards what us computer geeks know as "DRM" (Digital Rights Management, or that insane piece of 'copyright' legislation we've been screwed with by the idiots in D.C.) and it adds up to why I stopped using ANY of the Amazon affiliated stores a few years ago.

And there are more of them than you might believe.

Yes, it likely takes me a good, oh, five more minutes, to find a non-Amazon-sourced item, but I can spare the five minutes to support SMALL business owners. I only wish more people would have done the same, and spared the extra five minutes for me when I was a small businessman, and before Wally-World (another "I don't go there. Period." place) spent the better part of three years losing money on every piece-of-junk computer they sold in this area, solely to put me out of business.

Yes, I'm a little bitter about it, even twenty-odd years later. But I live just fine, and have made acquaintance with some fine small business-people, all without supporting more of these corporate behemoths than I absolutely have to.

--
Wes Will
N9KDY

45657. RE: [TS-520_820_530_830] RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 22:39:51 UTC
From: fpath fpath
Topic: 45642 Message: 45657

Hi Guys,

It is highly recommended that if you are going to buy and this is purely my opinion and what I do when sending or receiving radios.

Double box, use plenty of bubble wrap and foam peanuts and pay the extra for insurance.

Recently I bought a TL922 for restoration, the old fellow double boxed and even went to the extent of putting padded masionite board on all six sides, it cost me $A306.00 to ship it. Biggest mistake made was the words "handle with care, fragile and this way up". Needless to say only damage was two broken feet tabs, they can't be welded or fixed, but have a better way of repairing. When I reported back to courier service was told - see you in small claims court we're not paying!

The old guy rang me a few days later and he had the same thing when he bought the amp years before.

Morale of the story, don't be cheap when boxing, difference between arriving dead or alive

73's

Dave

VK5PDL

From: hardedge@optonline.net
To: TS-520_820_530_830@yahoogroups.com
Date: Sat, 2 Nov 2013 12:02:37 -0700
Subject: [TS-520_820_530_830] RE: 830 For Sale

You'd like $300 but what would take take with careful packaging (I received a 520 a few weeks ago wrapped in a single laye of small-bubble bubble wrap and a light sprinkling of newspaper pages in the rest of the box --it did NOT survive the trip) and shipping to 07626 in NJ? And, of course, do you take Paypal?

-O'B.
ex-KA2MKI
hardedge-at-optonline-dot-net

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45658. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 00:04:03 UTC
From: Ron
Topic: 45624 Message: 45658

Dan if u look at the general license book they are in there along with other laws of electronics

Ron KK4PWF

On Nov 2, 2013, at 9:56 AM, <danbbower@gmail.com> wrote:

>
>
> This is exactly the kind of thing I would like to learn.
>
>
>
> Has anyone got any suggested reading that would be useful for me to grasp the basics?
>
>
>
> Thanks
>
>
>
> Danny M6YDB
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:
>
> Daniel,
>
> On the TS-520 schematic, R3 & R4 are the cathode resistors in the final amp section. The test questions are asking for the DC currents, voltages, and power related to the resistors. You can ignore the 50 dummy load for your calculations as it is in the output circuit and is coupled through a capacitor (no DC current flows through the capacitor and to the antenna) and for other reasons.
>
> Technically the IP (plate current) meter is reading cathode current. If all is going well the cathode current is a close approximation of the plate current.
>
> You can ignore the load of the meter. Why? The meter is connected to the cathode resistors through a 3.3K resistor. The meter also has a resistance, but lets assume it is zero. So, as you recognized, the current will divide between each 10 ohm resistor and the 3.3K resistor, inversely proportional to the resistance. How much of the cathode current goes through the cathode resistors? The two 10 ohm resistors in parallel form 5 ohms. It will be:
>
> 3300/ (3300+5) = 0.999847 times the cathode current. This number will be even larger if

we include the resistance of the meter in our calculations.
>
> As you can see, ignoring the load of the meter circuit introduces an error of less than 0.1%
>
> Now, go back and try the questions again using only the two 10 ohm cathode resistors and the 200mA plate current.
>
> 73,
>
> Bill, WA6NEQ
>
> From: "danweed85@..." <danweed85@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Friday, November 1, 2013 4:42 PM
> Subject: [TS-520_820_530_830] RE: Question for newbies
>
> Ok here goes nothing. Now I have a few things that are confusing me right away. Im not sure whether the 50 ohm dummy load's was added to the total resistance or not, I did it both ways. I used the schematic from the 820 final, I am hoping the resistors that are labeled R3 R4 are the same as the 520 because in one of your videos you said the Cathode and IP meter circuit (and im not sure if the meter adds a load)were the same. I also wasn't sure if should add in the resistance from the IP meter, I did it both ways as well. The first answer I do not my believe is affected by my confusion and I got 1 volt after getting the total resistance from the two 10 ohm resistors R2 R3 and with the 200 milliamps I applied ohms law E = IR or 1 = .2 x 5. the second question for R3 I got .1 amps after I applied I = E/R or .1 = 1/10 (here I wasn't sure if used just the 10 ohms from R3 or the total resistance from R2 and R3 or 5 ohms for 5 ohms its .2), for R4 at 3300 ohms the current would be .000303 amps at 3350ohms (if you add the 50 ohm dummy load) current would be .000299 If you add the 800 ohms from the ip meter to the resistance the current at 4100 ohms would be .000243 amps and for 4150 ohms (again w/ dummy load if needed) the current would be .000240 amps. I got those value by applying I = E/R. The power drop for R3 I got .1 watts (using 10ohms for 5 ohms or the total resistance of R2 and R3 it would be .05). for R4 for 303 micro amps the power drop is .000303 watts, for 299 micro amps the power drop is .000299 watts for 243 micro amps the power drop is .000242 watts and for 240 micro amps the power drop would be .000239. I got these by multiplying resistance value at each resistor to the squared value of the current at each resistor. or P = I^2 x R
>
> This is my first attempt and I wasn't sure on a lot of it but this was a great exercise and all but 1 o! r 2 of the books have don't have any exercises after chapters so this is especially helpful and the ones that do im not ready to read yet. so thanks again mike your really helping me out. And I usually need to get things wrong a few time before they start clicking, so all you gurus, take it eeeaasyy on me ok.
>
> Daniel
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Here's a simple exercise for those newbies wanting to learn.

>
> Exercise description:
> You have tuned up your TS-520 into a 50 ohm dummy load. The meter (meter switch set to IP), after completing the tune up steps, is indicating 200ma in CW mode.
>
> Questions:
> 1. What is the DC voltage at pin 1 of final tubes V1 or V2?
>
> 2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?
>
> 3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?
>
> Please show your steps, in detail, how you arrived at each answer.
>
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>

45659. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 02:45:25 UTC
From: William Houghton
Topic: 45624 Message: 45659

Many, many years ago when I was studying to be an electronics technician we used Basic Electronics by Grob. I think it is pretty much a standard textbook for the first year of an electronics tech program.

From: Ron <bozo231@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, November 2, 2013 5:04 PM
Subject: Re: [TS-520_820_530_830] RE: Question for newbies

Dan if u look at the general license book they are in there along with other laws of electronics

Ron KK4PWF

On Nov 2, 2013, at 9:56 AM, <danbbower@...> wrote:

This is exactly the kind of thing I would like to learn.
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>Thanks
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>Danny M6YDB
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>Subject: [TS-520_820_530_830] RE: Question for newbies
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>3. What is the power dissipated by each resistor, R3 and R4, in
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>
>
>
>73
>Mike W5RKL
>
>
>
>

45660. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 02:46:39 UTC
From: Wes Will
Topic: 45624 Message: 45660

On 11/02/2013 09:45 PM, William Houghton wrote:
>
>
> Many, many years ago when I was studying to be an electronics
> technician we used Basic Electronics by Grob. I think it is pretty much
> a standard textbook for the first year of an electronics tech program.

We used the Floyd texts. About the same, actually. I think I have both somewhere in the basement on the shelves. Should be next to the "Basic Blacksmithing and Metal Work" texts.

--
Wes Will
N9KDY

45661. Re: [TS-520_820_530_830] RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 02:54:08 UTC
From: Jude Domanski
Topic: 45642 Message: 45661

Hi Dave,

Thank you for the input. I plan to take the utmost care in packing the radio. I've decided to leave the choice of shipper to the decision of the buyer.

73, Jude WD9FUM

From: fpath fpath <fpath@...>
To: "TS-520_820_530_830@yahoogroups.com" <ts-520_820_530_830@yahoogroups.com>
Sent: Saturday, November 2, 2013 5:39 PM
Subject: RE: [TS-520_820_530_830] RE: 830 For Sale

Hi Guys,

It is highly recommended that if you are going to buy and this is purely my opinion and what I do when sending or receiving radios.

Double box, use plenty of bubble wrap and foam peanuts and pay the extra for insurance.

Recently I bought a TL922 for restoration, the old fellow double boxed and even went to the extent of putting padded masionite board on all six sides, it cost me $A306.00 to ship it. Biggest mistake made was the words "handle with care, fragile and this way up". Needless to say only damage was two broken feet tabs, they can't be welded or fixed, but have a better way of repairing. When I reported back to courier service was told - see you in small claims court we're not paying!

The old guy rang me a few days later and he had the same thing when he bought the amp years before.

Morale of the story, don't be cheap when boxing, difference between arriving dead or alive

73's

Dave
VK5PDL

From: hardedge@...
To: TS-520_820_530_830@yahoogroups.com
Date: Sat, 2 Nov 2013 12:02:37 -0700
Subject: [TS-520_820_530_830] RE: 830 For Sale

You'd like $300 but what would take take with careful packaging (I received a 520 a few weeks ago wrapped in a single laye of small-bubble bubble wrap and a light sprinkling of newspaper pages in the rest of the box --it did NOT survive the trip) and shipping to 07626 in NJ? And, of course, do you take Paypal?

-O'B.
ex-KA2MKI
hardedge-at-optonline-dot-net

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45662. Re: [TS-520_820_530_830] RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 03:02:32 UTC
From: Jude Domanski
Topic: 45642 Message: 45662

Hi OB,

I promise to take utmost care in packing. Please let me know your zip code and preferred method of shipping so that I can let you know what shipping cost would be.

73, Jude WD9FUM

From: "hardedge@..." <hardedge@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 2, 2013 2:02 PM
Subject: [TS-520_820_530_830] RE: 830 For Sale

You'd like $300 but what would take take with careful packaging (I received a 520 a few weeks ago wrapped in a single laye of small-bubble bubble wrap and a light sprinkling of newspaper pages in the rest of the box --it did NOT survive the trip) and shipping to 07626 in NJ? And, of course, do you take Paypal?

-O'B.
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hardedge-at-optonline-dot-net

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Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45663. RE: [TS-520_820_530_830] RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-02 22:23:59 UTC
From: Jim Best
Topic: 45642 Message: 45663

If he doesn’t want it for that price and the pics look good and operational is good we can make a deal.

73 Jim

WU7G

Oh yeah, that's pretty important isn't it? I'd like $300.00 for it. I'll send pictures if you'd like.

From: "paw_paw44036@..." <paw_paw44036@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 2, 2013 12:00 PM
Subject: [TS-520_820_530_830] RE: 830 For Sale

price please.

---In ts-520_820_530_830@yahoogroups.com, <wd9fum@...> wrote:

Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45664. Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 09:12:10 UTC
From: Gordon JC Pearce
Topic: 45624 Message: 45664

> On Nov 2, 2013, at 9:56 AM, <danbbower@...> wrote:
>
> This is exactly the kind of thing I would like to learn.
>
> Has anyone got any suggested reading that would be useful for me to grasp the basics?

Learn Ohm's Law, and how to apply it. That's a good 95% of all you'll ever need to know about electronics there, and the rest you can crib from data sheets and the RSGB handbook ;-)

--
Gordonjcp MM0YEQ

45665. RE: Re: [TS-520_820_530_830] RE: Question for newbies

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 13:47:33 UTC
From: <wagstw46@...>
Topic: 45624 Message: 45665

Yes Grob and Schrader are classic texts on my bookshelf, but I still strongly recommend the late 60s to mid 70s ARRL Handbooks. The reason is that it is not good enough to study basic electronics and not build upon that toward how it applies to our KW rigs. The ultimate goal is to understand how a Receiver works and how a Transmitter works. The Handbook is designed to do that in a logical sequence.

If you look at the chapters of the ARRL handbook or RSGB handbook you will see that they start with Basic Electronics, DC/AC, components, power supplies, amplifiers, oscillators, mixers, power amplification.....receiver building blocks, and transmitter building blocks.

You can sub the ARRL handbook basic electronic chapters with Grob and other texts, but why not use a text book that is oriented to Radio Electronics.

If you want to start very basic go to Ebay and order ARRL's Understanding Amateur Radio, which is a condensed version of the Handbook. In about 50 pages it takes you from Ohms Law to Transistors and then proceeds to explain how a receiver works and what is mixing, bfo, agc, resonance, tank circuit, Q, etc. Then the same with a basic transmitter.

I was there when this text came out and the old timers all lamented at that time what has happened to this hobby when you need to have a watered down Handbook for these newbies! It was very controversial.

Grob and Schrader are great, but for under $10 on Ebay can get Understanding Amateur Radio and after reading it and you want more in depth coverage can go back to Grob.

As they say IMO

Oh by the way I do have a 2009 ARRL Handbook and it makes a great door stop!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Many, many years ago when I was studying to be an electronics technician we used Basic Electronics by Grob. I think it is pretty much a standard textbook for the first year of an electronics tech program.

From: Ron <bozo231@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, November 2, 2013 5:04 PM
Subject: Re: [TS-520_820_530_830] RE: Question for newbies

Dan if u look at the general license book they are in there along with other laws of electronics

Ron KK4PWF

On Nov 2, 2013, at 9:56 AM, <danbbower@... mailto:danbbower@...> wrote:

This is exactly the kind of thing I would like to learn.

Has anyone got any suggested reading that would be useful for me to grasp the basics?

Thanks

Danny M6YDB

---In ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Daniel,

On the TS-520 schematic, R3 & R4 are the cathode resistors in the final amp section. The test questions are asking for the DC currents, voltages, and power related to the resistors. You can ignore the 50 dummy load for your calculations as it is in the output circuit and is coupled through a capacitor (no DC current flows through the capacitor and to the antenna) and for other reasons.

Technically the IP (plate current) meter is reading cathode current. If all is going well the cathode current is a close approximation of the plate current.

You can ignore the load of the meter. Why? The meter is connected to the cathode resistors through a 3.3K resistor. The meter also has a resistance, but lets assume it is zero. So, as you recognized, the current will divide between each 10 ohm resistor and the 3.3K resistor, inversely proportional to the resistance. How much of the cathode current goes through the cathode resistors? The two 10 ohm resistors in parallel form 5 ohms. It will be:

3300/ (3300+5) = 0.999847 times the cathode current. This number will be even larger if we include the resistance of the meter in our calculations.

As you can see, ignoring the load of the meter circuit introduces an error of less than 0.1%

Now, go back and try the questions again using only the two 10 ohm cathode resistors and the 200mA plate current.

73,

Bill, WA6NEQ

From: "danweed85@..." <danweed85@...>
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 1, 2013 4:42 PM
Subject: [TS-520_820_530_830] RE: Question for newbies

Ok here goes nothing. Now I have a few things that are confusing me right away. Im not sure whether the 50 ohm dummy load's was added to the total resistance or not, I did it both ways. I used the schematic from the 820 final, I am hoping the resistors that are labeled R3 R4 are the same as the 520 because in one of your videos you said the Cathode and IP meter circuit (and im not sure if the meter adds a load)were the same. I also wasn't sure if should add in the resistance from the IP meter, I did it both ways as well. The first answer I do not my believe is affected by my confusion and I got 1 volt after getting the total resistance from the two 10 ohm resistors R2 R3 and with the 200 milliamps I applied

ohms law E = IR or 1 = .2 x 5. the second question for R3 I got .1 amps after I applied I = E/R or .1 = 1/10 (here I wasn't sure if used just the 10 ohms from R3 or the total resistance from R2 and R3 or 5 ohms for 5 ohms its .2), for R4 at 3300 ohms the current would be .000303 amps at 3350ohms (if you add the 50 ohm dummy load) current would be .000299 If you add the 800 ohms from the ip meter to the resistance the current at 4100 ohms would be .000243 amps and for 4150 ohms (again w/ dummy load if needed) the current would be .000240 amps. I got those value by applying I = E/R. The power drop for R3 I got .1 watts (using 10ohms for 5 ohms or the total resistance of R2 and R3 it would be .05). for R4 for 303 micro amps the power drop is .000303 watts, for 299 micro amps the power drop is .000299 watts for 243 micro amps the power drop is .000242 watts and for 240 micro amps the power drop would be .000239. I got these by multiplying resistance value at each resistor to the squared value of the current at each resistor. or P = I^2 x R

This is my first attempt and I wasn't sure on a lot of it but this was a great exercise and all but 1 o! r 2 of the books have don't have any exercises after chapters so this is especially helpful and the ones that do im not ready to read yet. so thanks again mike your really helping me out. And I usually need to get things wrong a few time before they start clicking, so all you gurus, take it eeeaasyy on me ok.

Daniel

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com> wrote:

Here's a simple exercise for those newbies wanting to learn.

Exercise description:
You have tuned up your TS-520 into a 50 ohm dummy load. The meter (meter switch set to IP), after completing the tune up steps, is indicating 200ma in CW mode.

Questions:
1. What is the DC voltage at pin 1 of final tubes V1 or V2?

2. What is the current flowing through each resistor, R3 and R4, in the Final Unit?

3. What is the power dissipated by each resistor, R3 and R4, in the Final Unit?

Please show your steps, in detail, how you arrived at each answer.

73
Mike W5RKL

45666. I am stuck

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 14:18:09 UTC
From: 3b8cf@intnet.mu
Topic: 45666 Message: 45666

Hello All
I am stuck with a strange problem.
I had signed with the yahoo group for many years and receive regularly posting from the kenwood hybrids,
TS 430/440/ Fox tango etc. A few days ago i wanted to check some in fo in the files section of the TS 520,530,830
etc group and i was surprised to receive a message telling me my account has been de activated ,because of not accessing the group for a long time.I was advised to creat a new account.This is where all the problem lies.
The yahoo computer in all its wisdom asked me for my mobile phone number,and when this was given , I was told that that number
was not a valid mobile phone number.I re ceive calls and sms on the same mobile phone number almost every day from UK,HB9.France , DL etc with no problem. The problem is why Yahoo does not recognise a number from Mauritius thouh I have given the country code etc. I have asked my son 3B8GL to create an account and he gets the same problem of non recognition of the mobile number.
Can some knowledgeable guru make any head or tail about this problem.
Thanks and Regards
Jacky 3B8CF

Your email settings: Individual Email|Traditional
Change settings via the Web (Yahoo! ID required)
Change settings via email: Switch delivery to Daily Digest | Switch to Fully Featured
Visit Your Group | Yahoo! Groups Terms of Use | Unsubscribe

[Non-text portions of this message have been removed]

45667. RE: RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 14:22:39 UTC
From: <wagstw46@...>
Topic: 45586 Message: 45667

Dan

Do the relays key normally when you flip to Send?

The relays are keyed by transistor switch Q9 on FIX board. Q9 is biased on two ways :
1. By grounding the SS terminal with the Send switch or the mic PTT switch
2. Audio input in VOX mode

So to be have random cycling of the relays Q9 has to be being turned on and off. The more typical failure is for Q9 to have failed short and rig stays keyed. This usually is caused by a failure of flyback diode D17 and resulting high counter emf during relay coil de-energizing damages Q9. It does not appear that your Q9 is hurt but something is biasing it on and off.

Suggest you consider buying a FIX-VOX board from Bob Mansker. Board swap out would be easier than talking you through troubleshooting the relay keying circuit on the FIX board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

checked the VOX still no change. Thanx guys.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry & Daniel

No problem Terry...that's a valid question/observation....had not even crossed my mind...but it makes perfect sense!

Daniel.....check the controls that Terry mentioned!

TNX Terry!

73 Joe
WB7UQU

On Saturday, November 2, 2013 11:07 AM, "wagstw46@..." <wagstw46@...> wrote:

Dan:

I should not be sticking my nose in Joe and Gordons thread but just one suggestion. Did someone already mention to make sure the Vox paddle switch is turned off or down to Manual position?

If VOX is on and VOX gain pot (under the VFO knob) is turned up can cause your relays to cycle.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hey joe I cleaned the relays (the plugs were a little blackened but inside was shiny and clean) and no change, once I turned it back on they started clicking randomly again with the frequency jumping around on the display each time they clicked. Im not even sure what the relays do so Ive got some reading to do before ill try anything. Im not ready to do any real work on this beast yet. So far Ive only been able to locate one of the relays on the schematic and there's a lot there I don't understand, including tracing the circuits in line with the relay. And the only description in the service manual is for the relay unit and its a brief description that gives me a little on what to start reading about. Any information would be helpful.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Gordon does have a point...but...the 820S will receive just fine even though the digital display is disconnected....it's called the 820. The 820 started out with NO digital display...but it could be added "after market." There was such a demand..that they came out with the "S" model..which came from the factory with the digital display and associated components already installed.

Since it appears that you may have purchased this rig from a "well know auction site," you do not know the whole history and/or care of this rig. So with that in mind...let's start simple...as you stated that your knowledge/skill level is very basic...that's ok...I'm NOT an expert either...but I do have some experience with this rig....so...we do not know right know what exact fault(s) that is/are causing your problem. The rigs can and will suffer from NOT being used!

Get some good tuner/contact cleaner...I use DEOXIT...others have their favorite...and a can of "canned air," aka... "air duster" The DEOXIT can be found at Radio Shack...the "canned air" at Walmart or decent computer/office supply stores and some "stiff card stock." Just about any good, clean,stiff, unlined paper will do.

With rig UNPLUGGED from power...remove top and bottom covers....turn rig bottom UP.
In the middle you will see a couple of round capacitors with a RELAY next to them...remove the relay...it un-plugs. The plastic cover can be removed with the use of a small screwdriver. Just be careful. You will see numerous contacts...saturate the card stock with some contact cleaner...insert the paper between the relay contacts...and move the paper back and forth numerous times...you will notice..possibly some "black stuff" on the paper...that's good...your getting rid of it...you will have to use your fingers to manually operate the relay armature to get them all clean...use different clean parts of the paper...blow off with "canned air." Clean the relay socket too.. reinstall relay cover...reinstall relay.

The other relay is at the rear corner, by the final amplifier board, under the metal shield. remove shield, remove relay, remove relay cover...clean and blow off contacts as

stated above. Put it all back together...Check for operation.

A note of CAUTION: you will be working around some HIGH VOLTAGE AREAS!(900VDC) Check with voltmeter for HIGH VOLTAGE at the capacitors just behind the "relay board" or the "800" terminal on the HV UNIT. The voltage will bleed off over time..usually 10 minutes or less...but ALWAYS CHECK ANYWAY! You can find them on the picture of the underside of the rig in the "operation manual." The functions of these relays is a topic for another time..but they control a bunch of stuff.

If you do not feel comfortable with this...that's OK too..maybe you can find some help.

Thanks to my "yahoo mail" crashing...it only took me 4 hours to write this.....

73 Joe
WB7UQU

On Friday, November 1, 2013 8:02 AM, "danweed85@..." <danweed85@...> wrote:

thanks for responses Joe and Gordon When I turned the radio back on after following both of your suggestion and the display and the static came back. Then a few seconds later the both the relays on the bottom started clicking randomly and I could see the mechanisms inside moving and the frequency display starting jumping around. Then the relays stop clicking the freq display responded to the knob but there was no static or response on the af gain knob. Then the relays started clicking again static came back af gain response came back and the display would sometimes respond to the main tuning knob and would also jump around. It looked like the jumping frequency was in unison with the relays clicking. I turned it off after this.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On Thu, Oct 31, 2013 at 05:44:32PM -0700, danweed85@... mailto:danweed85@... wrote:
> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45668. Re: [TS-520_820_530_830] RE: 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 16:50:24 UTC
From: Jude Domanski
Topic: 45642 Message: 45668

Hi Jim,

Looked you up on QTH.com. My in-laws live in Cheyenne! We come out for Frontier Days every year!

I'm going to take some pictures today and I'll send them on to you.

Do you have a preferred method of shipment?

73, Jude WD9FUM

From: Jim Best <james9194@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 2, 2013 5:23 PM
Subject: RE: [TS-520_820_530_830] RE: 830 For Sale

If he doesn’t want it for that price and the pics look good and operational is good we can make a deal.
73 Jim
WU7G

Oh yeah, that's pretty important isn't it? I'd like $300.00 for it. I'll send pictures if you'd like.

From:"paw_paw44036@..." <paw_paw44036@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 2, 2013 12:00 PM
Subject: [TS-520_820_530_830] RE: 830 For Sale

price please.

---In ts-520_820_530_830@yahoogroups.com, <wd9fum@...> wrote:
Selling my 830. It 's a 7 out of 10 cosmetically, but 100% electronically. I would be happy to provide pix at your request.

45669. Re: [TS-520_820_530_830] 830 For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 17:42:08 UTC
From: Jude Domanski
Topic: 45642 Message: 45669

Here are pictures of the 830 for everybody who asked.

---

der Reply to group Start a New Topic Messages in this topic (1)
Recent Activity: * New Members 6 * New Photos 13
Visit Your Group

Switch to: Text-Only, Daily Digest • Unsubscribe • Terms of Use • Send us Feedback
.

[Non-text portions of this message have been removed]

45670. RE: RE: RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 17:47:56 UTC
From: <danweed85@...>
Topic: 45586 Message: 45670

Terry

The relays stop cycling when I switch it to send, I agree a board switch would be easier. I've been tracing everything attached to the Relay board on the schematic and then tracing those to circuits on the various other boards, which has been fun, but I still wasn't sure how it worked. I've been searching for info on the relays and their circuits but haven't been able to find much(I may be missing something in the manuals). Any information you or anyone could give or point me to would be very helpful. Thanks for everyone's help already. I can feel I am getting close (with yalls help of course) to getting this beauty talking to me.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

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No problem Terry...that's a valid question/observation....had not even crossed my mind...but it makes perfect sense!

Daniel.....check the controls that Terry mentioned!

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around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45672. membership update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 19:05:31 UTC
From: Joseph Stiles
Topic: 45672 Message: 45672

Greetings Group!

It looks like November has just started and already has several "new member requests." I guess the word is getting out that this is the place to go for SUPERIOR information, SUPERIOR friendship and, SUPERIOR help, regarding these fine Kenwood hybrids. Let's keep it that way!

For newly "approved" members, the rules are simple: sign your posts/questions with your "first" or "given name" and, your call sign...if any. "Screen Names" are ONLY acceptable in the "header" of your e-mail address. Be respectful of other members of this group...as stated on numerous prior occasions: opinions vary....diagnostic interpretations may vary...this does NOT mean you need to get "pissy" about differing "opinions," IF you have a problem with what another group member said/stated....contact that member DIRECTLY......and try and work it out..IF, for some reason...you can not..contact either me...Joe-wb7uqu (Group Co-owner), Gordon-n6wk(moderator) or Mike-w5rkl(moderator)...and we will attempt to "work it out for you." Continual violation of these simple rules will be cause to have your posts "moderated," or worst case...BANNED.

For "new" members of this group: We do not know your skill or, knowledge level, we do not know what "diagnostic equipment" you have...so PLEASE indicate the prior and latter. For me...at times, I'm still trying to fully understand some "squiggly lines" on my o'scope...and sometimes...looking at a schematic...trying to figure..out WTF!

To the "moderators:" I have taken 1 "new" member off "moderate" as he has shown the ability to follow the rules and, "works and plays well with others." I don't really know why I'm so stuck on that phrase....but that's what I always saw on my elementary school report cards.

So Group....' nuf said...let's all work and play well with others and not run with scissors...we now return to our regular programming......

73 Joe
WB7UQU
Group Co-owner and I'm sure, "other names."

45673. Re: [TS-520_820_530_830] membership update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 19:12:35 UTC
From: Don
Topic: 45672 Message: 45673

Sounds like someone is getting a big head here since moving up in the ranks

Don

On 03/11/2013 2:05 PM, Joseph Stiles wrote:
> Greetings Group!
>
> It looks like November has just started and already has several
> "new member requests." I guess the word is getting out that this is
> the place to go for SUPERIOR information, SUPERIOR friendship and,
> SUPERIOR help, regarding these fine Kenwood hybrids. Let's keep it
> that way!
>
> For newly "approved" members, the rules are simple: sign your
> posts/questions with your "first" or "given name" and, your call
> sign...if any. "Screen Names" are ONLY acceptable in the "header" of
> your e-mail address. Be respectful of other members of this
> group...as stated on numerous prior occasions: opinions
> vary....diagnostic interpretations may vary...this does NOT mean you
> need to get "pissy" about differing "opinions," IF you have a problem
> with what another group member said/stated....contact that member
> DIRECTLY......and try and work it out..IF, for some reason...you can
> not..contact either me...Joe-wb7uqu (Group Co-owner),
> Gordon-n6wk(moderator) or Mike-w5rkl(moderator)...and we will attempt
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> So Group....' nuf said...let's all work and play well with others
> and not run with scissors...we now return to our regular programming......
> 73 Joe
> WB7UQU
> Group Co-owner and I'm sure, "other names."

>

45674. Kenwood Hybrid Net Update (November 3, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 19:12:38 UTC
From: <mgilger@...>
Topic: 45674 Message: 45674

The Saturday net we had 18 check-in with excellent band conditions. There were 3 new check ins, K8AEC, WA2JID, and VA3ACI. We had the following number of radios checking in.

2 running TS-520(x)
2 running TS-530(x)
2 running TS-820(x)
3 running TS-830S
1 running R599A / T599A

I was running my TS-940s.

The Sunday's 20 meter net had 13 stations checking in under good band conditions. Out of those, there was:

4 running TS-520(x)
1 running TS-530(x)
2 running TS-820(x)
1 running TS-830S

I was running my TS-820s.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940's, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 – Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins

November 2012, Saturday's, net total = 47, Sundays total = 20
December 2012, Saturday's, net total = 74, Sunday's total = 70
January 2013, Saturday's, net total = 93, Sunday's total = 87
February 2013, Saturday's net total = 103, Sundays total = 87
March 2013, Saturday's, net total = 112, Sunday's total =39

April 2013, Saturday’s net total = 52, Sunday’s total = 29
May 2013, Saturday’s net total = 45, Sunday’s total = 50
June 2013, Saturday’s net total = 30, Sunday’s total = 27
July 2013, Saturday’s net total = 63, Sunday’s total = 41
August 2013, Saturday’s net total = 82, Sunday’s total = 50
September 2013, Saturday’s net total = 66, Sunday’s total = 54
October 2013, Saturday’s net total = 61, Sunday’s total = 55
November 2013, Saturday’s net total = 18, Sunday’s total = 13 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
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73's,
Mark, WB0IQK

45675. RE: RE: RE: RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 20:24:06 UTC
From: <wagstw46@...>
Topic: 45586 Message: 45675

If you had the test gear we could look at SS termnal and TO terminals for starters. I am inclined to suspect problem on TO line. You could jumper from base to the emitter of Q7 and see if relays stop cycling. Have to make sure you are on the correct leads. Probably not good thing for you to attempt at this point.

You wont find any KW circuit descriptions for relay keying that I am aware of. They assume certain base knowledge level. .

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Also with time you could look at the circuit and recognize the flyback or back emf diode and understand what happens in a relay coil (an inductor) when the Dc current flow is suddenly interrupted. This is basic inductor fundamentals.

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I try to give a little fundamentals with each of my answers. Some like that and some do not. Much easier to just give the answer, but what would anyone learn?

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No problem Terry...that's a valid question/observation....had not even crossed my mind...but it makes perfect sense!

Daniel.....check the controls that Terry mentioned!

TNX Terry!

73 Joe
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Get some good tuner/contact cleaner...I use DEOXIT...others have their favorite...and a can of "canned air," aka... "air duster" The DEOXIT can be found at Radio Shack...the "canned air" at Walmart or decent computer/office supply stores and some "stiff card stock." Just about any good, clean,stiff, unlined paper will do.

With rig UNPLUGGED from power...remove top and bottom covers....turn rig bottom UP.
In the middle you will see a couple of round capacitors with a RELAY next to them...remove the relay...it un-plugs. The plastic cover can be removed with the use of a small screwdriver. Just be careful. You will see numerous contacts...saturate the card stock with some contact cleaner...insert the paper between the relay contacts...and move the paper back and forth numerous times...you will notice..possibly some "black stuff" on the paper...that's good...your getting rid of it...you will have to use your fingers to manually operate the relay armature to get them all clean...use different clean parts of the paper...blow off with "canned air." Clean the relay socket too.. reinstall relay cover...reinstall relay.

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Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 21:31:11 UTC
From: <danweed85@...>
Topic: 45586 Message: 45676

Right now for test gear all I have is a signal generator/ tracer combo, and a VTVM. But I agree most of your suggestions arnt for me to attempt, I will be saving and bringing them to the ham club when I finally get out to one and let the experienced people help.

And after you had mentioned a flyback diode in a previous reply I went to look it up and couldn't figure out where the inductance they were talking about was coming from so you've all ready answered one question. With a lot of this stuff I don't what to google to get a good return, so this answer will give me plenty to read. Ill post more questions as they arise.

Thank you so much

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45677. RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 21:31:32 UTC
From: Wes Will
Topic: 45586 Message: 45677

On 11/03/2013 02:24 PM, wagstw46@... wrote:
> Much easier to just give the answer, but what
> would anyone learn?

A LOT LESS.

I have college degrees in electronics and engineering and I STILL don't grok some of (who am I kidding, a LOT OF!) the design of these radios.

Terry's tutorials and troubleshooting treatises keep me humble, for one thing.

Keep doing them, PLEASE.

I don't know about anyone else, but I'm learning from them.

I've got them all archived from the day I joined the list, truth be told, and search there before I ask anything. So far it has worked well, I got that 520SE running, into a dummy load so far while I build a ladder line and dipole. But it is running, and I have Terry and Gordon and Mike and some others to thank for it. It will stay running well, mostly due to these tutorials others are getting, too.

--
Wes Will
N9KDY

45678. RE: RE: RE: RE: RE: RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 22:40:16 UTC
From: <wagstw46@...>
Topic: 45586 Message: 45678

Dan:

Yes need to start with basics of what happens when a dc current flows thru a coil of wire (the relay closing coil) and what happens when a collapsing magnetic field cuts the turns of a coil of wire to understand what counter emf is and how the diode protects the transistor switch.

Here is a brief description of how a Schmitt Trigger functions as a "Snap Action" circuit for positive relay keying. A little broken english but is the principle of how Q7 and Q8 works.

Might want to save in your notes for future reference.

http://www.electroschematics.com/5784/snap-action-relay/
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Hey joe I cleaned the relays (the plugs were a little blackened but inside was shiny and clean) and no change, once I turned it back on they started clicking randomly again with the frequency jumping around on the display each time they clicked. Im not even sure what the relays do so Ive got some reading to do before ill try anything. Im not ready to do any real work on this beast yet. So far Ive only been able to locate one of the relays on the schematic and there's a lot there I don't understand, including tracing the circuits in line with the relay. And the only description in the service manual is for the relay unit and its a brief description that gives me a little on what to start reading about. Any information would be helpful.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan,

Gordon does have a point...but...the 820S will receive just fine even though the digital display is disconnected....it's called the 820. The 820 started out with NO digital display...but it could be added "after market." There was such a demand..that they came out with the "S" model..which came from the factory with the digital display and associated components already installed.

Since it appears that you may have purchased this rig from a "well know auction site," you do not know the whole history and/or care of this rig. So with that in mind...let's start simple...as you stated that your knowledge/skill level is very basic...that's ok...I'm NOT an expert either...but I do have some experience with this rig....so...we do not know right know what exact fault(s) that is/are causing your problem. The rigs can and will suffer from NOT being used!

Get some good tuner/contact cleaner...I use DEOXIT...others have their favorite...and a can of "canned air," aka... "air duster" The DEOXIT can be found at Radio Shack...the "canned air" at Walmart or decent computer/office supply stores and some "stiff card stock." Just about any good, clean,stiff, unlined paper will do.

With rig UNPLUGGED from power...remove top and bottom covers....turn rig bottom UP.
In the middle you will see a couple of round capacitors with a RELAY next to them...remove the relay...it un-plugs. The plastic cover can be removed with the use of a small screwdriver. Just be careful. You will see numerous contacts...saturate the card stock with some contact cleaner...insert the paper between the relay contacts...and move the paper back and forth numerous times...you will notice..possibly some "black stuff" on the paper...that's good...your getting rid of it...you will have to use your fingers to manually operate the relay armature to get them all clean...use different clean parts of the paper...blow off with "canned air." Clean the relay socket too.. reinstall relay cover...reinstall relay.

The other relay is at the rear corner, by the final amplifier board, under the metal shield. remove shield, remove relay, remove relay cover...clean and blow off contacts as stated above. Put it all back together...Check for operation.

A note of CAUTION: you will be working around some HIGH VOLTAGE AREAS!(900VDC) Check with voltmeter for HIGH VOLTAGE at the capacitors just behind the "relay board" or the "800" terminal on the HV UNIT. The voltage will bleed off over time..usually 10 minutes or less...but ALWAYS CHECK ANYWAY! You can find them on the picture of the underside of the rig in the "operation manual." The functions of these relays is a topic for another time..but they control a bunch of stuff.

If you do not feel comfortable with this...that's OK too..maybe you can find some help.

Thanks to my "yahoo mail" crashing...it only took me 4 hours to write this.....

73 Joe
WB7UQU

On Friday, November 1, 2013 8:02 AM, "danweed85@..." <danweed85@...> wrote:

thanks for responses Joe and Gordon When I turned the radio back on after following both of your suggestion and the display and the static came back. Then a few seconds later the both the relays on the bottom started clicking randomly and I could see the mechanisms inside moving and the frequency display starting jumping around. Then the relays stop clicking the freq display responded to the knob but there was no static or response on the af gain knob.

Then the relays started clicking again static came back af gain response came back and the display would sometimes respond to the main tuning knob and would also jump around. It looked like the jumping frequency was in unison with the relays clicking. I turned it off after this.

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> Well after fixing the connectors I turned it on and heard static and little feint CW, Then shut it off for while and returned to the radio later turned it on and maybe a minute or less later the frequency display went very dim showing only the first couple 0's on the left if your looking at the display and then they fade to nothing the further right you go and the static faded away. Im not smart enough to try any actual fixes but if you or anyone could point to the right direction so I read up on the circuits and go over schematics and other related sections in the manuals that would really help. thanks

There's a plug quite visible on top just a little behind and left of the digital display module on the TS830, that works loose with vibration (like, oh, when you're moving the rig around to work on it). You'll see the wires running into the display module. Give it a gentle push and see if your display comes on.

--
Gordonjcp MM0YEQ

45679. Re: [TS-520_820_530_830] membership update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 22:52:50 UTC
From: Lou Blasco
Topic: 45672 Message: 45679

Thanks Joe,

I think it's good to periodically refresh the rules for everyone. I think the group settings allow you to create an automated post (say once a month) for just this purpose.

Lou
VK3ALB

At 06:05 04/11/2013, you wrote:
>
>
>Greetings Group!
>
> It looks like November has just started and already has several
> "new member requests." I guess the word is getting out that this is
> the place to go for SUPERIOR information, SUPERIOR friendship and,
> SUPERIOR help, regarding these fine Kenwood hybrids. Let's keep it that way!
>
> For newly "approved" members, the rules are simple: sign your
> posts/questions with your "first" or "given name" and, your call
> sign...if any. "Screen Names" are ONLY acceptable in the "header"
> of your e-mail address. Be respectful of other members of this
> group...as stated on numerous prior occasions: opinions
> vary....diagnostic interpretations may vary...this does NOT mean
> you need to get "pissy" about differing "opinions," IF you have a
> problem with what another group member said/stated....contact that
> member DIRECTLY......and try and work it out..IF, for some
> reason...you can not..contact either me...Joe-wb7uqu (Group
> Co-owner), Gordon-n6wk(moderator) or Mike-w5rkl(moderator)...and we
> will attempt to "work it out for you." Continual violation of
> these simple rules will be cause to have your posts "moderated," or
> worst case...BANNED.
>
> For "new" members of this group: We do not know your skill or,
> knowledge level, we do not know what "diagnostic equipment" you
> have...so PLEASE indicate the prior and latter. For me...at times,
> I'm still trying to fully understand some "squiggly lines" on my
> o'scope...and sometimes...looking at a schematic...trying to figure..out WTF!
>
> To the "moderators:" I have taken 1 "new" member off "moderate" as
> he has shown the ability to follow the rules and, "works and plays
> well with others." I don't really know why I'm so stuck on that
> phrase....but that's what I always saw on my elementary school report cards.
>
> So Group....' nuf said...let's all work and play well with others

> and not run with scissors...we now return to our regular programming......
>
>73 Joe
>WB7UQU
>Group Co-owner and I'm sure, "other names."

45680. Fw: moderate

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 23:13:08 UTC
From: Joseph Stiles
Topic: 45680 Message: 45680

Greetings Group,

  THIS is a perfect example of someone who can not follow

SIMPLE rules...needless to say...this person is NO LONGER WELCOME AND,
HAS BEEN BANNED. I hope that in the future, maybe this person can learn to be an adult and,
be better example of the Amateur Radio Family.

  All others are welcome.....

73 Joe
WB7UQU
Group Co-owner

On Sunday, November 3, 2013 2:54 PM, Don <ve2ud@...> wrote:

Fuckyou asshole
>
>
>
>
>On 03/11/2013 5:05 PM, Joseph Stiles wrote:
>Don,
>>
>>
>>
The "policy" is not just me having "a big head" as you stated. It my
decision, with the input of several others and, it was taken upon me,
to post the new members info, which was for the benefit of ALL. It's
too bad you can not adhereto the policy/rules. Your
messages/posts are now on "moderate" and, must be be reviewed by either
me or, the "others" involved, IF you continue to violate the very basic
and, SIMPLE rules of this group, you will be banned.
>>
>>73 Joe
>>WB7UQU
>>Group Co-owner
>>
>
>
>

45681. RE: RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 23:16:40 UTC
From: <wagstw46@...>
Topic: 45586 Message: 45681

Wes

We could use the help from graduate RF engineers who worked in the field. With 3000 plus members have to be some 1964 EE grads who grew up with tubes and went on to work in RF design. We dont have to design or reverse engineer the rigs but sure would help if we had more detailed circuit descriptions.

I have had some formal EE education but changed my major (calculus got the best of me) to Business and only worked briefly in the industry as a Communications Tech for a large electric utility before being moved into management roles never to touch tools or test gear again.

So what I tell you about how these KW hybrids work is what I have had to scratch and dig to learn. There are circuits that I have yet to figure out how they work. Typically your understanding comes from where you have problems. It always amazes me when you have a problem with these circuits how you can pull the string all the way back to Grob or ARRL Handbook if you really have the inclination.

I appreciate the fact that you have found that my daily dose of fundamentals that I like to include in my responses has been helpful to you.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

On 11/03/2013 02:24 PM, wagstw46@... mailto:wagstw46@... wrote:
> Much easier to just give the answer, but what
> would anyone learn?

A LOT LESS.

I have college degrees in electronics and engineering and I STILL don't grok some of (who am I kidding, a LOT OF!) the design of these radios.

Terry's tutorials and troubleshooting treatises keep me humble, for one thing.

Keep doing them, PLEASE.

I don't know about anyone else, but I'm learning from them.

I've got them all archived from the day I joined the list, truth be told, and search there before I ask anything. So far it has worked well, I got that 520SE running, into a dummy load so far while I build a ladder line and dipole. But it is running, and I have Terry and Gordon and Mike and some others to thank for it. It will stay running well, mostly due to these tutorials others are getting, too.

--
Wes Will
N9KDY

45682. Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 23:10:19 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45682

As I try to resurrect this TS830S that someone butchered, I find it is like playing whackamole. I finally got the receiver to work quite well & the S meter now responds with appropriate readings (all bad connections of some sort). But then I find the CAL won't produce a signal. I trace that down to a bad ground, probably caused by me when I had the front panel off. But as I trace the orange CAL switch wire back to pin 3 on connector 8 on the bottom side of the PLL board, I notice that #2 wire is completely missing in that connector. The pin hole inside the connector is empty & there is no loose wire anywhere nearby. The pin is named RLR on the schematic. Any comments? Late engineering change? This radio is wearing me out. Thanx - Bob

45683. Re: [TS-520_820_530_830] Fw: moderate

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 23:31:50 UTC
From: Jeff Blaine
Topic: 45680 Message: 45683

I am a member of a lot of groups and I think Joe is not making false statements. The quality of messages on this board is very good.

In a lot of instances, some guys are even taking great pains to help some pretty rookie repair guys who do seem to have got over their heads which is really nice to see. A real Elmer spirit.

73/jeff/ac0c
www.ac0c.com
alpha-charlie-zero-charlie

From: Joseph Stiles
Sent: Sunday, November 03, 2013 5:13 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Fw: moderate

Greetings Group,

THIS is a perfect example of someone who can not follow

SIMPLE rules...needless to say...this person is NO LONGER WELCOME AND,
HAS BEEN BANNED. I hope that in the future, maybe this person can learn to be an adult and, be better example of the Amateur Radio Family.

All others are welcome.....

73 Joe
WB7UQU
Group Co-owner

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Fuckyou asshole

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Don,

The "policy" is not just me having "a big head" as you stated. It my decision, with the input of several others and, it was taken upon me, to post the new members info, which was for the benefit of ALL. It's too bad you can not adhere to the policy/rules. Your messages/posts are now on "moderate" and, must be be reviewed by either me or, the "others" involved, IF you continue to violate the very basic and, SIMPLE rules of this group, you will be banned.

73 Joe
WB7UQU
Group Co-owner

45684. Re: [TS-520_820_530_830] Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-03 23:35:38 UTC
From: Joseph Stiles
Topic: 45682 Message: 45684

Bob,

I am a bit confused on your description of "on the bottom side of the PLL board."

  I just happen to have an 830S on the bench...open...here's what Connector 8 on the PLL board(X50-1680-00)(this is on the component side..as viewed):

  Connector 8:

Pin 1: BLUE wire
2: EMPTY
3: ORANGE
4: BROWN
5: YELLOW
6: GREY
7: WHITE
8: RED
9: VIOLET

  The "destinations" of the different wires are listed in the "service manual" on Pg 62...under
"PLL Unit"

+

73 Joe
WB7UQU

On Sunday, November 3, 2013 3:17 PM, "rrmvargo@..." <rrmvargo@...> wrote:

>As I try to resurrect this TS830S that someone butchered, I find it is like playing whackamole. I finally got the receiver to work quite well & the S meter now responds with appropriate readings (all bad connections of some sort). But then I find the CAL won't produce a signal. I trace that down to a bad ground, probably caused by me when I had the front panel off. But as I trace the orange CAL switch wire back to pin 3 on connector 8 on the bottom side of the PLL board, I notice that #2 wire is completely missing in that connector. The pin hole inside the connector is empty & there is no loose wire anywhere nearby. The pin is named RLR on the schematic. Any comments? Late engineering change? This radio is wearing me out.   Thanx - Bob
>
>
>

45685. Re: RE: RE: RE: RE: RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 00:56:13 UTC
From: Joe - W7RKN
Topic: 45586 Message: 45685

How's about folks trimming these Subject titles??!! 12 RE:'s are a bit much!

Joe - W7RKN
----- Original Message -----
From: wagstw46@...
Subject: RE: RE: RE: RE: RE: RE: Re: RE: Re: Re: Re: Re: [TS-520_820_530_830] RE: question about IF board connections

Dan:

Yes need to start with basics of what happens when a dc current flows thru a coil of wire (the relay closing coil) and what happens when a collapsing magnetic field cuts the turns of a coil of wire to understand what counter emf is and how the diode protects the transistor switch.

Here is a brief description of how a Schmitt Trigger functions as a "Snap Action" circuit for positive relay keying. A little broken english but is the principle of how Q7 and Q8 works.

Might want to save in your notes for future reference.

http://www.electroschematics.com/5784/snap-action-relay/

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Right now for test gear all I have is a signal generator/ tracer combo, and a VTVM. But I agree most of your suggestions arnt for me to attempt, I will be saving and bringing them to the ham club when I finally get out to one and let the experienced people help.

And after you had mentioned a flyback diode in a previous reply I went to look it up and couldn't figure out where the inductance they were talking about was coming from so you've all ready answered one question. With a lot of this stuff I don't what to google to get a good return, so this answer will give me plenty to read. Ill post more questions as they arise.

Thank you so much

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

If you had the test gear we could look at SS termnal and TO terminals for starters. I am inclined to suspect problem on TO line. You could jumper from base to the emitter of Q7 and see if relays stop cycling. Have to make sure you are on the correct leads. Probably not good thing for you to attempt at this point.

You wont find any KW circuit descriptions for relay keying that I am aware of. They assume certain base knowledge level. .

As for understanding how the relay circuit works for starters you could Google on using transistors to key relays. Or start with how to use a transistor as a switch. On Google will find common transistor config tutorials including switches You will learn what it means by driving the transistor into Saturation and Cut-off regions.

Also with time you could look at the circuit and recognize the flyback or back emf diode and understand what happens in a relay coil (an inductor) when the Dc current flow is suddenly interrupted. This is basic inductor fundamentals.

You can also Google on Schmitt Trigger and Relay "Snap Circuits" to understand what Q7 and Q8 are doing and why this config is used and important for proper relay keying.

With time you will start to recognize certain configurations when you see them (like a Balanced Mod or Product Detector) on the KW hybrid schematics. I can do it pretty well and it only took me 50 years! Yet I still am a student of the KW hybrid design. Learn new things all the time. .

Dont get discouraged. If you have the interest and aptitude you will be able to figure out how these circuits work and you can look at the other hybrid models and see basically same relay keying circuits repeated with slight variations.

I try to give a little fundamentals with each of my answers. Some like that and some do not. Much easier to just give the answer, but what would anyone learn?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry

The relays stop cycling when I switch it to send, I agree a board switch would be easier. I've been tracing everything attached to the Relay board on the schematic and then tracing those to circuits on the various other boards, which has been fun, but I still wasn't sure how it worked. I've been searching for info on the relays and their circuits but haven't been able to find much(I may be missing something in the manuals). Any information you or anyone could give or point me to would be very helpful. Thanks for everyone's help already. I can feel I am getting close (with yalls help of course) to getting this beauty talking to me.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Dan

Do the relays key normally when you flip to Send?

The relays are keyed by transistor switch Q9 on FIX board. Q9 is biased on two ways :

1. By grounding the SS terminal with the Send switch or the mic PTT switch

2. Audio input in VOX mode

So to be have random cycling of the relays Q9 has to be being turned on and off. The more typical failure is for Q9 to have failed short and rig stays keyed. This usually is caused by a failure of flyback diode D17 and resulting high counter emf during relay coil de-energizing damages Q9. It does not appear that your Q9 is hurt but something is biasing it on and off.

Suggest you consider buying a FIX-VOX board from Bob Mansker. Board swap out would be easier than talking you through troubleshooting the relay keying circuit on the FIX board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

checked the VOX still no change. Thanx guys.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Terry & Daniel

No problem Terry...that's a valid question/observation....had not even crossed my mind...but it makes perfect sense!

Daniel.....check the controls that Terry mentioned!

TNX Terry!

73 Joe
WB7UQU

On Saturday, November 2, 2013 11:07 AM, "wagstw46@..." <wagstw46@...> wrote:

Dan:

I should not be sticking my nose in Joe and Gordons thread but just one suggestion. Did someone already mention to make sure the Vox paddle switch is turned off or down to Manual position?

If VOX is on and VOX gain pot (under the VFO knob) is turned up can cause your relays to cycle.

Terry K9TW

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Gordonjcp MM0YEQ

45686. RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 01:24:38 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45686

Hi Joe - Thanks for the quick reply and clarification. The service manual I have shows the below. Must be more versions:

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bob,

I am a bit confused on your description of "on the bottom side of the PLL board."

I just happen to have an 830S on the bench...open...here's what Connector 8 on the PLL board(X50-1680-00)(this is on the component side..as viewed):

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45687. RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 02:25:47 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45687

Well the pic I included & I could see before I hit send, didn't make it. Suffice it to say, it showed a picture of the connections of connector 8 with pin 2 filled for a 9V relay for Rx. Anyway it looks like my unit is built to Joe's SM. Thank you. - Bob

---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

Hi Joe - Thanks for the quick reply and clarification. The service manual I have shows the below. Must be more versions:

45688. Re: [TS-520_820_530_830] RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 03:33:55 UTC
From: Joseph Stiles
Topic: 45682 Message: 45688

Bob,

My "service manual" is 1981-3. The "PLL" schematic on Pg 17, shows NO CONNECTION on Connector 8, pin 2. However, the "whole rig" schematic on Pg 63, does show a connection. As noted by other group members...the schematics are NOT always 100% accurate.

I asked a couple of others to check their 830S's and their connector # 8 going to the PLL board is the same as what I posted.

73 Joe
WB7UQU

On Sunday, November 3, 2013 7:16 PM, "rrmvargo@..." <rrmvargo@...> wrote:

>Well the pic I included & I could see before I hit send, didn't make it. Suffice it to say, it showed a picture of the connections of connector 8 with pin 2 filled for a 9V relay for Rx. Anyway it looks like my unit is built to Joe's SM. Thank you. - Bob
>
>
>
>
>---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:
>
>
>Hi Joe - Thanks for the quick reply and clarification. The service manual I have shows the below. Must be more versions:
>
>
>
>
>

45689. P

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 10:48:41 UTC
From: Jim Stanicek
Topic: 45689 Message: 45689

Sent from my iPhone

45690. RE: Re: [TS-520_820_530_830] RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 11:28:03 UTC
From: <wagstw46@...>
Topic: 45682 Message: 45690

I dont know what KW had in mind with routing RLR to the PLL board. I have never seen any TS830 with RLR at the PLL board. All including original 10 million series units there is no RLR line to Conn 8. There is however a solder trace and empty solder pad on all the boards I have seen. I dont know if the documentation is simply wrong or if there was some original design thought that was never carried out. Kind of unusual for the schematic and the abbreviation chart to both be wrong.

That being said RLR has nothing to do with having no Marker signal so not sure why concerned about the empty Molex Conn 8 position unless just curiosity?

RLR is 9vdc line that is keyed by the Aux relay on the Audio board. It feeds several circuits including the variable bias voltage for the VBT Osc vari-cap diode, the Mode switch to provide bias for IF filter switching diodes, and to the RF board to bias on transistor switch Q5 in RX mode to provide a ground path for the mosfet source resistors of the receiver RF amp, the Buffer amp, and the RIF Mixer.

Pretty easy to troubleshoot loss of Marker signal if you have an O-scope
1. Wiggle and/or clean three Molex connectors (2 on PLL board and 1 on RF board)
2. Measure Marker output with O-scope at Conn 4 on PLL board
3. If no signal apply temporary ground to MS terminal at PLL board. MS supplies ground for the 25khz multivibrator transistors and buffer amp. No ground and no Marker output.
4. If good Marker signal on O-scope at PLL board then move scope to RF board Conn 4. If good Marker signal here then possible bad solder at Molex conn pin 2 or bad diode D1 (not a common failure).

Does the digital display work and approx agree with the VFO? If so it tells you the 10mhz clock is working. I have seen cases where the 10mhz crystal pins were not soldered properly.

You can follow the 10 mhz clock at TP-2 on PLL board where should see 1mhz and at Pin 11 of Q25 where should see 100Khz.

Common failures are the associated molex connectors (either dirty or bad solder connections at the pins) and bad solder connections at the 10 mhz crystal pins. I assume the receiver is working and you are just missing the Marker signal.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Bob,

My "service manual" is 1981-3. The "PLL" schematic on Pg 17, shows NO CONNECTION on Connector 8, pin 2. However, the "whole rig" schematic on Pg 63, does show a connection. As noted by other group members...the schematics are NOT always 100% accurate.

I asked a couple of others to check their 830S's and their connector # 8 going to the PLL board is the same as what I posted.

73 Joe
WB7UQU

On Sunday, November 3, 2013 7:16 PM, "rrmvargo@..." <rrmvargo@...> wrote:

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---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

Hi Joe - Thanks for the quick reply and clarification. The service manual I have shows the below. Must be more versions:

45691. RE: RE: Re: [TS-520_820_530_830] RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 12:21:29 UTC
From: <wagstw46@...>
Topic: 45682 Message: 45691

Giving this some more thought.

If you look at the PLL schematic it is possible that KW originally planned to key the Marker on and off by applying 9vdc from RLR line thru resistor R152 and then decided to key it by grounding the Emitters rather than switching the Collector supply voltage. Also, series resistor R152 is mounted on the foil side of the board which usually means a after thought or change.

I am not sure what difference turning on the multivibrator transistors and buffer amp transistor by grounding emitter vs switching the collector supply voltage would make other than it is common to leave the collector or drain voltages of active devices on all the time and key the emitters or source leads. I cant think of any operational differences in the oscillator performance.

I suspect this is done as it is easier to power a bus that feeds multiple active devices on a board and to switch the individual devices in the emitter or source leads.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

I dont know what KW had in mind with routing RLR to the PLL board. I have never seen any TS830 with RLR at the PLL board. All including original 10 million series units there is no RLR line to Conn 8. There is however a solder trace and empty solder pad on all the boards I have seen. I dont know if the documentation is simply wrong or if there was some original design thought that was never carried out. Kind of unusual for the schematic and the abbreviation chart to both be wrong.

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WB7UQU

On Sunday, November 3, 2013 7:16 PM, "rrmvargo@..." <rrmvargo@...> wrote:

Well the pic I included & I could see before I hit send, didn't make it. Suffice it to say, it showed a picture of the connections of connector 8 with pin 2 filled for a 9V relay for Rx. Anyway it looks like my unit is built to Joe's SM. Thank you. - Bob

---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

Hi Joe - Thanks for the quick reply and clarification. The service manual I have shows the below. Must be more versions:

45692. A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 15:30:19 UTC
From: Mike
Topic: 45692 Message: 45692

The following exercise is for the newbies so please, all you experienced members let the newbies and people who are learning answer the questions.

Exercise data:
The exercise is based solely on the TS-520 and/or the TS-820 final amplifier and meter circuit.

The transceiver's meter internal resistance is 600 ohms.

The IP meter multiplier resistor is 3.3K.

The final amplifier cathode resistors are 10 ohms each (2 x 10).

The meter switch is set to IP position.

The final amplifier cathode current is .225 amps.

Based on the above values:

1. What is the current that's flowing in the IP meter circuit?

2. What is the voltage drop across the 3.3K meter multiplier resistor?

3. What is the DC voltage that is applied to the meter?

I am fully aware that resistor values are not always what the schematic values indicate. However, for the purpose of this simple exercise, the resistor values are as stated.

73
Mike W5RKL

45693. TS-520 Voltage chart

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 15:33:51 UTC
From: Mike
Topic: 45693 Message: 45693

The TS-520 voltage chart, page 45, states the cathode voltage, pin 1 of V1 and V2 (S2001) final tubes is 1.3VDC. Based on that, what is the cathode current in the final amplifier?

73
Mike W5RKL

45694. Re: [TS-520_820_530_830] Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 09:03:18 UTC
From: <john@...>
Topic: 45682 Message: 45694

On the PLL UNIT (X50-1680-00) Schematic, pin 2 of connector 8 is indeed blank.

John Snell / GØRDO
www.morsemad.com
----- Original Message -----
From: rrmvargo@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, November 03, 2013 11:10 PM
Subject: [TS-520_820_530_830] Whackamole & Pin2 on PLL connector 8

As I try to resurrect this TS830S that someone butchered, I find it is like playing whackamole. I finally got the receiver to work quite well & the S meter now responds with appropriate readings (all bad connections of some sort). But then I find the CAL won't produce a signal. I trace that down to a bad ground, probably caused by me when I had the front panel off. But as I trace the orange CAL switch wire back to pin 3 on connector 8 on the bottom side of the PLL board, I notice that #2 wire is completely missing in that connector. The pin hole inside the connector is empty & there is no loose wire anywhere nearby. The pin is named RLR on the schematic. Any comments? Late engineering change? This radio is wearing me out. Thanx - Bob

45695. RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 14:10:07 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45695

Hi Terry,
I am concerned, because of the other butchered areas of my radio. I keep finding stuff. I have yet to try the transmitter. This is my first Hybrid; first tube transmitter.

I was given this TS830 & out of respect for it and the jerk (said playfully), I am trying my limited best to get it going again.

I already figured out the cal problem by simply just grounding the orange wire & the cal fired right up. Then I checked the cal switch itself & it is good. So the ground coming off the switch is bad. Very ez to fix.

The display still needs work as it still dims on occasion. I hope to try the transmitter soon. - 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

As I try to resurrect this TS830S that someone butchered, I find it is like playing whackamole. I finally got the receiver to work quite well & the S meter now responds with appropriate readings (all bad connections of some sort). But then I find the CAL won't produce a signal. I trace that down to a bad ground, probably caused by me when I had the front panel off. But as I trace the orange CAL switch wire back to pin 3 on connector 8 on the bottom side of the PLL board, I notice that #2 wire is completely missing in that connector. The pin hole inside the connector is empty & there is no loose wire anywhere nearby. The pin is named RLR on the schematic. Any comments? Late engineering change? This radio is wearing me out. Thanx - Bob

45696. RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 17:34:05 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45696

Looks like I am ready to transmit, 'cept for a mic. I'll have to look around. I might have a 4 pin connector around somewhere. Anyone have a decent MC50 for sale? Just missed one for $50 on QTH.

I dipped my first PLATE!! Now I am a super Dip! I have read about the term for ever, but I have never seen it done. I ran it into a dummy load I built. Seemed to tune up fine. RF meter was way out of adjustment, so that was a scare. Almost bent the needle. I put it at the 2/3 position as suggested. Now I should check to see if the finals were ever neutralized. Another new experience about to unfold.

I am still shakey on the tune thing. Scary hitting send the first time. Actually, when I hit SEND, Ip went NEGATIVE, not 60mA. Turns out it was a dirty meter switch!! Definitely naming this 830: Whackamole.

73 Bob

45697. RE: RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 17:50:28 UTC
From: <wagstw46@...>
Topic: 45682 Message: 45697

OK Bob if rig has been butchered then I understand then why you might be concerned about no RLR wire at the PLL board.

You would think that you could depend on the schematic being correct but unfortunately not always the case with any of the hybrids.

Anytime you have a question about the as-built vs the schematic it is good not to make any assumptions and to come here and ask.

There are some really hammer fisted people doing some hack jobs on these rigs. Ill conceived mods and poor implementation. I just had a TS520 here that I bet I got about 10 or more solder blobs/balls fall off the circuit boards or lodged in the wiring harness and wire insulation within the harnesses melted by the iron tip.. Sad.

Have fun
Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry,
I am concerned, because of the other butchered areas of my radio. I keep finding stuff. I have yet to try the transmitter. This is my first Hybrid; first tube transmitter.

I was given this TS830 & out of respect for it and the jerk (said playfully), I am trying my limited best to get it going again.

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The display still needs work as it still dims on occasion. I hope to try the transmitter soon. - 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

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45698. RE: TS-520 Voltage chart

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 17:57:03 UTC
From: <wagstw46@...>
Topic: 45693 Message: 45698

Mike:

I hope the answer prompts some discussion ???

Terry

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The TS-520 voltage chart, page 45, states the cathode voltage, pin 1 of V1 and V2 (S2001) final tubes is 1.3VDC. Based on that, what is the cathode current in the final amplifier?

73
Mike W5RKL

45699. Re: [TS-520_820_530_830] RE: TS-520 Voltage chart

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 18:11:41 UTC
From: W5RKL
Topic: 45693 Message: 45699

Terry,

Yes it would be a good thing that's for sure.

Mike

On 11/4/2013 11:57 AM, wagstw46@... wrote:
>
> Mike:
>
>
> I hope the answer prompts some discussion ???
>
>
> Terry
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
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> of V1 and V2 (S2001) final tubes is 1.3VDC. Based on that, what is the
> cathode current in the final amplifier?
>
> 73
> Mike W5RKL
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45700. RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 18:43:12 UTC
From: <danweed85@...>
Topic: 45692 Message: 45700

Ok Mike heres what I came up with,

After getting my cathode voltage of 1.125v for number 1) I used I = 1.125/3900 = .000288. 3900 being the total resistance of the IP meter circuit. Number 2)The voltage drop across the 3.3k meter multiplier resistor is E = .000288(3300) = .9504. For number 3) I subtracted 1.125 from .950 (I dropped the 4) and got .175

Thanks for another great exercise.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

The following exercise is for the newbies so please, all you experienced members let the newbies and people who are learning answer the questions.

Exercise data:
The exercise is based solely on the TS-520 and/or the TS-820 final amplifier and meter circuit.

The transceiver's meter internal resistance is 600 ohms.

The IP meter multiplier resistor is 3.3K.

The final amplifier cathode resistors are 10 ohms each (2 x 10).

The meter switch is set to IP position.

The final amplifier cathode current is .225 amps.

Based on the above values:

1. What is the current that's flowing in the IP meter circuit?

2. What is the voltage drop across the 3.3K meter multiplier resistor?

3. What is the DC voltage that is applied to the meter?

I am fully aware that resistor values are not always what the schematic values indicate. However, for the purpose of this simple exercise, the resistor values are as stated.

73
Mike W5RKL

45701. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 20:52:02 UTC
From: <eire36@...>
Topic: 45581 Message: 45701

if Gordon is looking at this post please can he let me know if he still rewinds L41 and what he would charge me
thank you
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

ok thank you all for the help and i will execute all the information over the weekend and the let you know the results after this.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Approx values (out of circuit) are:

Primary
Resistance = 0.25 ohms
Inductance = 0.85uhy

Secondary
Resistance = 1.00 ohms
Inductance = 15.5uhy

You can also perform a excitation test out of circuit:
1. Inject 5mv @ 10.00mhz into the Primary winding. That is 10 mhz and not 1 mhz.
2. Connect RF millivolt meter or O-scope across the Secondary.
3. Adjust the slug tuned core for maximum RF output voltage. Should see approx 40mv with the core approx 1 turn outside the top of the shield can.

I would never remove L41 without testing in circuit to confirm it is bad. The above is suggested post rewind testing prior to re-installing in the rig.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

how do you see my findings on the if board is that normal and i am chasing a red herring? what is the micro Henry reading of l41 normally as i have an LCR meter and i can check this out
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to

absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
>
> 73,
> Gordon
> N6WK

--

45702. Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 21:01:57 UTC
From: Mike
Topic: 45692 Message: 45702

Hi Daniel,

You're right, great job.

73
Mike W5RKL

On 11/4/2013 12:43 PM, danweed85@... wrote:
>
> Ok Mike heres what I came up with,
>
> After getting my cathode voltage of 1.125v for number 1) I used I =
> 1.125/3900 = .000288. 3900 being the total resistance of the IP meter
> circuit. Number 2)The voltage drop across the 3.3k meter multiplier
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> Thanks for another great exercise.
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>
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> experienced members let the newbies and people who are learning answer
> the questions.
>
> Exercise data:
> The exercise is based solely on the TS-520 and/or the TS-820 final
> amplifier and meter circuit.
>
> The transceiver's meter internal resistance is 600 ohms.
>
> The IP meter multiplier resistor is 3.3K.
>
> The final amplifier cathode resistors are 10 ohms each (2 x 10).
>
> The meter switch is set to IP position.
>
> The final amplifier cathode current is .225 amps.
>

> Based on the above values:
>
> 1. What is the current that's flowing in the IP meter circuit?
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> schematic values indicate. However, for the purpose of this simple
> exercise, the resistor values are as stated.
>
> 73
> Mike W5RKL
>
>
>

45703. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 20:50:13 UTC
From: <eire36@...>
Topic: 45581 Message: 45703

hi again i have taken the radio apart again and i have found the following yes all of you were right L41 appears to be open L1 0.87 UH L2 3.89UH Q1 OK D2 OK T2 reads between the outer two of the three terminals 6UH and the two 0.3UH not sure if this is OK all on RF board

now on the if board L1 is 138.7 UH L3 151UH L4 151 UH L2 L5 L 6 seems OK CF1 looks a little bit scorched do not know how to check this and is the L1 reading OK? many thanks
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

ok thank you all for the help and i will execute all the information over the weekend and the let you know the results after this.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Approx values (out of circuit) are:

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Inductance = 15.5uhy

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kf4jia

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eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

On 10/30/2013 2:02 PM, n6wk@... wrote:
> I'll bet L-41 on the RF unit is shorted!
>
> 73,
> Gordon
> N6WK

--

45704. Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 21:12:28 UTC
From: Mike
Topic: 45692 Message: 45704

Daniel,

Here's one for you.

If the meter's internal resistance is 600 ohms and the cathode voltage
is 1.75VDC, what is the meter's FSD voltage rating?

You can keep your answer to 3 decimal places and round off if you like.

73
Mike W5RKL

On 11/4/2013 12:43 PM, danweed85@... wrote:
>
> Ok Mike heres what I came up with,
>
> After getting my cathode voltage of 1.125v for number 1) I used I =
> 1.125/3900 = .000288. 3900 being the total resistance of the IP meter
> circuit. Number 2)The voltage drop across the 3.3k meter multiplier
> resistor is E = .000288(3300) = .9504. For number 3) I subtracted
> 1.125 from .950 (I dropped the 4) and got .175
>
> Thanks for another great exercise.
>
> Daniel
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> The following exercise is for the newbies so please, all you
> experienced members let the newbies and people who are learning answer
> the questions.
>
> Exercise data:
> The exercise is based solely on the TS-520 and/or the TS-820 final
> amplifier and meter circuit.
>
> The transceiver's meter internal resistance is 600 ohms.
>
> The IP meter multiplier resistor is 3.3K.
>
> The final amplifier cathode resistors are 10 ohms each (2 x 10).
>

> The meter switch is set to IP position.
>
> The final amplifier cathode current is .225 amps.
>
> Based on the above values:
>
> 1. What is the current that's flowing in the IP meter circuit?
>
> 2. What is the voltage drop across the 3.3K meter multiplier resistor?
>
> 3. What is the DC voltage that is applied to the meter?
>
> I am fully aware that resistor values are not always what the
> schematic values indicate. However, for the purpose of this simple
> exercise, the resistor values are as stated.
>
> 73
> Mike W5RKL
>
>
>

45705. TS830S Plate control adjustment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 21:40:15 UTC
From: <dlacroix@...>
Topic: 45705 Message: 45705

On 15 meters when adjusting the Plate control, the position where I get the best plate current dip is outside the '21' marking and almost in the '28' marking on the dial. On 20 meters it is within the '14' marked section as expected. Could this be an indication of a problem or just an oddity? I haven't received any reports of problems with my signal on 15 meters..

Thanks,
Dave - WB0SD

45706. RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 22:15:24 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45706

Hi Terry,
I have a IC-751A and the very first step in the SM alignment process is incorrect! So I know what you are talking about. For Engineering company's, Ham radio documentation to often sucks. Look at the schematic on a new MC-60A mic & you will find an error that has been there forever. Kenwood still sends out the bad schematic. Where I worked, we made certain that every engineer read the support material before being published. This did not prevent all mistakes, but the peer pressure was very high along with the bad publicity. Done with rant.

But it does bring me to another question & that is the alignment of the Ant/Mix/RF on the 830. If I follow the instructions, the CAL tone is nulled at the prescribed frequencies, is it not?

73 - Bob

TRIMMED>>>>

45707. Re: [TS-520_820_530_830] RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 23:19:40 UTC
From: Joseph Stiles
Topic: 45682 Message: 45707

Bob,

Sorry to jump in, but...the answer is... no.

  Look on upper left corner of Pg 28 in the 830S "instruction manual." You adjust for "max S meter reading"(ant & mix coils), or take a look at Pg 36, step 16 in the "service manual".
The "transmit drive coils" are adjusted per instructions on Pg 28 of the "instruction manual" or Pg 37, Step 18 in the "service manual" Make sure you have the proper "termination" at the SO-239 connector at the back....ie 50 ohm dummy load works great.

My experience has been that you may NOT get a good "cal signal" directly at the indicated frequency at first(depending on who has messed with it prior...which we know someone other than you has)...you may have to go off frequency a bit...adjust associated coils...then try and dial back to the indicated frequency and re-tune them. If you have a signal generator...so much the better.

73 Joe
WB7UQU

On Monday, November 4, 2013 2:51 PM, "rrmvargo@aol.com" <rrmvargo@...> wrote:

>Hi Terry,
>I have a IC-751A and the very first step in the SM alignment process is incorrect! So I know what you are talking about. For Engineering company's, Ham radio documentation to often sucks. Look at the schematic on a new MC-60A mic & you will find an error that has been there forever. Kenwood still sends out the bad schematic. Where I worked, we made certain that every engineer read the support material before being published. This did not prevent all mistakes, but the peer pressure was very high along with the bad publicity. Done with rant.
>
>But it does bring me to another question & that is the alignment of the Ant/Mix/RF on the 830. If I follow the instructions, the CAL tone is nulled at the prescribed frequencies, is it not?
>
> 73 - Bob
>
>
>
>TRIMMED>>>>
>
>
>

45708. RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-04 23:56:40 UTC
From: <danweed85@...>
Topic: 45692 Message: 45708

Mike I think I'm stumped. I'm not sure what an FSD rating is. I believe FSD stands for full scale deflection, and with a cathode voltage of 1.75 and a meter resistance of 600 ohms the voltage applied to the meter be .270 volts which would give you and meter current of 350ma and that's as high as the meter goes but I'm not sure I'm answering your question.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Daniel,

Here's one for you.

If the meter's internal resistance is 600 ohms and the cathode voltage is 1.75VDC, what is the meter's FSD voltage rating?

You can keep your answer to 3 decimal places and round off if you like.

73
Mike W5RKL

On 11/4/2013 12:43 PM, danweed85@... mailto:danweed85@... wrote:

Ok Mike heres what I came up with,

After getting my cathode voltage of 1.125v for number 1) I used I = 1.125/3900 = .000288. 3900 being the total resistance of the IP meter circuit. Number 2)The voltage drop across the 3.3k meter multiplier resistor is E = .000288(3300) = .9504. For number 3) I subtracted 1.125 from .950 (I dropped the 4) and got .175

Thanks for another great exercise.

Daniel

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> mailto:ts-520_820_530_830@yahoogroups.com wrote:

The following exercise is for the newbies so please, all you experienced members let the newbies and people who are learning answer the questions.

Exercise data:
The exercise is based solely on the TS-520 and/or the TS-820 final amplifier and meter circuit.

The transceiver's meter internal resistance is 600 ohms.

The IP meter multiplier resistor is 3.3K.

The final amplifier cathode resistors are 10 ohms each (2 x 10).

The meter switch is set to IP position.

The final amplifier cathode current is .225 amps.

Based on the above values:

1. What is the current that's flowing in the IP meter circuit?

2. What is the voltage drop across the 3.3K meter multiplier resistor?

3. What is the DC voltage that is applied to the meter?

I am fully aware that resistor values are not always what the schematic values indicate. However, for the purpose of this simple exercise, the resistor values are as stated.

73
Mike W5RKL

45709. RE: RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 01:19:30 UTC
From: <wagstw46@...>
Topic: 45682 Message: 45709

No... you will adjust for maximum S-meter indication. The Marker or Xtal Calibrator is your signal generator. You can find the procedure in the Maintenance Section of your TS830 operating manual.

Should be able to get approx S9 indication assuming the S meter span trimmer is reasonable well set.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Hi Terry,
I have a IC-751A and the very first step in the SM alignment process is incorrect! So I know what you are talking about. For Engineering company's, Ham radio documentation to often sucks. Look at the schematic on a new MC-60A mic & you will find an error that has been there forever. Kenwood still sends out the bad schematic. Where I worked, we made certain that every engineer read the support material before being published. This did not prevent all mistakes, but the peer pressure was very high along with the bad publicity. Done with rant.

But it does bring me to another question & that is the alignment of the Ant/Mix/RF on the 830. If I follow the instructions, the CAL tone is nulled at the prescribed frequencies, is it not?

73 - Bob

TRIMMED>>>>

45710. RE: RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 01:29:47 UTC
From: <wagstw46@...>
Topic: 45692 Message: 45710

Wont be too long and Daniel can take his turn at holding up the tent poles!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Mike I think I'm stumped. I'm not sure what an FSD rating is. I believe FSD stands for full scale deflection, and with a cathode voltage of 1.75 and a meter resistance of 600 ohms the voltage applied to the meter be .270 volts which would give you and meter current of 350ma and that's as high as the meter goes but I'm not sure I'm answering your question.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Daniel,

Here's one for you.

If the meter's internal resistance is 600 ohms and the cathode voltage is 1.75VDC, what is the meter's FSD voltage rating?

You can keep your answer to 3 decimal places and round off if you like.

73
Mike W5RKL

On 11/4/2013 12:43 PM, danweed85@... mailto:danweed85@... wrote:

Ok Mike heres what I came up with,

After getting my cathode voltage of 1.125v for number 1) I used I = 1.125/3900 = .000288. 3900 being the total resistance of the IP meter circuit. Number 2)The voltage drop across the 3.3k meter multiplier resistor is E = .000288(3300) = .9504. For number 3) I subtracted 1.125 from .950 (I dropped the 4) and got .175

Thanks for another great exercise.

Daniel

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> mailto:ts-520_820_530_830@yahoogroups.com wrote:

The following exercise is for the newbies so please, all you experienced members let the newbies and people who are learning answer the questions.

Exercise data:
The exercise is based solely on the TS-520 and/or the TS-820 final amplifier and meter

circuit.

The transceiver's meter internal resistance is 600 ohms.

The IP meter multiplier resistor is 3.3K.

The final amplifier cathode resistors are 10 ohms each (2 x 10).

The meter switch is set to IP position.

The final amplifier cathode current is .225 amps.

Based on the above values:

1. What is the current that's flowing in the IP meter circuit?

2. What is the voltage drop across the 3.3K meter multiplier resistor?

3. What is the DC voltage that is applied to the meter?

I am fully aware that resistor values are not always what the schematic values indicate. However, for the purpose of this simple exercise, the resistor values are as stated.

73
Mike W5RKL

45711. Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 02:23:35 UTC
From: W5RKL
Topic: 45692 Message: 45711

Daniel, your answer is correct. "FSD" means "Full Scale Deflection", the "S" meaning "Scale" which is the maximum "scale" indicator on the meter.

73
Mike W5RKL

On 11/4/2013 5:56 PM, danweed85@... wrote:
>
> Mike I think I'm stumped. I'm not sure what an FSD rating is. I
> believe FSD stands for full scale deflection, and with a cathode
> voltage of 1.75 and a meter resistance of 600 ohms the voltage applied
> to the meter be .270 volts which would give you and meter current
> of 350ma and that's as high as the meter goes but I'm not sure I'm
> answering your question.
>
> Daniel
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Daniel,
>
> Here's one for you.
>
> If the meter's internal resistance is 600 ohms and the cathode voltage
> is 1.75VDC, what is the meter's FSD voltage rating?
>
> You can keep your answer to 3 decimal places and round off if you like.
>
> 73
> Mike W5RKL
>
> On 11/4/2013 12:43 PM, danweed85@... <mailto:danweed85@...> wrote:
>
>> Ok Mike heres what I came up with,
>>
>> After getting my cathode voltage of 1.125v for number 1) I used I
>> = 1.125/3900 = .000288. 3900 being the total resistance of the
>> IP meter circuit. Number 2)The voltage drop across the 3.3k
>> meter multiplier resistor is E = .000288(3300) = .9504. For
>> number 3) I subtracted 1.125 from .950 (I dropped the 4) and got .175
>>

>> Thanks for another great exercise.
>>
>> Daniel
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com>
>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> The following exercise is for the newbies so please, all you
>> experienced members let the newbies and people who are learning
>> answer the questions.
>>
>> Exercise data:
>> The exercise is based solely on the TS-520 and/or the TS-820
>> final amplifier and meter circuit.
>>
>> The transceiver's meter internal resistance is 600 ohms.
>>
>> The IP meter multiplier resistor is 3.3K.
>>
>> The final amplifier cathode resistors are 10 ohms each (2 x 10).
>>
>> The meter switch is set to IP position.
>>
>> The final amplifier cathode current is .225 amps.
>>
>> Based on the above values:
>>
>> 1. What is the current that's flowing in the IP meter circuit?
>>
>> 2. What is the voltage drop across the 3.3K meter multiplier
>> resistor?
>>
>> 3. What is the DC voltage that is applied to the meter?
>>
>> I am fully aware that resistor values are not always what the
>> schematic values indicate. However, for the purpose of this
>> simple exercise, the resistor values are as stated.
>>
>> 73
>> Mike W5RKL
>>
>>
>
>

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http://www.avast.com

45712. Re: [TS-520_820_530_830] RE: RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 02:24:46 UTC
From: W5RKL
Topic: 45692 Message: 45712

It sure looks that way. Keep up the great work Daniel, you're doing great.

73
Mike W5RKL

On 11/4/2013 7:29 PM, wagstw46@... wrote:
>
> Wont be too long and Daniel can take his turn at holding up the tent
> poles!
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Mike I think I'm stumped. I'm not sure what an FSD rating is. I
> believe FSD stands for full scale deflection, and with a cathode
> voltage of 1.75 and a meter resistance of 600 ohms the voltage applied
> to the meter be .270 volts which would give you and meter current
> of 350ma and that's as high as the meter goes but I'm not sure I'm
> answering your question.
>
> Daniel
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Daniel,
>
> Here's one for you.
>
> If the meter's internal resistance is 600 ohms and the cathode voltage
> is 1.75VDC, what is the meter's FSD voltage rating?
>
> You can keep your answer to 3 decimal places and round off if you like.
>
> 73
> Mike W5RKL
>

> On 11/4/2013 12:43 PM, danweed85@... <mailto:danweed85@...> wrote:
>
>> Ok Mike heres what I came up with,
>>
>> After getting my cathode voltage of 1.125v for number 1) I
>> used I = 1.125/3900 = .000288. 3900 being the total
>> resistance of the IP meter circuit. Number 2)The voltage
>> drop across the 3.3k meter multiplier resistor is E =
>> .000288(3300) = .9504. For number 3) I subtracted 1.125 from
>> .950 (I dropped the 4) and got .175
>>
>> Thanks for another great exercise.
>>
>> Daniel
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com>
>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
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>> experienced members let the newbies and people who are
>> learning answer the questions.
>>
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>> final amplifier and meter circuit.
>>
>> The transceiver's meter internal resistance is 600 ohms.
>>
>> The IP meter multiplier resistor is 3.3K.
>>
>> The final amplifier cathode resistors are 10 ohms each (2 x 10).
>>
>> The meter switch is set to IP position.
>>
>> The final amplifier cathode current is .225 amps.
>>
>> Based on the above values:
>>
>> 1. What is the current that's flowing in the IP meter circuit?
>>
>> 2. What is the voltage drop across the 3.3K meter multiplier
>> resistor?
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>> 3. What is the DC voltage that is applied to the meter?
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>> I am fully aware that resistor values are not always what the

>> schematic values indicate. However, for the purpose of this
>> simple exercise, the resistor values are as stated.
>>
>> 73
>> Mike W5RKL
>>
>>
>
>

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http://www.avast.com

45713. disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 02:37:48 UTC
From: Ronald Robinson
Topic: 45713 Message: 45713

can anyone tell me the voltage rating of the capacitor on the ts-520 hv board thanks
Ron KK4PWE

45714. Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 02:53:39 UTC
From: W5RKL
Topic: 45692 Message: 45714

I should have not used the word "rating", only FSD, my fault but you still answered the question correctly. It's obvious you have been studying as you seem to be answering the questions "correctly" without any problem.

I can speak for myself in that I went through the same basic learning process you are going through. Keep going, study, and experiment with simple circuits. That's how you learn. You will make mistakes and there will be times when you ask yourself, "what the hell was I thinking??" I know, been there done that, many times!!! You will have "brain farts" where you just can't seem to get it. That's when you stop, do something else, then come back later and you will "get it".

I'm very impressed Daniel, you're doing very well!! Keep it up, study, read, and don't be afraid to make a mistake.

73
Mike W5RKL

On 11/4/2013 5:56 PM, danweed85@... wrote:
>
> Mike I think I'm stumped. I'm not sure what an FSD rating is. I
> believe FSD stands for full scale deflection, and with a cathode
> voltage of 1.75 and a meter resistance of 600 ohms the voltage applied
> to the meter be .270 volts which would give you and meter current
> of 350ma and that's as high as the meter goes but I'm not sure I'm
> answering your question.
>
> Daniel
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> Daniel,
>
> Here's one for you.
>
> If the meter's internal resistance is 600 ohms and the cathode voltage
> is 1.75VDC, what is the meter's FSD voltage rating?
>
> You can keep your answer to 3 decimal places and round off if you like.
>
> 73

> Mike W5RKL
>
> On 11/4/2013 12:43 PM, danweed85@... <mailto:danweed85@...> wrote:
>
>> Ok Mike heres what I came up with,
>>
>> After getting my cathode voltage of 1.125v for number 1) I used I
>> = 1.125/3900 = .000288. 3900 being the total resistance of the
>> IP meter circuit. Number 2)The voltage drop across the 3.3k
>> meter multiplier resistor is E = .000288(3300) = .9504. For
>> number 3) I subtracted 1.125 from .950 (I dropped the 4) and got .175
>>
>> Thanks for another great exercise.
>>
>> Daniel
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>,
>> <ts-520_820_530_830@yahoogroups.com>
>> <mailto:ts-520_820_530_830@yahoogroups.com> wrote:
>>
>> The following exercise is for the newbies so please, all you
>> experienced members let the newbies and people who are learning
>> answer the questions.
>>
>> Exercise data:
>> The exercise is based solely on the TS-520 and/or the TS-820
>> final amplifier and meter circuit.
>>
>> The transceiver's meter internal resistance is 600 ohms.
>>
>> The IP meter multiplier resistor is 3.3K.
>>
>> The final amplifier cathode resistors are 10 ohms each (2 x 10).
>>
>> The meter switch is set to IP position.
>>
>> The final amplifier cathode current is .225 amps.
>>
>> Based on the above values:
>>
>> 1. What is the current that's flowing in the IP meter circuit?
>>
>> 2. What is the voltage drop across the 3.3K meter multiplier
>> resistor?
>>
>> 3. What is the DC voltage that is applied to the meter?
>>

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>> schematic values indicate. However, for the purpose of this
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>> 73
>> Mike W5RKL
>>
>>
>
>

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http://www.avast.com

45715. RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 03:51:34 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45715

Thanks Joe & Terry. I took the settings as literal, when in actuality you have to off tune to get the maximum S meter reading. An indeed, the S meter is right around S9. Thanks for helping an 830 newbie. I just ordered a mic for it, so I should be able to check out SSB next week. - 73 Bob

TRIMMED>>>>

45716. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 04:17:51 UTC
From: Wes Will
Topic: 45713 Message: 45716

On 11/04/2013 08:37 PM, Ronald Robinson wrote:
>
>
> can anyone tell me the voltage rating of the capacitor on the ts-520 hv
> board thanks Ron KK4PWE

PLEASE CORRECT THIS IF IT IS WRONG. RON: DO NOT TAKE MY SOLE WORD AS GOSPEL FOR THIS. I'm doing my best reading some pretty crappy PDF file text from a scanned parts list, but I am NOT one of the gurus on this topic by ANY means. "I am only an egg. Grokking will come." I'm just another user, in other words, and I don't think you could go too far wrong with these specifications (below) if nobody else chimes in with better information. If I were going to get a replacement for the cap on MY 520SE X43-1110-00 HV board, it is what I would look for and use without any real qualms. I'm almost positive that there would be no ill effects, positive enough to, as I said, use one myself if it ever went out on me.

From the bad scan of the Service Manual, in the parts list, there is a part identification header, which is about as cryptic and poor a piece of documentation as I have seen since I got my USAF discharge.

From that, and with my best guess from the circuit parameters on that board, it looks as if that was spec'ed at Kenwood as a 0.01 microFarad ceramic disk capacitor with a 1.8 kilovolt working voltage, and a Type II temperature coefficient. I think (from some textbook pages I've dived into to double-check) that the type you should use for this application would be a "Z5E" which changes less than five percent over the range of temperatures from 10 to 85 degrees Centigrade. (Cool to really hot but not quite boiling.) This ought to be slightly better than the original one, as a matter of fact.

In any case I think K4EAA has some replacement 0.01 microFarad 2 kV Z5E capacitors for sale on his web site. Also some of the other repair people here ought to be able to source them for you.

You should be able to get this part from about any decent supplier,

http://ca.mouser.com/ProductDetail/Xicon/140-202P9-103K-RC/?qs=sGAEpiMZZMt1mVBmZSXTPCB4s6x5SlOXz7Jdi%252biSDKM%3d

I think this one from Mouser ought to do the trick.

PLEASE CORRECT ME IF THIS IS IN ANY WAY MISLEADING OR JUST PLAIN WRONG.

But that's what I would be ordering if it was mine to repair. Best I can do for you, let's just hope one of the high-forehead types (or

somebody with a full Kenwood parts list!) pops in with a better answer.

--
Wes Will
N9KDY

45717. RE: [TS-520_820_530_830] RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 09:28:03 UTC
From: fpath fpath
Topic: 45581 Message: 45717

Peter,

You can contact Gordon, directly. I'm unsure of the price, but you will have to send him your old L41 as well, this way he can then re-wind another and have it waiting for another user.

73s

Dave

Vk5PDL

From: eire36@...
To: TS-520_820_530_830@yahoogroups.com
Date: Mon, 4 Nov 2013 12:52:02 -0800
Subject: [TS-520_820_530_830] RE: deaf ts530s

if Gordon is looking at this post please can he let me know if he still rewinds L41 and what he would charge me
thank you
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

ok thank you all for the help and i will execute all the information over the weekend and the let you know the results after this.

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Approx values (out of circuit) are:

Primary
Resistance = 0.25 ohms
Inductance = 0.85uhy

Secondary
Resistance = 1.00 ohms
Inductance = 15.5uhy

You can also perform a excitation test out of circuit:
1. Inject 5mv @ 10.00mhz into the Primary winding. That is 10 mhz and not 1 mhz.
2. Connect RF millivolt meter or O-scope across the Secondary.
3. Adjust the slug tuned core for maximum RF output voltage. Should see approx 40mv with the core approx 1 turn outside the top of the shield can.

I would never remove L41 without testing in circuit to confirm it is bad. The above is suggested post rewind testing prior to re-installing in the rig.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

how do you see my findings on the if board is that normal and i am chasing a red herring? what is the micro Henry reading of l41 normally as i have an LCR meter and i can check this out
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

eire36,

I agree with Gordon-n6wk....I think you have a fried L-41....also known as the "antenna step up transformer." This is usually marked "1.8" on the RF board. 100 watts is a lot to absorb, and also nearby lightning strikes have also been known to fry them too. The wire that these are wound with is #42awg enameled wire..it's finer that a human hair!

Don't know where you are...but ...gee...guess what..Gordon-n6wk rewinds them!...but you gotta send him your bad one...contact him through this board.

Also, it is customary here, to sign the end of your posts with your first name and call if any.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, October 30, 2013 3:44 PM, "n6wk@..." <n6wk@...> wrote:

On 10/30/2013 2:02 PM, n6wk@... wrote:> I'll bet L-41 on the RF unit is shorted!>> 73,> Gordon> N6WK--

45718. Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 09:45:15 UTC
From: Gordon JC Pearce
Topic: 45692 Message: 45718

On Mon, Nov 04, 2013 at 08:53:39PM -0600, W5RKL wrote:
>
> I'm very impressed Daniel, you're doing very well!! Keep it up,
> study, read, and don't be afraid to make a mistake.

... except around the PA cage. You want to be a little bit afraid of that ;-)

--
Gordonjcp MM0YEQ

45719. RE: [TS-520_820_530_830] TS830S Plate control adjustment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 09:47:53 UTC
From: fpath fpath
Topic: 45705 Message: 45719

Dave,

A number of factors can come into play, it can be subject to actual frequency being tuned, the screws on the shaft may have come loose at some stage and wasn't re-aligned properly, list can go on and on.

Try and tune in the centre of the band into a dummy load. Do this for each band and record your results. From there you can then tune on air on the same freq for each of the bands and compare against your dummy load, report back and we can re-assess. The tuning for most parts will be within the raised white marks on the face plate.

EG: The other day I tempted "Murphy" to pay me a visit by saying to a good friend on the forum my beam has been perfect for the last 19 years, especially with all the high winds recently going through the area. I was listening for K9W, (Wake Island Dxpedition) and tried to tune my radio for 15m, with a slight breeze the SWR and power went all over the place, the load positions were so far out of normal range. I now have to get a cherry picker in and work out where the problem is (most prob trap on driven element) other two bands were perfect. Radio tuned up perfect into dummy load, normal tuning marks on dial.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: dlacroix@...m
Date: Mon, 4 Nov 2013 13:40:15 -0800
Subject: [TS-520_820_530_830] TS830S Plate control adjustment

On 15 meters when adjusting the Plate control, the position where I get the best plate current dip is outside the '21' marking and almost in the '28' marking on the dial. On 20 meters it is within the '14' marked section as expected.
Could this be an indication of a problem or just an oddity? I haven't received any reports of problems with my signal on 15 meters..

Thanks,
Dave - WB0SD

45720. RE: RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 11:35:03 UTC
From: <wagstw46@...>
Topic: 45682 Message: 45720

Just set the Drive control to 1200 and set the VFO to the listed frequency and follow the band sequence in Table 6-1 as there is some interaction.

Your objective is to have the ALC peak in Tune mode and the Receiver back ground noise to peak at the same position of the Drive Control as you move from one end of the VFO tuning range to the other.

There is no reason to hunt for the current max settings.

Just follow the procedure as written in the Sect 6 Maintenance of the operating manual and remember need the Heaters on to do the Drive coils. I dont think the manual states this and may not be intuitive.

Using Table 6-1 sequence make one pass and then repeat. After doing the Coil Pack suggest you do the IF transformers and recognize some may have little effect.
Better to do complete using the Service Manual but need good RF sig gen for this so just do the short version.

You wont be able to accurately do the S-meter cal without a RF sig gen with calibrated -73dBm (50uv) output, but you can just adjust the span pot for an S9 indication with the Marker signal and Drive Control peaked at 1200. Do that at 14.2mhz and you will be close enough to give on air antenna and amplifier comparisons etc.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ts-520_820_530_830@yahoogroups.com> wrote:

Thanks Joe & Terry. I took the settings as literal, when in actuality you have to off tune to get the maximum S meter reading. An indeed, the S meter is right around S9. Thanks for helping an 830 newbie. I just ordered a mic for it, so I should be able to check out SSB next week. - 73 Bob

TRIMMED>>>>

45721. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 12:14:23 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45721

Not quite correct. The disc ceramic cap is a "2H" which is a 500 wvdc cap.

You generally have two ways to determine capacitor ratings. 1. Look at parts list and take the part number to a mfg capacitor data sheet to decode it OR 2. Analyze the circuit and determine the component function and operating parameters.

The cap is a rf bypass cap so you dont have any rf ripple applied to your panel meter when reading the anode voltage in the HV position of the meter.

This circuit is a simple 20/1 voltage divider that Mike has been discussing. 900 vdc is applied to the top end of the divider and at the junction of the 2 meg and 100k resistors you will measure approx 44vdc when meter is not in the HV position. So no reason to use a 1.8kv wvdc cap for this application.

When the meter switch is placed to HV position the internal R of the meter is placed in shunt across the 100k resistor and now the divider becomes approx 3400/1 (2meg/600) so the voltage at the junction is now 44/3400 or 0.13vdc. Remember Dan just told us the meter requires 0.27vdc for FSD. 0.13vdc will cause meter to deflect to approx 900vdc.

So the voltage that the meter movement and the disc ceramic by-pass cap sees in service ranges from a high of approx 44vdc to low of 0.13vdc. Using a 1.8kv cap for this application would be overkill but if in your junk box go for it.

My real question is ...Why do you think this cap needs replacement? How did you troubleshoot to determine it was bad? If it is burned up I would take close look at the three 680k resistors and/or make sure no carbon path across them.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 11/04/2013 08:37 PM, Ronald Robinson wrote:
>
>
> can anyone tell me the voltage rating of the capacitor on the ts-520 hv
> board thanks Ron KK4PWE

PLEASE CORRECT THIS IF IT IS WRONG. RON: DO NOT TAKE MY SOLE WORD AS GOSPEL FOR THIS. I'm doing my best reading some pretty crappy PDF file text from a scanned parts list, but I am NOT one of the gurus on this topic by ANY means. "I am only an egg. Grokking will come." I'm just another user, in other words, and I don't think you could go too far wrong with these specifications (below) if nobody else chimes in with better information. If I were going to get a replacement for the cap on MY 520SE X43-1110-00 HV board, it is what I would look for and use without any real qualms. I'm almost positive that there would be no ill effects, positive enough to, as I said, use one myself if it ever went

out on me.

From the bad scan of the Service Manual, in the parts list, there is a part identification header, which is about as cryptic and poor a piece of documentation as I have seen since I got my USAF discharge.

From that, and with my best guess from the circuit parameters on that board, it looks as if that was spec'ed at Kenwood as a 0.01 microFarad ceramic disk capacitor with a 1.8 kilovolt working voltage, and a Type II temperature coefficient. I think (from some textbook pages I've dived into to double-check) that the type you should use for this application would be a "Z5E" which changes less than five percent over the range of temperatures from 10 to 85 degrees Centigrade. (Cool to really hot but not quite boiling.) This ought to be slightly better than the original one, as a matter of fact.

In any case I think K4EAA has some replacement 0.01 microFarad 2 kV Z5E capacitors for sale on his web site. Also some of the other repair people here ought to be able to source them for you.

You should be able to get this part from about any decent supplier,

http://ca.mouser.com/ProductDetail/Xicon/140-202P9-103K-RC/?qs=sGAEpiMZZMt1mVBmZSXTPCB4s6x5SlOXz7Jdi%252biSDKM%3d http://ca.mouser.com/ProductDetail/Xicon/140-202P9-103K-RC/?qs=sGAEpiMZZMt1mVBmZSXTPCB4s6x5SlOXz7Jdi%252biSDKM%3d

I think this one from Mouser ought to do the trick.

PLEASE CORRECT ME IF THIS IS IN ANY WAY MISLEADING OR JUST PLAIN WRONG.

But that's what I would be ordering if it was mine to repair. Best I can do for you, let's just hope one of the high-forehead types (or somebody with a full Kenwood parts list!) pops in with a better answer.

--
Wes Will
N9KDY

45722. RE: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 12:38:20 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45722

OK still not quite correct! Math error! I told you the "Calculus" got the best of me!

Voltage at mid point of divider will be 3400/1 ratio when meter is placed in HV position so 900/3400 = 0.265vdc and NOT 0.13vdc. 0.13vdc would give you approx mid-scale deflection or 500vdc indication.

In practice if you measure the voltage you will find it may be as low as approx 0.23vdc. This is because the meter string divider resistors are not precision resistors and the actual divider ratio will vary. Meter is not intended as a precision HV voltmeter. It is there for approx calcs of dc input power and to see if you have 450vdc vs 900vdc.

Sorry about that.

Terry

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Not quite correct. The disc ceramic cap is a "2H" which is a 500 wvdc cap.

You generally have two ways to determine capacitor ratings. 1. Look at parts list and take the part number to a mfg capacitor data sheet to decode it OR 2. Analyze the circuit and determine the component function and operating parameters.

The cap is a rf bypass cap so you dont have any rf ripple applied to your panel meter when reading the anode voltage in the HV position of the meter.

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When the meter switch is placed to HV position the internal R of the meter is placed in shunt across the 100k resistor and now the divider becomes approx 3400/1 (2meg/600) so the voltage at the junction is now 44/3400 or 0.13vdc. Remember Dan just told us the meter requires 0.27vdc for FSD. 0.13vdc will cause meter to deflect to approx 900vdc.

So the voltage that the meter movement and the disc ceramic by-pass cap sees in service ranges from a high of approx 44vdc to low of 0.13vdc. Using a 1.8kv cap for this application would be overkill but if in your junk box go for it.

My real question is ...Why do you think this cap needs replacement? How did you troubleshoot to determine it was bad? If it is burned up I would take close look at the three 680k resistors and/or make sure no carbon path across them.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 11/04/2013 08:37 PM, Ronald Robinson wrote:
>
>
> can anyone tell me the voltage rating of the capacitor on the ts-520 hv
> board thanks Ron KK4PWE

PLEASE CORRECT THIS IF IT IS WRONG. RON: DO NOT TAKE MY SOLE WORD AS GOSPEL FOR THIS. I'm doing my best reading some pretty crappy PDF file text from a scanned parts list, but I am NOT one of the gurus on this topic by ANY means. "I am only an egg. Grokking will come." I'm just another user, in other words, and I don't think you could go too far wrong with these specifications (below) if nobody else chimes in with better information. If I were going to get a replacement for the cap on MY 520SE X43-1110-00 HV board, it is what I would look for and use without any real qualms. I'm almost positive that there would be no ill effects, positive enough to, as I said, use one myself if it ever went out on me.

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In any case I think K4EAA has some replacement 0.01 microFarad 2 kV Z5E capacitors for sale on his web site. Also some of the other repair people here ought to be able to source them for you.

You should be able to get this part from about any decent supplier,

http://ca.mouser.com/ProductDetail/Xicon/140-202P9-103K-RC/?qs=sGAEpiMZZMt1mVBmZSXTPCB4s6x5SlOXz7Jdi%252biSDKM%3d http://ca.mouser.com/ProductDetail/Xicon/140-202P9-103K-RC/?qs=sGAEpiMZZMt1mVBmZSXTPCB4s6x5SlOXz7Jdi%252biSDKM%3d

I think this one from Mouser ought to do the trick.

PLEASE CORRECT ME IF THIS IS IN ANY WAY MISLEADING OR JUST PLAIN WRONG.

But that's what I would be ordering if it was mine to repair. Best I can do for you, let's just hope one of the high-forehead types (or somebody with a full Kenwood parts list!) pops in with a better answer.

--
Wes Will
N9KDY

45723. RE: Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 13:48:11 UTC
From: <danweed85@...>
Topic: 45692 Message: 45723

Thanks a lot everyone. I am real lucky to have found a great group with so many helpful people and resources. Thanks again!!

Daniel

---In TS-520_820_530_830@yahoogroups.com, <gordon@...> wrote:

On Mon, Nov 04, 2013 at 08:53:39PM -0600, W5RKL wrote:
>
> I'm very impressed Daniel, you're doing very well!! Keep it up,
> study, read, and don't be afraid to make a mistake.

... except around the PA cage. You want to be a little bit afraid of that ;-)

--
Gordonjcp MM0YEQ

45724. Re: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 14:00:09 UTC
From: Ronald Robinson
Topic: 45713 Message: 45724

Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2,100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested   its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc   and no meter   msd or fsd

45725. Re: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 14:04:23 UTC
From: Ronald Robinson
Topic: 45713 Message: 45725

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2,100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd

45726. RE: RE: RE: Whackamole & Pin2 on PLL connector 8

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 14:47:04 UTC
From: <rrmvargo@...>
Topic: 45682 Message: 45726

Thanx Terry for the Heater switch hint. I was wondering why the adjustments had no effect. And you also answered my question about how the preselector (drive) matched both the receive & xmit. - 73 Bob

TRIMMED>>>>

45727. RE: Re: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 14:52:54 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45727

Ron:

Nothing to be sorry about. I am trying to understand your thought process.

You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.

Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.

If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.

Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.

As to no cathode voltage on the 6146 Finals you must have the rig keyed and dc current flowing to have any voltage on the 6146 cathodes. Need good cathode meter shunt resistors to complete the path and proper operating bias on the control grids and proper screen grid voltage and heaters on.

Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2, 100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd

45728. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 15:07:55 UTC
From: Ron
Topic: 45713 Message: 45728

Terry ,,, I have resting bias , maybe I used the wrong terminology what I don't have is any voltage in the hv cage (out the top of the 6146's) I've changed the 6146's but still dead and also I haven't had it hooked up to an antenna so I don't know if I have any voltage to meter in rf mode I checked the cap with a vtvm, and no kick at all
Also I am waiting on an order of resistors to continue the repair of this mess of a radio but getting great practice getting it going and having fun doing it !!!
Ron KK4PWF

On Nov 5, 2013, at 8:52 AM, <wagstw46@...> wrote:

>
>
> Ron:
>
>
>
> Nothing to be sorry about. I am trying to understand your thought process.
>
>
>
> You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.
>
>
>
> Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.
>
>
>
> If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.
>
>
>
> Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.
>
>
>

> As to no cathode voltage on the 6146 Finals you must have the rig keyed and dc current flowing to have any voltage on the 6146 cathodes. Need good cathode meter shunt resistors to complete the path and proper operating bias on the control grids and proper screen grid voltage and heaters on.
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> Terry K9TW
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> Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2, 100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd
>
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45729. Re: [TS-520_820_530_830] RE: A simple exercise to calculate the approximate final amplifier metering circuit voltage and current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 15:10:24 UTC
From: Mike
Topic: 45692 Message: 45729

Yes, that's part of learning standard safety precautions which every ham should study/learn and adhere to at all times when working around voltages, regardless of the voltage level, AC or DC.

The link below discusses the effects electricity, both AC and DC, has on the human body. A good read for all hams.

http://www.allaboutcircuits.com/vol_1/chpt_3/2.html#MMOM.bibitem

73
Mike W5RKL

On 11/5/2013 3:45 AM, Gordon JC Pearce wrote:
>
> On Mon, Nov 04, 2013 at 08:53:39PM -0600, W5RKL wrote:
> >
> > I'm very impressed Daniel, you're doing very well!! Keep it up,
> > study, read, and don't be afraid to make a mistake.
>
> ... except around the PA cage. You want to be a little bit afraid of
> that ;-)
>
> --
> Gordonjcp MM0YEQ
>
>

45730. RE: Re: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 15:17:23 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45730

Ron

One more thing. I know you replaced the 56k divider resistors. They only effect screen grid voltage in Tune mode. Will still have output in CW mode when they are open as will have full screen grid voltage applied.

I think you may be confused on how the 6146 anode voltage is supplied. The HV meter board that you some how gravitated to has nothing to do with that. I know you see 800 and HV terminals at that board so that may have confused you into thinking this is the supply path for the 6146 anodes?

It is just a board where you divide the screen voltage in half and a board where you sample the 900vdc (800) and supply a very low dc voltage (HV) to your panel meter. Board should have nothing to do with no anode voltage unless it would short out and develop a bolted fault to ground and then would blow the rigs power transformer primary fuse.

The 900vdc anode voltage leaves the HV rect board and is applied directly to the tube anodes thru the small VHF choke and large RF choke in the PA Cage and thru the parasitic suppressors to the anode caps.

Terry K9TW

45731. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 15:37:17 UTC
From: <eire36@...>
Topic: 45581 Message: 45731

thank you for that dave.
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

hi all i have ts530s that has had 100 watts of Rf inputted into the antenna socket before i purchased it i have rebuilt the rf amp for the TX and that is ok now but the rx takes 17 mv to get a signal 9 reading and 60 UV gives a zero reading but is barely heard if i inject a signal into the if board at connector 1 of 524 UV signal heard but no meter reading but 95 mv gives a signal 9 and at th ceramic filter input 524 uv gives signal 3 output s4 and the input to xtal filter s7 have checked all the components from the rif to the xtal filter and all seems ok but the if cans do not tune all measurements taken in cw mode and at 10 mhz with the narrow ssb filter in as the wide band one lowers the s meter from an s9 to an s7 the calibrator does not show a s meter reading but is heard and tune able any help greatly appreciated.

45732. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 15:38:16 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45732

OK the 900vdc does not come out the top of the 6146 finals. The 900vdc is applied there.

You can start measuring in the PA cage and work back to the HV rect board or work the other way. In either case you must observe good safe work practice measuring this 900vdc.

If you have little experience or rusty I suggest you connect the DMM or VTVM first and then power on the rig to take the measurements.

You can also do a good visual inspection with rig unplugged and HV caps discharged.

Visual includes:
1. Is large RF choke in PA cage burned black or any signs of over heating?
2. Is the small VHF choke at base of large choke burned?
3. Is the RF bypass cap at base of large choke burned or blown open
4. Are the rupture vents on the two HV filter caps blown or leaking tar like or dry white powdery deposits. Vents can also be bulged out.

Voltage measurement:
1. Connect the ground lead of your volt meter to the chassis ground post
2. Connect the plus meter lead probe thru a good jumper test lead to the end of parasitic chokes that feed the anode caps.
3. Make sure the end of the jumper lead to your meters plus probe is covered so you cannot make accidental contact.
4. Power on the rig and record the voltage
5. Down power the rig and make sure voltmeter reads zero and then remove the test jumper.
6. Move to the bottom of the large plate choke and connect the test jumper
7. Place self in clear and re-power the rig.
8. Repeat this process all the way back to the HV rectifier board.

Very easy but must be aware of hazards and control your test leads.

Some say put one hand in pocket and that sounds good but not a real practical approach as need free hand to hold flashlite, change meter range etc.

Safest it to connect meter and then put self completely in clear and power on rig and record the voltage and then down power. Must make sure have good positive mechanical connection that wont pop off and must have the probe and test lead interface covered so you dont forget and accidently contact it.

Not trying to insult you. You can move probe from point to point using the meter test prod with rig powered if you are experienced, but still must be constantly aware of what you are doing so you dont slip off or bridge things.

Even today after all these years when I am dealing with anode voltage in an RF amp PA or HV power supply I connect the voltmeter with unit down powered and put myself in safe position and then power on to get the reading. Want to live another day to play!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry ,,, I have resting bias , maybe I used the wrong terminology what I don't have is any voltage in the hv cage (out the top of the 6146's) I've changed the 6146's but still dead and also I haven't had it hooked up to an antenna so I don't know if I have any voltage to meter in rf mode I checked the cap with a vtvm, and no kick at all
Also I am waiting on an order of resistors to continue the repair of this mess of a radio but getting great practice getting it going and having fun doing it !!!
Ron KK4PWF

On Nov 5, 2013, at 8:52 AM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

Nothing to be sorry about. I am trying to understand your thought process.

You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.

Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.

If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.

Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.

As to no cathode voltage on the 6146 Finals you must have the rig keyed and dc current flowing to have any voltage on the 6146 cathodes. Need good cathode meter shunt resistors to complete the path and proper operating bias on the control grids and proper screen grid voltage and heaters on.

Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2, 100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on

down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd

45733. RE: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 16:30:19 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45733

Ron:

I may be a little hard on you.

The actual as built is the 900vdc leaves the HV Rect board on a short red jumper to the HV metering board. From there it leaves on a HV cable that looks like the center of piece of coax and runs to the black terminal strip in the PA cage and on to the small VHF choke and main RF choke.

So I guess it is possible that you might think that if you had no 900vdc anode voltage that the problem could be on that HV metering and SG divider board.

I would not reach for that as I know the voltage is derived from the voltage doubler rectifiers that are on the HV Rect board.

So when I said the 900vdc directly goes from HV Rect board 800 terminal post to the Plate choke that is not technically correct. It goes to the HV metering board and from there on to the PA cage.

As long as you are not blowing the primary fuse focus your efforts on the Anode supply path and not the HV metering board. You of course will need to replace the bad 680k resistors and the bypass cap and do a very good visual to ensure no carbon tracks on this board.

I sure hope you have not applied 900vdc to your panel meter. Will cross that bridge when you find why you have no 6146 anode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK the 900vdc does not come out the top of the 6146 finals. The 900vdc is applied there.

You can start measuring in the PA cage and work back to the HV rect board or work the other way. In either case you must observe good safe work practice measuring this 900vdc.

If you have little experience or rusty I suggest you connect the DMM or VTVM first and then power on the rig to take the measurements.

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Even today after all these years when I am dealing with anode voltage in an RF amp PA or HV power supply I connect the voltmeter with unit down powered and put myself in safe position and then power on to get the reading. Want to live another day to play!

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leaky.

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Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.

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Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

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45734. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 16:51:52 UTC
From: <eire36@...>
Topic: 45581 Message: 45734

hi i have found that L1 on the RF board is low inductance and i did an RF test and found it to be dragging down the RF so i removed it an now the circuit is not attenuating the signal i have also found the same on the if board L1 and after removing it the signal is there now all this was done no power as suggested thank you all for you help
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

hi all i have ts530s that has had 100 watts of Rf inputted into the antenna socket before i purchased it i have rebuilt the rf amp for the TX and that is ok now but the rx takes 17 mv to get a signal 9 reading and 60 UV gives a zero reading but is barely heard if i inject a signal into the if board at connector 1 of 524 UV signal heard but no meter reading but 95 mv gives a signal 9 and at th ceramic filter input 524 uv gives signal 3 output s4 and the input to xtal filter s7 have checked all the components from the rif to the xtal filter and all seems ok but the if cans do not tune all measurements taken in cw mode and at 10 mhz with the narrow ssb filter in as the wide band one lowers the s meter from an s9 to an s7 the calibrator does not show a s meter reading but is heard and tune able any help greatly appreciated.

45735. 2.5-25KV BUTTERFLY CAPACITOR KITS VA6POP

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 06:48:35 UTC
From: <pop_vasile@...>
Topic: 45735 Message: 45735

2.5-25KV BUTTERFLY CAPACITOR KITS VA6POP

I can build for u any air variable capacitors kits

https://www.youtube.com/watch? v=thw0RLOh6zM https://www.youtube.com/watch?v=thw0RLOh6zM
www.youtube.com/watch?v=fV-FWF QO6As http://www.youtube.com/watch?v=fV-FWFQO6As

www.youtube.com/watch?v=dmZxgm alP9g http://www.youtube.com/watch?v=dmZxgmalP9g

http://forums.qrz.com/showthre ad.php?351604-Butterfly- capacitor-kits-5-15kv
http://forums.qrz.com/showthread.php?351604-Butterfly-capacitor-kits-5-15kv

http://www.flickr.com/photos/9 3005502@N08/page3/
http://www.flickr.com/photos/93005502@N08/page3/

http://forums.qrz.com/showthre ad.php?378701-2-5-15kv- butterfly-capacitor-kits&p=
http://forums.qrz.com/showthread.php?378701-2-5-15kv-butterfly-capacitor-kits&p=\
2764980#post2764980

I have kits available for :

2.5" OD ROTOR
3" OD ROTOR
4" OD ROTOR
5" OD ROTOR
6" OD ROTOR
8" OD ROTOR
10" OD ROTOR

VA6POP
yo5bzz(at)gmail.com http://gmail.com/ Location: Calgary,CANADA

45736. RE: RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 17:16:56 UTC
From: <wagstw46@...>
Topic: 45581 Message: 45736

A damaged L1 of the BCB filter on the RF board make sense, but accidental Transmit should never have got to L1 at RIF input to common gate RF amp on the IF board. If it did the RIF Mixer on RF board would have been damaged.

I would never remove L1 or any other component on IF board until replacing L41 and doing good Coil Pack alignment and RF and IF alignment.

DId you replace L1 on IF board? It is there for a reason.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

hi i have found that L1 on the RF board is low inductance and i did an RF test and found it to be dragging down the RF so i removed it an now the circuit is not attenuating the signal i have also found the same on the if board L1 and after removing it the signal is there now all this was done no power as suggested thank you all for you help
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45737. Re: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 18:09:08 UTC
From: Ronald Robinson
Topic: 45713 Message: 45737

Terry , with my small amount of knowledge on these radios i really thank u as to the info u provide me with i don't think u are hard on me i know u are concerned about my saftey and me gaining the correct knowledge !!!!!

 i have rebuilt the final cage and all is ok there as soon as I get the needed parts to repair the hv metering board I'll be in touch , it appears i have a long way to go on this mess of a radio to see it do what it is designed to do   later

Ron   KK4PWF

On Tuesday, November 5, 2013 10:30 AM, "wagstw46@..." <wagstw46@...> wrote:

Ron:

I may be a little hard on you.

The actual as built is the 900vdc leaves the HV Rect board on a short red jumper to the HV metering board. From there it leaves on a HV cable that looks like the center of piece of coax and runs to the black terminal strip in the PA cage and on to the small VHF choke and main RF choke.

So I guess it is possible that you might think that if you had no 900vdc anode voltage that the problem could be on that HV metering and SG divider board.

I would not reach for that as I know the voltage is derived from the voltage doubler rectifiers that are on the HV Rect board.

So when I said the 900vdc directly goes from HV Rect board 800 terminal post to the Plate choke that is not technically correct. It goes to the HV metering board and from there on to the PA cage.

As long as you are not blowing the primary fuse focus your efforts on the Anode supply path and not the HV metering board. You of course will need to replace the bad 680k resistors and the bypass cap and do a very good visual to ensure no carbon tracks on this board.

I sure hope you have not applied 900vdc to your panel meter. Will cross that bridge when you find why you have no 6146 anode voltage.

Terry K9TW

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Ron KK4PWF

On Nov 5, 2013, at 8:52 AM, <wagstw46@...> wrote:
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>Ron:
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45738. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 20:07:26 UTC
From: Ron
Topic: 45713 Message: 45738

Does anyone have a spare fix- vox X50-1350-00 board for sale working if u have one

Ron KK4PWF

On Nov 5, 2013, at 12:09 PM, Ronald Robinson <bozo231@...> wrote:

>
>
> Terry , with my small amount of knowledge on these radios i really thank u as to the info u provide me with i don't think u are hard on me i know u are concerned about my saftey and me gaining the correct knowledge !!!!!
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> Ron KK4PWF
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> I sure hope you have not applied 900vdc to your panel meter. Will cross that bridge when you find why you have no 6146 anode voltage.
>
> Terry K9TW
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> ---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
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> You can start measuring in the PA cage and work back to the HV rect board or work the other way. In either case you must observe good safe work practice measuring this 900vdc.
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> 4. Power on the rig and record the voltage
> 5. Down power the rig and make sure voltmeter reads zero and then remove the test jumper.
> 6. Move to the bottom of the large plate choke and connect the test jumper
> 7. Place self in clear and re-power the rig.
> 8. Repeat this process all the way back to the HV rectifier board.
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> Very easy but must be aware of hazards and control your test leads.
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> Not trying to insult you. You can move probe from point to point using the meter test prod with rig powered if you are experienced, but still must be constantly aware of what

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> On Nov 5, 2013, at 8:52 AM, <wagstw46@...> wrote:
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>> You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.
>>
>> Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.
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>> If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.
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>> Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.
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>> Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.
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45739. RE: Re: RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 21:59:57 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45739

OK Ron....If you have replaced the small choke, bypass cap, and coupling/blocking cap in the PA cage and the big choke is not hurt and the parasitic suppressors have good soldering then you should have good anode voltage at the plate caps.

If you are certain that you had resting plate current with no 6146 Anode voltage you had to have Screen Grid voltage. Never good to run screen grids without the anode energized as resulting screen grid current can exceed the screen grid dissipation of the tube. None of this aligns with your report that you had no cathode voltage. Have to have cathode voltage if you had resting plate current. For meter to indicate in IP position have to have IR drop across the cathode meter shunt resistors.

You may have damaged 6146 finals if you truly had no Anode voltage which would be the case with no small vhf choke at base of big choke.

Before installing another set of finals you may want to pull these and leave out and measure the operating bias and screen grid voltage at the tube socket pins. If good then make sure have anode voltage at top of the plate choke. Have to be very careful with the anode caps dangling in the air. If all voltages available then can install new tubes or try the ones you pulled.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry , with my small amount of knowledge on these radios i really thank u as to the info u provide me with i don't think u are hard on me i know u are concerned about my saftey and me gaining the correct knowledge !!!!!

i have rebuilt the final cage and all is ok there as soon as I get the needed parts to repair the hv metering board I'll be in touch , it appears i have a long way to go on this mess of a radio to see it do what it is designed to do later

Ron KK4PWF

On Tuesday, November 5, 2013 10:30 AM, "wagstw46@..." <wagstw46@...> wrote:

Ron:

I may be a little hard on you.

The actual as built is the 900vdc leaves the HV Rect board on a short red jumper to the HV metering board. From there it leaves on a HV cable that looks like the center of piece of coax and runs to the black terminal strip in the PA cage and on to the small VHF choke and main RF choke.

So I guess it is possible that you might think that if you had no 900vdc anode voltage that the problem could be on that HV metering and SG divider board.

I would not reach for that as I know the voltage is derived from the voltage doubler rectifiers that are on the HV Rect board.

So when I said the 900vdc directly goes from HV Rect board 800 terminal post to the Plate choke that is not technically correct. It goes to the HV metering board and from there on to the PA cage.

As long as you are not blowing the primary fuse focus your efforts on the Anode supply path and not the HV metering board. You of course will need to replace the bad 680k resistors and the bypass cap and do a very good visual to ensure no carbon tracks on this board.

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Safest it to connect meter and then put self completely in clear and power on rig and record the voltage and then down power. Must make sure have good positive mechanical connection that wont pop off and must have the probe and test lead interface covered so you

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On Nov 5, 2013, at 8:52 AM, <wagstw46@... mailto:wagstw46@...> wrote:

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You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.

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Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

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---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

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45740. Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-05 23:33:07 UTC
From: <danweed85@...>
Topic: 45740 Message: 45740

As I'm reading up transistors as switches and snap acting relay circuits, and biasing, I'm also looking at the schematic and I noticed the transistors Q7, Q8, Q9 that are labeled off to the side that labels the pins doesn't have the Base as the center pin. My question is on the schematic itself is the Base the center input? Im asking because the transistor symbols ive seen when reading about them has always had the base in the center with the collector and the emitter perpendicular to the base. I wasn't sure which labeled voltages on the schematic symbols go to which pins on the actual transistors.

Daniel

45741. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 00:37:26 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45741

Yes on the schematic the base is the center lead and the bar on the transistor symbol. The emitter is the arrow symbol and arrow direction tells you if the device is a PNP or NPN transistor. Collector is the other lead.

You always need to look at the X-ray views of the boards to see the device physical lead or pin out configuration. Have to be careful when using a sub device as often Collector will be the center lead and not the Base lead. Often have to cross leads over with caution so you dont short them together.

Have to remember that the schematic tells you nothing about the physical construction. The schematic and symbols used show you how it works electrically.

If you do not have the Service Manual you need to download one so you have the Xray views. The Xray views also have all the devices at the bottom of the drawing showing you the CBE and DSG lead configs.

In the electrical world they use schematic equivalent called Elementary diagram and to see the actual routing of the wires to the devices like breakers, contactors, and relays, timers, pressure switches etc you use a corresponding Wiring Diagram.

KW does not provide wiring diagrams and wire color coding. KW also did not do us a favor by leaving active devices mounted a little above the PC board to allow test meter connection to CBE or DSG. Sure would have made life easier.

Terry K9TW

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Daniel

45742. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 01:08:28 UTC
From: Ron
Topic: 45713 Message: 45742

Terry , the meter indicated a resting bias and I adjusted it to 60ma after doing the repairs to pa cage the meter is resting at 230 ma I removed the finals then measured the pin voltage 15 vdc falling to 3vdc on pin 1 of final. V1 also before repairing the pa cage there was speaker noise now there is none I don't know if this is relevant or not . I can adjust bias up but not down now thanks

Ron KK4PWF

On Nov 5, 2013, at 3:59 PM, <wagstw46@yahoo.com> wrote:

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> OK Ron....If you have replaced the small choke, bypass cap, and coupling/blocking cap in the PA cage and the big choke is not hurt and the parasitic suppressors have good soldering then you should have good anode voltage at the plate caps.
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45743. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 01:27:33 UTC
From: Ron
Topic: 45713 Message: 45743

Also Terry the 5 pin has 1.25 -dcv

Ron KK4PWF

On Nov 5, 2013, at 7:08 PM, Ron <bozo231@...> wrote:

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>> On Tuesday, November 5, 2013 10:30 AM, "wagstw46@..." <wagstw46@...> wrote:
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>> I may be a little hard on you.
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>> The actual as built is the 900vdc leaves the HV Rect board on a short red jumper to the HV metering board. From there it leaves on a HV cable that looks like the center of piece of coax and runs to the black terminal strip in the PA cage and on to the small VHF choke and main RF choke.
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>> Terry K9TW

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>> 5. Down power the rig and make sure voltmeter reads zero and then remove the test jumper.
>> 6. Move to the bottom of the large plate choke and connect the test jumper
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45744. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 02:26:44 UTC
From: <danweed85@...>
Topic: 45740 Message: 45744

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45745. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 02:42:29 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45745

Ron:

Your note is a bit cryptic.

I thought you had bad meter string resistors or possible carbon path. Did you repair meter board before energizing the rig? If not sure would not put meter in HV position.

Are you saying that when you key the rig in SSB mode with mic gain turned down and the meter in Ip position that you cannot adjust the resting plate current below 230ma with the bias voltage adjust pot run thru its range?

Did you measure the operating bias voltage on the Pin 5 control grids? If operating bias voltage is not correct can cause high resting plate current. Should be approx -55vdc with rig keyed. You should be able to set the bias voltage to -55vdc with the bias voltage adjust pot on side of rig. If you cannot you need to check -C.

Give me more detail on when you are seeing this 230ma IP. You do not want to leave standing 230ma on the finals for more than a few seconds.

If you removed the two 6146 final tubes there would be no reason to measure the cathode voltage at Pin 1. You should not expect any cathode voltage with no tube in the socket?

If you measured the Cathode voltage at Pin 1 with finals in the socket and rig keyed you would have to have open cathode resistors or bad ground to see cathode voltage of 15vdc or more. Any time the cathode is lifted from ground it will try to rise toward screen grid voltage (typically over 100 vdc). If you are using a DMM you are completing the path from cathode to ground with the meter so the voltage will drop down once you connect the meter. With rig down powered and unplugged measure the resistance from Pin 1 to ground and should see approx 5 ohms.

I told you to measure the screen grid voltage and operating bias voltage with tubes removed. You do that with rig keyed in CW mode and SG switch on. I did this so you would not damage tubes again if you had no operating bias. If you dont have bias the tubes will go into thermal runaway.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry , the meter indicated a resting bias and I adjusted it to 60ma after doing the repairs to pa cage the meter is resting at 230 ma I removed the finals then measured the pin voltage 15 vdc falling to 3vdc on pin 1 of final. V1 also before repairing the pa cage there was speaker noise now there is none I don't know if this is relevant or not . I can adjust bias up but not down now thanks

Ron KK4PWF

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OK Ron....If you have replaced the small choke, bypass cap, and coupling/blocking cap in the PA cage and the big choke is not hurt and the parasitic suppressors have good soldering then you should have good anode voltage at the plate caps.

If you are certain that you had resting plate current with no 6146 Anode voltage you had to have Screen Grid voltage. Never good to run screen grids without the anode energized as resulting screen grid current can exceed the screen grid dissipation of the tube. None of this aligns with your report that you had no cathode voltage. Have to have cathode voltage if you had resting plate current. For meter to indicate in IP position have to have IR drop across the cathode meter shunt resistors.

You may have damaged 6146 finals if you truly had no Anode voltage which would be the case with no small vhf choke at base of big choke.

Before installing another set of finals you may want to pull these and leave out and measure the operating bias and screen grid voltage at the tube socket pins. If good then make sure have anode voltage at top of the plate choke. Have to be very careful with the anode caps dangling in the air. If all voltages available then can install new tubes or try the ones you pulled.

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i have rebuilt the final cage and all is ok there as soon as I get the needed parts to repair the hv metering board I'll be in touch , it appears i have a long way to go on this mess of a radio to see it do what it is designed to do later

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As long as you are not blowing the primary fuse focus your efforts on the Anode supply path and not the HV metering board. You of course will need to replace the bad 680k resistors and the bypass cap and do a very good visual to ensure no carbon tracks on this board.

I sure hope you have not applied 900vdc to your panel meter. Will cross that bridge when you find why you have no 6146 anode voltage.

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Very easy but must be aware of hazards and control your test leads.

Some say put one hand in pocket and that sounds good but not a real practical approach as need free hand to hold flashlite, change meter range etc.

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Even today after all these years when I am dealing with anode voltage in an RF amp PA or HV power supply I connect the voltmeter with unit down powered and put myself in safe position and then power on to get the reading. Want to live another day to play!

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You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.

Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.

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Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

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45746. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 02:59:56 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45746

OK what does that tell you? - 1.5vdc when? In RX or in TX?

It appears you have lost -C or you have a bad bias voltage adjust pot. Two most common failures.

Can work way back from Pin 5 or go to HV Rect board and work toward the tubes.

At tubes you have a series resistor and choke that could be bad but with -1.5vdc would not be open but could be high resistance. . From there you go to the FG terminal post on the RF board. Some series resistors in ALC base bias network but seldom go bad. From there you have VR1, VR2 and VR3 and the bias adjust pot and the -C terminal post. From there - C lead routes back to Rect Board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Also Terry the 5 pin has 1.25 -dcv

Ron KK4PWF

On Nov 5, 2013, at 7:08 PM, Ron <bozo231@... mailto:bozo231@...> wrote:

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45747. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 03:10:41 UTC
From: Ron
Topic: 45713 Message: 45747

Terry 1, pin 1 tubes removed measured 80 -vdc with vtvm unit powered Keyed in cw mode , 2, pin 1 to ground unit powered down an unplugged Inf ohms

Ron KK4PWF

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> Give me more detail on when you are seeing this 230ma IP. You do not want to leave standing 230ma on the finals for more than a few seconds.
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>>> You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.
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>>> Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.
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45748. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 03:12:21 UTC
From: Ron
Topic: 45713 Message: 45748

And yes no adjusting bias voltage down in ip Ssb mode

Ron KK4PWF

On Nov 5, 2013, at 8:42 PM, <wagstw46@...> wrote:

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> Ron:
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> Your note is a bit cryptic.
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45749. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 03:21:22 UTC
From: Ron
Topic: 45713 Message: 45749

Also -c is 111. -vdc

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>> You can start measuring in the PA cage and work back to the HV rect board or work the other way. In either case you must observe good safe work practice measuring this 900vdc.
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>> If you have little experience or rusty I suggest you connect the DMM or VTVM first and then power on the rig to take the measurements.
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>> You can also do a good visual inspection with rig unplugged and HV caps discharged.
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>> Visual includes:
>> 1. Is large RF choke in PA cage burned black or any signs of over heating?
>> 2. Is the small VHF choke at base of large choke burned?
>> 3. Is the RF bypass cap at base of large choke burned or blown open
>> 4. Are the rupture vents on the two HV filter caps blown or leaking tar like or dry white powdery deposits. Vents can also be bulged out.
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>> Voltage measurement:
>> 1. Connect the ground lead of your volt meter to the chassis ground post
>> 2. Connect the plus meter lead probe thru a good jumper test lead to the end of parasitic chokes that feed the anode caps.
>> 3. Make sure the end of the jumper lead to your meters plus probe is covered so you cannot make accidental contact.
>> 4. Power on the rig and record the voltage
>> 5. Down power the rig and make sure voltmeter reads zero and then remove the test jumper.
>> 6. Move to the bottom of the large plate choke and connect the test jumper
>> 7. Place self in clear and re-power the rig.
>> 8. Repeat this process all the way back to the HV rectifier board.
>>
>> Very easy but must be aware of hazards and control your test leads.
>>
>> Some say put one hand in pocket and that sounds good but not a real practical approach as need free hand to hold flashlite, change meter range etc.
>>
>> Safest it to connect meter and then put self completely in clear and power on rig and record the voltage and then down power. Must make sure have good positive mechanical connection that wont pop off and must have the probe and test lead interface covered so you dont forget and accidently contact it.

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>> Not trying to insult you. You can move probe from point to point using the meter test prod with rig powered if you are experienced, but still must be constantly aware of what you are doing so you dont slip off or bridge things.
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>> Even today after all these years when I am dealing with anode voltage in an RF amp PA or HV power supply I connect the voltmeter with unit down powered and put myself in safe position and then power on to get the reading. Want to live another day to play!
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>> Terry K9TW
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>> ---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
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>> Terry ,,, I have resting bias , maybe I used the wrong terminology what I don't have is any voltage in the hv cage (out the top of the 6146's) I've changed the 6146's but still dead and also I haven't had it hooked up to an antenna so I don't know if I have any voltage to meter in rf mode I checked the cap with a vtvm, and no kick at all
>> Also I am waiting on an order of resistors to continue the repair of this mess of a radio but getting great practice getting it going and having fun doing it !!!
>> Ron KK4PWF
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>> On Nov 5, 2013, at 8:52 AM, <wagstw46@...> wrote:
>>
>>> Ron:
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>>> Nothing to be sorry about. I am trying to understand your thought process.
>>>
>>> You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.
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>>> Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.
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>>> If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.
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>>> Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.
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>>> As to no cathode voltage on the 6146 Finals you must have the rig keyed and dc current flowing to have any voltage on the 6146 cathodes. Need good cathode meter shunt resistors to complete the path and proper operating bias on the control grids and proper screen grid voltage and heaters on.

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>>> Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.
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>>> Terry K9TW
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>>> ---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
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>>> sorry i found no cathode voltage on tubes Ron KK4Pwf
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>>> On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:
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>>> Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2, 100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd
>>
>
>
>

45750. RE: [TS-520_820_530_830] RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 03:24:07 UTC
From: Brad Allen
Topic: 45740 Message: 45750

Is there an index in your book? The answers may be there as well. Brad
KB2CHY

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of danweed85@...
Sent: Tuesday, November 05, 2013 9:27 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: Relay transistor question

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,

Daniel

45751. Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 06:47:49 UTC
From: Wes Will
Topic: 45713 Message: 45751

On 11/05/2013 06:14 AM, wagstw46@... wrote:

> Not quite correct. The disc ceramic cap is a "2H" which is a 500 wvdc cap.

So, once again, correct me if I'm wrong here. Had he put a 0.01 microFarad, 2000 WVDC ceramic capacitor in the circuit, it would have worked just fine, filtered out the ripple (if any), and not even remotely been a candidate for blowing from over-voltage, nichts wahr?

Erring on the other side, however, is a good way to find out just how tasty the insides of one of these little devils might be.

The process went thusly:

I looked at the meter divider circuit, and noted the nominally ~900 VDC source supply that is being sampled for the meter to measure. Then I rounded it up to the nearest decade (1000 VDC), then I doubled it to get 2000 WVDC. I got into the habit a long time ago of giving myself some HUGE fudge factors, whenever possible, when I was at all uncertain of something. Doubling the voltage was the result of that habit. It wasn't my radio, and it wasn't my face at risk of being peppered and tattooed by bits of exploding capacitor, so the 2000 WVDC rating sounded appropriately cautious.

Then as a check, I looked at the table of parts in the Service manual, and tried to figure out just which one of the excessively-cryptic charts applied to C-1 of that meter sensing board. I took a stab at it and got the 1.8kV working voltage, which oddly enough was rather close to that 2kV guesstimate-with-excessive-fudge-factor figure, and exactly twice the nominal 900 VDC that is expected there from the diode voltage doublers.

PLUS I tossed in the bits about "Please correct me if ..."

So, thanks for the correction. Now I have to go back to that parts list and see if I can make it come out to a 500 WVDC selection, and figure out how I got the wrong (1.8kV) line instead.

(Now, my odd path here takes me from engineering school, but in the 70's, sorry, not the 60's. My career in engineering was about the same as yours, Terry. Most math I can cope with if I'm allowed enough time and access to a textbook or two, but my Achille's Heel was differentials. It got down-right embarrassing.

So I dropped out. Foolish me. There I went, young and stupid, strong back and a half-disciplined mind, they got me when I was at a low point. I wound up in the USAF working for "No Such Agency," speaking Russian, and some German.

I'd give out with the German, and broken Russian, to the Russians, and Russian, and broken German to the Germans. (Yes, that's none of it a typo, I know I did it the right way around since I didn't wind up shot or on the front page.) And took LOTS of pictures.

And on those rare good days, I spoke as little as I could manage of either to anyone. And I spoke American English to NOBODY AT ALL, good day or bad! (English would have made the best day instantly become the worst possible. People in some places get really stuffy and mean about that kind of thing.) And took even MORE photos.

Later, after getting at least a little smarter and getting away with telling the spooks to cut me loose, instead of management they put me where I could do at least some good while still getting my hands dirty, in repair and troubleshooting. I like digging up answers, though I'm quite rusty at the component level now. And then I got a discharge and went home. In almost one large piece, with only a few minor bits missing that nobody will ever miss (except me and I already know I don't count).

Between then and now, it's a free-for-all. I've pulled wire for all kinds of things in construction, bossed a pizza delivery joint, run a Boy Scout camp program, and sold everything from car radio speakers and other Tandy/Radio Shack crapola, to K-band satellite television installations, to installing automation systems in pelletizing feed mills. I did anything I could turn my hand to, to keep my kids fed.

Once I wound up at the University here, I stopped moving around so much. Since then, I have spent a few decades (since ca. the 1990's) working mostly at the board level, and this was in computers instead of radios.

Not a lot of repairs at the component level in a PC or a Macintosh. Or an Irix, SPARCStation, SGI Indy, or what-have-you. Some, and I did what I could when I could, but mostly you just swap a board. Sad business, that.

There. A Nut case, in a Nut shell, by a Nut job. Can't ask for more than that, eh what, mate?

--
Wes Will
N9KDY

45752. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 11:35:50 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45752

Wes

I am pretty sure I said if he had a 1.8kv wvdc cap in junk box of course it would work just fine..

The flaw I see in your logic is it has nothing to do with 900vdc. The cap is not connected to 900vdc. It is connected to a maximum of 44.0 vdc.

Meter string is 680k x 3 = 2,040,000 /100,000 = 20.4 to 1 voltage ratio. So 900/20.4 = 44.12 vdc. This cap is filtering a nominal 50 vdc supply and not a 900vdc supply.

No manufacturer is going to install a 1.8kv wvdc cap in a circuit where that cap sees voltage under 50v. Closest standard cap would be a 50wvdc. So I would say that when they used a 10x multiplier to spec a 500wvdc cap that they added plenty of margin.

Two groups design and build radios (all commercial products) Engineers and Bean Counters. All good design engineering takes production costs into account. When mass producing even 10 cents per unit cost means something. When the computers came on the scene and replaced the old design Rules of Thumb manufacturing cost went down and we consumers might argue so did quality.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 11/05/2013 06:14 AM, wagstw46@... mailto:wagstw46@... wrote:

> Not quite correct. The disc ceramic cap is a "2H" which is a 500 wvdc cap.

So, once again, correct me if I'm wrong here. Had he put a 0.01
microFarad, 2000 WVDC ceramic capacitor in the circuit, it would have
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remotely been a candidate for blowing from over-voltage, nichts wahr?

Erring on the other side, however, is a good way to find out just how
tasty the insides of one of these little devils might be.

The process went thusly:

I looked at the meter divider circuit, and noted the nominally ~900 VDC
source supply that is being sampled for the meter to measure. Then I
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PLUS I tossed in the bits about "Please correct me if ..."

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mostly at the board level, and this was in computers instead of radios.

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There. A Nut case, in a Nut shell, by a Nut job. Can't ask for more than that, eh what, mate?

--
Wes Will
N9KDY

45753. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 11:37:44 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45753

Is that measured at RF board? If so, you know problem is between RF board and Tube socket pins.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Also -c is 111. -vdc

Ron KK4PWF

On Nov 5, 2013, at 8:42 PM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

Your note is a bit cryptic.

I thought you had bad meter string resistors or possible carbon path. Did you repair meter board before energizing the rig? If not sure would not put meter in HV position.

Are you saying that when you key the rig in SSB mode with mic gain turned down and the meter in Ip position that you cannot adjust the resting plate current below 230ma with the bias voltage adjust pot run thru its range?

Did you measure the operating bias voltage on the Pin 5 control grids? If operating bias voltage is not correct can cause high resting plate current. Should be approx -55vdc with rig keyed. You should be able to set the bias voltage to -55vdc with the bias voltage adjust pot on side of rig. If you cannot you need to check -C.

Give me more detail on when you are seeing this 230ma IP. You do not want to leave standing 230ma on the finals for more than a few seconds.

If you removed the two 6146 final tubes there would be no reason to measure the cathode voltage at Pin 1. You should not expect any cathode voltage with no tube in the socket?

If you measured the Cathode voltage at Pin 1 with finals in the socket and rig keyed you would have to have open cathode resistors or bad ground to see cathode voltage of 15vdc or more. Any time the cathode is lifted from ground it will try to rise toward screen grid voltage (typically over 100 vdc). If you are using a DMM you are completing the path from cathode to ground with the meter so the voltage will drop down once you connect the meter. With rig down powered and unplugged measure the resistance from Pin 1 to ground and should see approx 5 ohms.

I told you to measure the screen grid voltage and operating bias voltage with tubes removed. You do that with rig keyed in CW mode and SG switch on. I did this so you would not damage tubes again if you had no operating bias. If you dont have bias the tubes will go into thermal runaway.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry , the meter indicated a resting bias and I adjusted it to 60ma after doing the repairs to pa cage the meter is resting at 230 ma I removed the finals then measured the pin voltage 15 vdc falling to 3vdc on pin 1 of final. V1 also before repairing the pa cage there was speaker noise now there is none I don't know if this is relevant or not . I can adjust bias up but not down now thanks

Ron KK4PWF

On Nov 5, 2013, at 3:59 PM, <wagstw46@... mailto:wagstw46@...> wrote:

OK Ron....If you have replaced the small choke, bypass cap, and coupling/blocking cap in the PA cage and the big choke is not hurt and the parasitic suppressors have good soldering then you should have good anode voltage at the plate caps.

If you are certain that you had resting plate current with no 6146 Anode voltage you had to have Screen Grid voltage. Never good to run screen grids without the anode energized as resulting screen grid current can exceed the screen grid dissipation of the tube. None of this aligns with your report that you had no cathode voltage. Have to have cathode voltage if you had resting plate current. For meter to indicate in IP position have to have IR drop across the cathode meter shunt resistors.

You may have damaged 6146 finals if you truly had no Anode voltage which would be the case with no small vhf choke at base of big choke.

Before installing another set of finals you may want to pull these and leave out and measure the operating bias and screen grid voltage at the tube socket pins. If good then make sure have anode voltage at top of the plate choke. Have to be very careful with the anode caps dangling in the air. If all voltages available then can install new tubes or try the ones you pulled.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry , with my small amount of knowledge on these radios i really thank u as to the info u provide me with i don't think u are hard on me i know u are concerned about my saftey and me gaining the correct knowledge !!!!!

i have rebuilt the final cage and all is ok there as soon as I get the needed parts to repair the hv metering board I'll be in touch , it appears i have a long way to go on this mess of a radio to see it do what it is designed to do later

Ron KK4PWF

On Tuesday, November 5, 2013 10:30 AM, "wagstw46@..." <wagstw46@...> wrote:

Ron:

I may be a little hard on you.

The actual as built is the 900vdc leaves the HV Rect board on a short red jumper to the HV metering board. From there it leaves on a HV cable that looks like the center of piece of coax and runs to the black terminal strip in the PA cage and on to the small VHF choke and main RF choke.

So I guess it is possible that you might think that if you had no 900vdc anode voltage that the problem could be on that HV metering and SG divider board.

I would not reach for that as I know the voltage is derived from the voltage doubler rectifiers that are on the HV Rect board.

So when I said the 900vdc directly goes from HV Rect board 800 terminal post to the Plate choke that is not technically correct. It goes to the HV metering board and from there on to the PA cage.

As long as you are not blowing the primary fuse focus your efforts on the Anode supply path and not the HV metering board. You of course will need to replace the bad 680k resistors and the bypass cap and do a very good visual to ensure no carbon tracks on this board.

I sure hope you have not applied 900vdc to your panel meter. Will cross that bridge when you find why you have no 6146 anode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK the 900vdc does not come out the top of the 6146 finals. The 900vdc is applied there.

You can start measuring in the PA cage and work back to the HV rect board or work the other way. In either case you must observe good safe work practice measuring this 900vdc.

If you have little experience or rusty I suggest you connect the DMM or VTVM first and then power on the rig to take the measurements.

You can also do a good visual inspection with rig unplugged and HV caps discharged.

Visual includes:
1. Is large RF choke in PA cage burned black or any signs of over heating?
2. Is the small VHF choke at base of large choke burned?
3. Is the RF bypass cap at base of large choke burned or blown open
4. Are the rupture vents on the two HV filter caps blown or leaking tar like or dry white powdery deposits. Vents can also be bulged out.

Voltage measurement:
1. Connect the ground lead of your volt meter to the chassis ground post
2. Connect the plus meter lead probe thru a good jumper test lead to the end of parasitic chokes that feed the anode caps.
3. Make sure the end of the jumper lead to your meters plus probe is covered so you cannot make accidental contact.
4. Power on the rig and record the voltage
5. Down power the rig and make sure voltmeter reads zero and then remove the test jumper.
6. Move to the bottom of the large plate choke and connect the test jumper
7. Place self in clear and re-power the rig.

8. Repeat this process all the way back to the HV rectifier board.

Very easy but must be aware of hazards and control your test leads.

Some say put one hand in pocket and that sounds good but not a real practical approach as need free hand to hold flashlite, change meter range etc.

Safest it to connect meter and then put self completely in clear and power on rig and record the voltage and then down power. Must make sure have good positive mechanical connection that wont pop off and must have the probe and test lead interface covered so you dont forget and accidently contact it.

Not trying to insult you. You can move probe from point to point using the meter test prod with rig powered if you are experienced, but still must be constantly aware of what you are doing so you dont slip off or bridge things.

Even today after all these years when I am dealing with anode voltage in an RF amp PA or HV power supply I connect the voltmeter with unit down powered and put myself in safe position and then power on to get the reading. Want to live another day to play!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry ,,, I have resting bias , maybe I used the wrong terminology what I don't have is any voltage in the hv cage (out the top of the 6146's) I've changed the 6146's but still dead and also I haven't had it hooked up to an antenna so I don't know if I have any voltage to meter in rf mode I checked the cap with a vtvm, and no kick at all
Also I am waiting on an order of resistors to continue the repair of this mess of a radio but getting great practice getting it going and having fun doing it !!!
Ron KK4PWF

On Nov 5, 2013, at 8:52 AM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

Nothing to be sorry about. I am trying to understand your thought process.

You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.

Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.

If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.

Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.

As to no cathode voltage on the 6146 Finals you must have the rig keyed and dc current flowing to have any voltage on the 6146 cathodes. Need good cathode meter shunt resistors to complete the path and proper operating bias on the control grids and proper screen grid voltage and heaters on.

Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2, 100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd

45754. RE: Re: [TS-520_820_530_830] disc capacitor value

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 12:05:10 UTC
From: <wagstw46@...>
Topic: 45713 Message: 45754

Ron:

There is some real confusion going on here. I did not tell you to measure the cathode with the tubes removed? Why are you doing that? Should not have any expectation to find any voltage there. I told you to measure the operating bias on the control grids and the screen grid voltage to confirm that it is normal and OK to install another set of finals.

You should not measure any voltage on Pin 1 with tubes pulled.

You cannot measure Infinity from Pin 1 to chassis ground if you have 230ma resting plate current. Cathode circuit cannot be open. Cold end of cathode resistors are connected to heavy solder lugs punched from the chassis at each end of tube sockets. From Pin 1 to ground should measure close to 5 ohms if new resistors and can be approaching 7 ohms for old ones or even higher.

The -80vdc at Pin 1 that you are measuring and reporting sounds close to normal Cut Off bias that you should measure on Pin 5 in Rx mode. Unless someone has completely rewired the tube sockets this makes no sense.

Ron I am afraid I am confused and not helping you very much.

Maybe should close this thread and start a new one and perhaps Mike W5RKL who has lots of TS520 experience can jump in and help you.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry 1, pin 1 tubes removed measured 80 -vdc with vtvm unit powered Keyed in cw mode , 2, pin 1 to ground unit powered down an unplugged Inf ohms

Ron KK4PWF

On Nov 5, 2013, at 8:42 PM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

Your note is a bit cryptic.

I thought you had bad meter string resistors or possible carbon path. Did you repair meter board before energizing the rig? If not sure would not put meter in HV position.

Are you saying that when you key the rig in SSB mode with mic gain turned down and the meter in Ip position that you cannot adjust the resting plate current below 230ma with the bias voltage adjust pot run thru its range?

Did you measure the operating bias voltage on the Pin 5 control grids? If operating bias voltage is not correct can cause high resting plate current. Should be approx -55vdc with rig keyed. You should be able to set the bias voltage to -55vdc with the bias voltage

adjust pot on side of rig. If you cannot you need to check -C.

Give me more detail on when you are seeing this 230ma IP. You do not want to leave standing 230ma on the finals for more than a few seconds.

If you removed the two 6146 final tubes there would be no reason to measure the cathode voltage at Pin 1. You should not expect any cathode voltage with no tube in the socket?

If you measured the Cathode voltage at Pin 1 with finals in the socket and rig keyed you would have to have open cathode resistors or bad ground to see cathode voltage of 15vdc or more. Any time the cathode is lifted from ground it will try to rise toward screen grid voltage (typically over 100 vdc). If you are using a DMM you are completing the path from cathode to ground with the meter so the voltage will drop down once you connect the meter. With rig down powered and unplugged measure the resistance from Pin 1 to ground and should see approx 5 ohms.

I told you to measure the screen grid voltage and operating bias voltage with tubes removed. You do that with rig keyed in CW mode and SG switch on. I did this so you would not damage tubes again if you had no operating bias. If you dont have bias the tubes will go into thermal runaway.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry , the meter indicated a resting bias and I adjusted it to 60ma after doing the repairs to pa cage the meter is resting at 230 ma I removed the finals then measured the pin voltage 15 vdc falling to 3vdc on pin 1 of final. V1 also before repairing the pa cage there was speaker noise now there is none I don't know if this is relevant or not . I can adjust bias up but not down now thanks

Ron KK4PWF

On Nov 5, 2013, at 3:59 PM, <wagstw46@... mailto:wagstw46@...> wrote:

OK Ron....If you have replaced the small choke, bypass cap, and coupling/blocking cap in the PA cage and the big choke is not hurt and the parasitic suppressors have good soldering then you should have good anode voltage at the plate caps.

If you are certain that you had resting plate current with no 6146 Anode voltage you had to have Screen Grid voltage. Never good to run screen grids without the anode energized as resulting screen grid current can exceed the screen grid dissipation of the tube. None of this aligns with your report that you had no cathode voltage. Have to have cathode voltage if you had resting plate current. For meter to indicate in IP position have to have IR drop across the cathode meter shunt resistors.

You may have damaged 6146 finals if you truly had no Anode voltage which would be the case with no small vhf choke at base of big choke.

Before installing another set of finals you may want to pull these and leave out and measure the operating bias and screen grid voltage at the tube socket pins. If good then make sure have anode voltage at top of the plate choke. Have to be very careful with the anode caps dangling in the air. If all voltages available then can install new tubes or try

the ones you pulled.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry , with my small amount of knowledge on these radios i really thank u as to the info u provide me with i don't think u are hard on me i know u are concerned about my saftey and me gaining the correct knowledge !!!!!

i have rebuilt the final cage and all is ok there as soon as I get the needed parts to repair the hv metering board I'll be in touch , it appears i have a long way to go on this mess of a radio to see it do what it is designed to do later

Ron KK4PWF

On Tuesday, November 5, 2013 10:30 AM, "wagstw46@..." <wagstw46@...> wrote:

Ron:

I may be a little hard on you.

The actual as built is the 900vdc leaves the HV Rect board on a short red jumper to the HV metering board. From there it leaves on a HV cable that looks like the center of piece of coax and runs to the black terminal strip in the PA cage and on to the small VHF choke and main RF choke.

So I guess it is possible that you might think that if you had no 900vdc anode voltage that the problem could be on that HV metering and SG divider board.

I would not reach for that as I know the voltage is derived from the voltage doubler rectifiers that are on the HV Rect board.

So when I said the 900vdc directly goes from HV Rect board 800 terminal post to the Plate choke that is not technically correct. It goes to the HV metering board and from there on to the PA cage.

As long as you are not blowing the primary fuse focus your efforts on the Anode supply path and not the HV metering board. You of course will need to replace the bad 680k resistors and the bypass cap and do a very good visual to ensure no carbon tracks on this board.

I sure hope you have not applied 900vdc to your panel meter. Will cross that bridge when you find why you have no 6146 anode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK the 900vdc does not come out the top of the 6146 finals. The 900vdc is applied there.

You can start measuring in the PA cage and work back to the HV rect board or work the other way. In either case you must observe good safe work practice measuring this 900vdc.

If you have little experience or rusty I suggest you connect the DMM or VTVM first and then power on the rig to take the measurements.

You can also do a good visual inspection with rig unplugged and HV caps discharged.

Visual includes:
1. Is large RF choke in PA cage burned black or any signs of over heating?
2. Is the small VHF choke at base of large choke burned?
3. Is the RF bypass cap at base of large choke burned or blown open
4. Are the rupture vents on the two HV filter caps blown or leaking tar like or dry white powdery deposits. Vents can also be bulged out.

Voltage measurement:
1. Connect the ground lead of your volt meter to the chassis ground post
2. Connect the plus meter lead probe thru a good jumper test lead to the end of parasitic chokes that feed the anode caps.
3. Make sure the end of the jumper lead to your meters plus probe is covered so you cannot make accidental contact.
4. Power on the rig and record the voltage
5. Down power the rig and make sure voltmeter reads zero and then remove the test jumper.
6. Move to the bottom of the large plate choke and connect the test jumper
7. Place self in clear and re-power the rig.
8. Repeat this process all the way back to the HV rectifier board.

Very easy but must be aware of hazards and control your test leads.

Some say put one hand in pocket and that sounds good but not a real practical approach as need free hand to hold flashlite, change meter range etc.

Safest it to connect meter and then put self completely in clear and power on rig and record the voltage and then down power. Must make sure have good positive mechanical connection that wont pop off and must have the probe and test lead interface covered so you dont forget and accidently contact it.

Not trying to insult you. You can move probe from point to point using the meter test prod with rig powered if you are experienced, but still must be constantly aware of what you are doing so you dont slip off or bridge things.

Even today after all these years when I am dealing with anode voltage in an RF amp PA or HV power supply I connect the voltmeter with unit down powered and put myself in safe position and then power on to get the reading. Want to live another day to play!

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Terry ,,, I have resting bias , maybe I used the wrong terminology what I don't have is any voltage in the hv cage (out the top of the 6146's) I've changed the 6146's but still dead and also I haven't had it hooked up to an antenna so I don't know if I have any voltage to meter in rf mode I checked the cap with a vtvm, and no kick at all
Also I am waiting on an order of resistors to continue the repair of this mess of a radio but getting great practice getting it going and having fun doing it !!!
Ron KK4PWF

On Nov 5, 2013, at 8:52 AM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

Nothing to be sorry about. I am trying to understand your thought process.

You can throw that disc cap over your shoulder and radio will work fine. How did you determine it was open? This low a value cap you will need a VOM or VTVM and if you blink you can miss the very brief meter flick on the resistance range.

Other way to check it is lift the ground end and connect your VTVM to the free end and set VTVM on lowest DC voltage scale and power on rig and watch for the very brief dc voltage kick. If you get no kick then cap is open and if constant low value of dc then cap is leaky.

If the 680k string was shorted or carbon track to mid point of the divider then you could have applied 900vdc to this cap and to your panel meter. This is why anytime you use this method of measuring HV you use a string of series resistors instead of just one resistor. Not likely for the entire string to short or track across.

Does your panel meter work in RX mode for S-meter indication? If not report back and can tell you how to test your meter.

As to no cathode voltage on the 6146 Finals you must have the rig keyed and dc current flowing to have any voltage on the 6146 cathodes. Need good cathode meter shunt resistors to complete the path and proper operating bias on the control grids and proper screen grid voltage and heaters on.

Can you set the resting or zero signal plate current to 60ma? If so, then you will have cathode voltage.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

sorry i found no cathode voltage on tubes Ron KK4Pwf

On Tuesday, November 5, 2013 8:00 AM, Ronald Robinson <bozo231@...> wrote:

Thanks for the info on the disc cap, an Terry after getting the rectifier board resister problem taken care of,and the 2, 100k resistors replaced checked the resistance to ground ,79k !!!! i turned the 520 on and no alc,no hi voltage or ip at the meter so i started at the hv board ,having had the no alc problem before on another radio ,the 56K resistors are new ,then started checking the 680k and 100k , having found 2 of the 680k bad i went on down line checking for voltage and found nothing so I pulled the disc cap out of circuit an tested its open so I now know i need another, also after working problem that Mike had for us I also did hands on checking and found the radio was not any cathode voltage on and I checked the hv on meter no wvdc and no meter msd or fsd

45755. RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 12:23:23 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45755

Dan

You are asking basic schematic reading questions and KW hybrid abbreviations and conventions. There is no complete list of abbreviations. You can search them out in all the hybrid service manuals. There are various charts in the various manuals.

Some you have to figure out by studying the schematic and some are just common sense. SS for example would be Send Switch. RL CONT is Relay Control because Q9 is configured as a switch that controls the on off cycling of the TR and Aux relay closing coils.

The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

You can Google on how to read Schematics and find numerous primers and tutorials.

Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45756. RE: RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 15:50:34 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45756

Dan:

I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

If that does not help then can try placing a temporary ground on VS at Molex Conn FIX 3 Pin 2. Make absolutely sure you are on the VS pin. If this works then bad wire or bad/dirty contact at VOX switch not picking up chassis ground.

Trying to rule out noise first before saying there is problem with Q7/Q8. If had O-scope could start by looking at TO line (base of Q7).

Would like to be able to see you at least be able to use the rig in Rx mode.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan

You are asking basic schematic reading questions and KW hybrid abbreviations and conventions. There is no complete list of abbreviations. You can search them out in all the hybrid service manuals. There are various charts in the various manuals.

Some you have to figure out by studying the schematic and some are just common sense. SS for example would be Send Switch. RL CONT is Relay Control because Q9 is configured as a switch that controls the on off cycling of the TR and Aux relay closing coils.

The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

You can Google on how to read Schematics and find numerous primers and tutorials.

Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45757. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 18:26:01 UTC
From: <danweed85@...>
Topic: 45740 Message: 45757

Terry,
Yes I am still experiencing Relay cycling in Rx ad yes it happens on CW. I have already cleaned all the connectors that I can get too and feel comfortable removing. I also tried grounding the VS and no change either. I took some voltage measurements at the molex connectors with my VTVM today, TO = 5.2vdc, 9 = 9vdc, VS = 0, SS = 14v buts it's unstable and varies +/- 1v when relays cycle, RL = 0 volts when I hear it receiving (you can hear CW when the relays aren't cycling) but it also unstable when the relays do cycle and jumps to between 9-11 vdc, the 14A = 13.9vdc. I also tried attaching a jumper to the base and emitter of Q7, and no change. Getting it working in receive is my main goal for now, I don't have a license yet, but I would like to listen to some chatter, help me learn CW and just have fun. Thanks Terry

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan:

I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

If that does not help then can try placing a temporary ground on VS at Molex Conn FIX 3 Pin 2. Make absolutely sure you are on the VS pin. If this works then bad wire or bad/dirty contact at VOX switch not picking up chassis ground.

Trying to rule out noise first before saying there is problem with Q7/Q8. If had O-scope could start by looking at TO line (base of Q7).

Would like to be able to see you at least be able to use the rig in Rx mode.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan

You are asking basic schematic reading questions and KW hybrid abbreviations and conventions. There is no complete list of abbreviations. You can search them out in all the hybrid service manuals. There are various charts in the various manuals.

Some you have to figure out by studying the schematic and some are just common sense. SS for example would be Send Switch. RL CONT is Relay Control because Q9 is configured as a

switch that controls the on off cycling of the TR and Aux relay closing coils.

The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

You can Google on how to read Schematics and find numerous primers and tutorials.

Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45758. TS-830 Murata K-5 / K-12

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 18:36:04 UTC
From: <ron5613@...>
Topic: 45758 Message: 45758

I have the YK88S1 with the Murata K-5 filter.
Is it worth swapping out the K5 filter for a K12.?
Is there much difference?

Thanks, Ron WD9IQN

45759. Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-06 23:35:26 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45759

So after learning the heater tip from Terry, I took a look at the SM & I also found it there. But when I went to do it last nite, flipping the send switch would pin the ALC meter. I musta worked on that issue while I slept because I told myself in the AM to look at that ground connection that broke when I tried to remove the panel ground screw and darned if I didn't find that the carrier control ground was also broken. There is such a mass of wires there, it is hard to see let alone work in that area. So I fixed that & was able to back off the carrier and the drive section alignment went well. Everything was pretty close already. A good sign.

I also checked the reference oscillator & it was very close to the 10MHz. I spot checked a few other frequency test points and made a few tweaks, but again, there were pretty close. Measurement error probably.

I then tackled the neutralization. This was another scary thing as it was the first time in my short Ham career. Remember: First do no harm. I found it to be pretty close also. I had my scope on 5mV/div and the signal P-P was still pretty small. But I tweaked it a bit lower. Done!

Then I started checking the output on all bands. I found that this 830 would put out 80 -115W on all bands but 18MHz, where I could only get ~20W. So I went back to 18MHz after I completing 29MHz and I got ~95W on the 2nd try. So either my technique got better or …..? Could a dirty band switch do that? Any other thoughts? I also find that the load control on some bands is at or near it's stop Typical? 73 - Bob

45760. Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 00:04:54 UTC
From: Joseph Stiles
Topic: 45759 Message: 45760

Bob,

  Nice job!

Quite possible that the low power on 18Mhz was caused by "dirty" band switch wafer contacts.
This is common...especially for a rig that may have sat for lord knows how long. Continue to monitor that situation. Maybe a good cleaning with your choice of contact cleaner/lube and a good blow off with canned air. Follow the directions...that stuff is flammable...use with rig OFF...and preferably UNPLUGGED,,,but that's just me

  Neutralization can make one nervous...at first..as....ya don't want to blow it up...but you did right, by reading the directions..and following(I hope) safety precautions. As you found out...your chances of getting a complete zero reading on your o'scope or DMM/VTVM is not always possible....adjust for the lowest possible reading/dip.

  Having the "load" control "at or near the top" is fine.(.using a dummy load..I hope)

   When using an "actual" antenna...as to paraphrase... "your actual readings/settings may vary."

73 Joe
WB7UQU

On Wednesday, November 6, 2013 3:35 PM, "rrmvargo@..." <rrmvargo@...> wrote:

>So after learning the heater tip from Terry, I took a look
at the SM & I also found it there. But when I went to do it last nite, flipping the send switch would pin the ALC meter. I musta worked on that issue while I slept
because I told myself in the AM to look at that ground connection that broke when I tried to remove the panel ground screw and darned if I didn’t find that the carrier
control ground was also broken. There is
such a mass of wires there, it is hard to see let alone work in that area. So I fixed that & was able to back off the carrier and the drive section alignment
went well. Everything was pretty close
already. A good sign.
>
>I also checked the reference oscillator & it was very
close to the 10MHz. I spot checked a few
other frequency test points and made a few tweaks, but again, there were pretty
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on all bands but 18MHz, where I could only get ~20W. So I went back to 18MHz after I
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got better or …..? Could a dirty band
switch do that? Any other thoughts? I also find that the load control on some bands is
at or near it's stop Typical? 73 -
Bob
>
>
>

45761. RE: TS-830 Murata K-5 / K-12

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 00:51:18 UTC
From: <wagstw46@...>
Topic: 45758 Message: 45761

Ron:

I put the K12 in both of my TS-830 and did not notice dramatic difference but maybe I do not have a discriminating ear.

I dont have a spectrum analyzer to do any precise alignments but I have swept both filters on the bench terminated with 2k ohm input/output and I found the K5 to be close to 2.4khz @6dB BW and the K12 close to 2.9khz @ 6db BW.

If you can pick them up for $40 to $50 probable worth a try.

Here is spectrum analyzer look at a K12 filter installed in a FT-1000.

http://www.k6jrf.com/FT_2Rcvr.html http://www.k6jrf.com/FT_2Rcvr.html

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ron5613@...> wrote:

I have the YK88S1 with the Murata K-5 filter.
Is it worth swapping out the K5 filter for a K12.?
Is there much difference?

Thanks, Ron WD9IQN

45762. RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 00:52:31 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45762

I cannot see what you wrote?

Terry

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,
Yes I am still experiencing Relay cycling in Rx ad yes it happens on CW. I have already cleaned all the connectors that I can get too and feel comfortable removing. I also tried grounding the VS and no change either. I took some voltage measurements at the molex connectors with my VTVM today, TO = 5.2vdc, 9 = 9vdc, VS = 0, SS = 14v buts it's unstable and varies +/- 1v when relays cycle, RL = 0 volts when I hear it receiving (you can hear CW when the relays aren't cycling) but it also unstable when the relays do cycle and jumps to between 9-11 vdc, the 14A = 13.9vdc. I also tried attaching a jumper to the base and emitter of Q7, and no change. Getting it working in receive is my main goal for now, I don't have a license yet, but I would like to listen to some chatter, help me learn CW and just have fun. Thanks Terry

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan:

I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

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Would like to be able to see you at least be able to use the rig in Rx mode.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan

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Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45763. RE: Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 01:01:55 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45763

I did not refer you to the Service Manual as it requires good calibrated RF sig gen to perform RF/IF and Coil Pack alignment that precedes the Drive Coil alignment.

Average ham with no or limited test gear can do pretty decent job by following the procedures in the Maintenance Section of the Operating Manual.

That is why the maintenance section exists in that manual. It details owner/operator adjustments that can put rig in decent state of tune that does not require any test gear or tech knowledge or experience.

Had I known you had good RF bench I would have referred you to the Service Manual. It helps when new folks give brief biography and tell what test gear they have. I should have asked.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

So after learning the heater tip from Terry, I took a look at the SM & I also found it there. But when I went to do it last nite, flipping the send switch would pin the ALC meter. I musta worked on that issue while I slept because I told myself in the AM to look at that ground connection that broke when I tried to remove the panel ground screw and darned if I didn’t find that the carrier control ground was also broken. There is such a mass of wires there, it is hard to see let alone work in that area. So I fixed that & was able to back off the carrier and the drive section alignment went well. Everything was pretty close already. A good sign.

I also checked the reference oscillator & it was very close to the 10MHz. I spot checked a few other frequency test points and made a few tweaks, but again, there were pretty close. Measurement error probably.

I then tackled the neutralization. This was another scary thing as it was the first time in my short Ham career. Remember: First do no harm. I found it to be pretty close also. I had my scope on 5mV/div and the signal P-P was still pretty small. But I tweaked it a bit lower. Done!

Then I started checking the output on all bands. I found that this 830 would put out 80 -115W on all bands but 18MHz, where I could only get ~20W. So I went back to 18MHz after I completing 29MHz and I got ~95W on the 2nd try. So either my technique got better or …..? Could a dirty band switch do that? Any other thoughts? I also find that the load control on some bands is at or near it's stop Typical? 73 - Bob

45764. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 01:33:12 UTC
From: <danweed85@...>
Topic: 45740 Message: 45764

Terry, sorry, im not sure what happened I cant read it either. But I am still experiencing relay cycling with the grounded VS line, I've already cleaned all the connectors, and it does cycle in all modes. I took some voltage measurements with my VTVM today at the connector, TO = 5.2v, 9 = 9v, VS = 0, SS = 14v but its unstable when the relays are cycling, RL= 0 when receiving unstable with relays cycling around 9 - 11 volts, 14A = 14. I also tried a jumper on Q7 from base to emitter and the relays still cycle.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I cannot see what you wrote?

Terry

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,
Yes I am still experiencing Relay cycling in Rx ad yes it happens on CW. I have already cleaned all the connectors that I can get too and feel comfortable removing. I also tried grounding the VS and no change either. I took some voltage measurements at the molex connectors with my VTVM today, TO = 5.2vdc, 9 = 9vdc, VS = 0, SS = 14v buts it's unstable and varies +/- 1v when relays cycle, RL = 0 volts when I hear it receiving (you can hear CW when the relays aren't cycling) but it also unstable when the relays do cycle and jumps to between 9-11 vdc, the 14A = 13.9vdc. I also tried attaching a jumper to the base and emitter of Q7, and no change. Getting it working in receive is my main goal for now, I don't have a license yet, but I would like to listen to some chatter, help me learn CW and just have fun. Thanks Terry

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan:

I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

If that does not help then can try placing a temporary ground on VS at Molex Conn FIX 3 Pin 2. Make absolutely sure you are on the VS pin. If this works then bad wire or bad/dirty contact at VOX switch not picking up chassis ground.

Trying to rule out noise first before saying there is problem with Q7/Q8. If had O-scope could start by looking at TO line (base of Q7).

Would like to be able to see you at least be able to use the rig in Rx mode.

Terry K9TW

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The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

You can Google on how to read Schematics and find numerous primers and tutorials.

Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

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Thanks again,
Daniel

45765. RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 03:14:15 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45765

OK it looks like you have done everything that you can. SS would normally be 14vdc in Rx mode and when you flip to Send it should go to zero.

If running VOX SS will be approx 14vdc and when you speak in mic and key the relays with audio SS will drop from approx 14vdc to approx 11vdc. So normal for SS to be dropping when the relays are cycling.

I think time to contact Bob Mansker and see if he has a FIX board.

If you want to use rig as receiver in mean time should be able to unplug FIX-3 Molex conn.

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Thanks again,
Daniel

45766. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 03:43:22 UTC
From: <danweed85@...>
Topic: 45740 Message: 45766

Terry, I tried unplugging Molex conn 3 and there was no receive then. Is there any reason to put a jumper from base to emitter on Q8 or Q9? I didn't get much reading done on the Schmidt trigger circuit today, hoping for more time tomorrow. I'm only wondering cause a transistor swap would be better for me financially (no job) then a whole board. Thanks

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Thanks again,
Daniel

45767. RE: RE: TS-830 Murata K-5 / K-12

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 03:57:46 UTC
From: <ron5613@...>
Topic: 45758 Message: 45767

Hi Terry,

Thanks for the info and the link. I had a K-12 here so I went ahead and put it in one of my TS-830's. When I compare the rigs side by side with the same speakers
I would say that the one with the cf-12 has a little bit better fidelity. Not a huge difference but it
is a difference. I guess every little bit helps. I don't think it is a must have modification.
Thanks again for your reply,

Ron WD9IQN

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Ron:

I put the K12 in both of my TS-830 and did not notice dramatic difference but maybe I do not have a discriminating ear.

I dont have a spectrum analyzer to do any precise alignments but I have swept both filters on the bench terminated with 2k ohm input/output and I found the K5 to be close to 2.4khz @6dB BW and the K12 close to 2.9khz @ 6db BW.

If you can pick them up for $40 to $50 probable worth a try.

Here is spectrum analyzer look at a K12 filter installed in a FT-1000.

http://www.k6jrf.com/FT_2Rcvr.html http://www.k6jrf.com/FT_2Rcvr.html

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <ron5613@...> wrote:

I have the YK88S1 with the Murata K-5 filter.
Is it worth swapping out the K5 filter for a K12.?
Is there much difference?

Thanks, Ron WD9IQN

45768. RE: RE: RE: TS-830 Murata K-5 / K-12

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 11:48:34 UTC
From: <wagstw46@...>
Topic: 45758 Message: 45768

OK Ron that is good way to do it if you have two rigs.

I have found over years that a lot of these upgrades and mods produce "feel good" results. Much is subjective. So few really have the test gear or the knowledge to do meaningful before and after testing to measure the improvements and some will be very slight.

I guess if it makes your ears happy all that matters. Accept for those who think that 6khz + wide SSB signals sound good!

One thing that I always come back to is the receive audio quality of the old TS520 versus the TS-830. To my ears the old complementary pair OTL audio amp circuit produces much better audio than the integrated chip audio output circuit of the TS830.

Anyway, enjoy your TS830s

73s Terry K9TW

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Thanks, Ron WD9IQN

45769. RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 12:21:18 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45769

OK sorry about that . I did a quick look and didnt see a problem pulling the connector.

What you are doing when you jumper from Base to Emitter is turning the transistor off. When you do that should monitor Collector voltage and if the transistor was on then the Collector voltage should move up toward supply voltage. This is a standard in circuit transistor troubleshooting test but must be 100% sure you are on the B-E leads.

Other standard test is to place a 10K ohm resistor in series with your test jumper and jump from Base to Collector while monitoring Collector voltage. This test you are biasing on the transistor and if collector voltage drops then you know device has turned on.

Normally if you can turn on or turn off a transistor it is good. However, the test doesnt tell you anything about leakage or how well the transistor will amplify or oscillate especially at RF frequencies, but a pretty good test to find a shorted or open transistor.

I suggested turning off Q7 to see if noise at the input was the source of the problem. Schmitt trigger should have upper and lower thresholds and noise filtered out by the hysteresis loop should not trigger an output. Need a O-scope to look at Base of Q7 to see if noise is the issue.

I understand if you have limited funds you would prefer to troubleshoot and repair the board.

Perhaps Q9 is just leaky? It sees a lot of cycles and may simply be leaky.

I guess at this point you can order subs for Q7, Q8 and Q9 and try replacing all three while you have the board out. Would prefer to troubleshoot to id the problem but given age of rig and difficulty troubleshooting via long distance OK to just replace all three of them. If you do that also replace D17 while board is out.

Best I can do for you and perhaps someone else would have a suggestion to help you.

Terry K9TW

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---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45770. RE: RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 12:40:41 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45770

Dan:

Took another look and see that -6vdc is produced by T-powered supply on the FIX board so you can pull FIX3 and use a 6vdc lantern battery to power -6vdc bus. Plus lead of battery to chassis ground. Very little current so cheap Dollar Store 6 vdc battery will last long time.

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OK sorry about that . I did a quick look and didnt see a problem pulling the connector.

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Other standard test is to place a 10K ohm resistor in series with your test jumper and jump from Base to Collector while monitoring Collector voltage. This test you are biasing on the transistor and if collector voltage drops then you know device has turned on.

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I understand if you have limited funds you would prefer to troubleshoot and repair the board.

Perhaps Q9 is just leaky? It sees a lot of cycles and may simply be leaky.

I guess at this point you can order subs for Q7, Q8 and Q9 and try replacing all three while you have the board out. Would prefer to troubleshoot to id the problem but given age of rig and difficulty troubleshooting via long distance OK to just replace all three of them. If you do that also replace D17 while board is out.

Best I can do for you and perhaps someone else would have a suggestion to help you.

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Schmidt trigger circuit today, hoping for more time tomorrow. I'm only wondering cause a transistor swap would be better for me financially (no job) then a whole board. Thanks

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I think time to contact Bob Mansker and see if he has a FIX board.

If you want to use rig as receiver in mean time should be able to unplug FIX-3 Molex conn.

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Terry,
Yes I am still experiencing Relay cycling in Rx ad yes it happens on CW. I have already cleaned all the connectors that I can get too and feel comfortable removing. I also tried grounding the VS and no change either. I took some voltage measurements at the molex connectors with my VTVM today, TO = 5.2vdc, 9 = 9vdc, VS = 0, SS = 14v buts it's unstable and varies +/- 1v when relays cycle, RL = 0 volts when I hear it receiving (you can hear CW when the relays aren't cycling) but it also unstable when the relays do cycle and jumps to between 9-11 vdc, the 14A = 13.9vdc. I also tried attaching a jumper to the base and emitter of Q7, and no change. Getting it working in receive is my main goal for now, I don't have a license yet, but I would like to listen to some chatter, help me learn CW and just have fun. Thanks Terry

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I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

If that does not help then can try placing a temporary ground on VS at Molex Conn FIX 3 Pin 2. Make absolutely sure you are on the VS pin. If this works then bad wire or bad/dirty contact at VOX switch not picking up chassis ground.

Trying to rule out noise first before saying there is problem with Q7/Q8. If had O-scope could start by looking at TO line (base of Q7).

Would like to be able to see you at least be able to use the rig in Rx mode.

Terry K9TW

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Dan

You are asking basic schematic reading questions and KW hybrid abbreviations and conventions. There is no complete list of abbreviations. You can search them out in all the hybrid service manuals. There are various charts in the various manuals.

Some you have to figure out by studying the schematic and some are just common sense. SS for example would be Send Switch. RL CONT is Relay Control because Q9 is configured as a switch that controls the on off cycling of the TR and Aux relay closing coils.

The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

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Thanks again,
Daniel

45771. RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 13:50:05 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45771

Hi Joe & Terry, et al,

I made my own dummy load. Bunch of 5 watters sitting in mineral oil. It measures 50.4ohms. And I have a scope, several generators, dvms, FETVOM's, EICO tube tester, ESR meter, ... ie- more test equipment than sense/knowledge. But I don't have a good sweeper (I don't think). I need a good vulcan mind transfer to enable full utilization on all the junk I got.

I will look at the band switches & clean them & try to remember to unplug the unit while doing so. I try to unplug the devise I am working on once I am done with it for the day. I have had too many mistakes. Unencumbered by the thought process, so to speak.

I may put it on the air today. I found an old Turner +3 to stick on it.

Thanx for all the continued help. - Bob

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bob,

Nice job!

Quite possible that the low power on 18Mhz was caused by "dirty" band switch wafer contacts.
This is common...especially for a rig that may have sat for lord knows how long. Continue to monitor that situation. Maybe a good cleaning with your choice of contact cleaner/lube and a good blow off with canned air. Follow the directions...that stuff is flammable...use with rig OFF...and preferably UNPLUGGED,,,but that's just me

Neutralization can make one nervous...at first..as....ya don't want to blow it up...but you did right, by reading the directions..and following(I hope) safety precautions. As you found out...your chances of getting a complete zero reading on your o'scope or DMM/VTVM is not always possible....adjust for the lowest possible reading/dip.

Having the "load" control "at or near the top" is fine.(.using a dummy load..I hope)

When using an "actual" antenna...as to paraphrase... "your actual readings/settings may vary."

73 Joe
WB7UQU

On Wednesday, November 6, 2013 3:35 PM, "rrmvargo@..." <rrmvargo@...> wrote:

So after learning the heater tip from Terry, I took a look at the SM & I also found it there. But when I went to do it last nite, flipping the send switch would pin the ALC meter. I musta worked on that issue while I slept because I told myself in the AM to look at that ground connection that broke when I tried to remove the panel ground screw and

darned if I didn’t find that the carrier control ground was also broken. There is such a mass of wires there, it is hard to see let alone work in that area. So I fixed that & was able to back off the carrier and the drive section alignment went well. Everything was pretty close already. A good sign.

I also checked the reference oscillator & it was very close to the 10MHz. I spot checked a few other frequency test points and made a few tweaks, but again, there were pretty close. Measurement error probably.

I then tackled the neutralization. This was another scary thing as it was the first time in my short Ham career. Remember: First do no harm. I found it to be pretty close also. I had my scope on 5mV/div and the signal P-P was still pretty small. But I tweaked it a bit lower. Done!

Then I started checking the output on all bands. I found that this 830 would put out 80 -115W on all bands but 18MHz, where I could only get ~20W. So I went back to 18MHz after I completing 29MHz and I got ~95W on the 2nd try. So either my technique got better or …..? Could a dirty band switch do that? Any other thoughts? I also find that the load control on some bands is at or near it's stop Typical? 73 - Bob

45772. RE: RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 14:38:05 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45772

OK Bob:

I think you should find that a good RF Sig Gen is much more useful than a RF sweep gen. A Sweep gen is good for band pass filter alignments, but not first piece of gear would get.

Can use old LC type RF sig gens (Heath, Knight, Eico) and set to high output level as measured by your O-scope and then use external step attenuators to get the accurate low RF output levels you need to inject at various points in the Service Manual alignment steps. It is a little convoluted and most LC types are not very well shielded so not good for very low level signal injection.

These old sig gens are fine for troubleshooting but are not very good for alignments.

Also, remember your RF Sig Gen doesnt use the KW hybrid Japanese dBu levels called out in the Service Manual.

When you are going to use the RF Sig Gen in lieu of the Marker signal to do the Coil Pack alignment you must convert from the KW levels to standard American values. Calculator with Log and Anti-log is handy and can find some calculators and charts on line. I made a conversion chart for common values and have an excel spread sheet. I also marked up the Service manual any place it called out a dBu level.

So if you are going to use your Heath IG-102 to perform TS830 Step 16 Coil Pack Alignment how will you set the output for the required 40dB and -6dB? Might make a good W5RKL test exercise down the road?

As I said can be done but not as easy as with a good PLL based RF sig gen or one of the new DDS RF sig gens.

By the way to check your calcs should find that 40db = -73dBm or 0.50uv and -6dB = -119 dBm or 0.25uv. These are units that a good RF sig gen present directly at the calibrated step attenuator.

Sorry if you already know all of this.

For those that dont and dont have RF bench then I still recommend using the Maintenance Section of their respective KW hybrid manuals to set their TX and RX performance pretty close to factory spec.

Terry K9TW

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45773. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 16:15:33 UTC
From: <danweed85@...>
Topic: 45740 Message: 45773

Terry, I put a jumper from B to E on Q9 and the relays stop cycling collector voltage stayed at 0v and the radio began receiving great, There are a few problems with 10 and 15 meters but I'm going to enjoy 20 - 160m for now while I read up and wait for some new transistors in the mail. Thank you so much for all your help this has been a great lesson and you've been a great help getting this radio back work. Cant wait to learn more about this radio and electronics.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan:

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Other standard test is to place a 10K ohm resistor in series with your test jumper and jump from Base to Collector while monitoring Collector voltage. This test you are biasing on the transistor and if collector voltage drops then you know device has turned on.

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I suggested turning off Q7 to see if noise at the input was the source of the problem. Schmitt trigger should have upper and lower thresholds and noise filtered out by the hysteresis loop should not trigger an output. Need a O-scope to look at Base of Q7 to see if noise is the issue.

I understand if you have limited funds you would prefer to troubleshoot and repair the board.

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I guess at this point you can order subs for Q7, Q8 and Q9 and try replacing all three while you have the board out. Would prefer to troubleshoot to id the problem but given age of rig and difficulty troubleshooting via long distance OK to just replace all three of them. If you do that also replace D17 while board is out.

Best I can do for you and perhaps someone else would have a suggestion to help you.

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Thanks again,
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45774. RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 18:51:07 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45774

OK then you have reverse biased the B-E junction and transistor is cut off and will be no voltage at Collector. Still does not tell you what is wrong. By the way the voltages shown on my FIX board schematic at Q9 are wrong . Not 16vdc but closer to 13.8vdc.

If you plan to replace Q9 check on Ebay first for a NOS 2SA562Y before you buy a NTE 290A sub.

Terry K9TW

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I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

If that does not help then can try placing a temporary ground on VS at Molex Conn FIX 3 Pin 2. Make absolutely sure you are on the VS pin. If this works then bad wire or bad/dirty contact at VOX switch not picking up chassis ground.

Trying to rule out noise first before saying there is problem with Q7/Q8. If had O-scope could start by looking at TO line (base of Q7).

Would like to be able to see you at least be able to use the rig in Rx mode.

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switch that controls the on off cycling of the TR and Aux relay closing coils.

The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

You can Google on how to read Schematics and find numerous primers and tutorials.

Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

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Thanks again,
Daniel

45775. RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 20:08:29 UTC
From: <danweed85@...>
Topic: 45740 Message: 45775

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If you plan to replace Q9 check on Ebay first for a NOS 2SA562Y before you buy a NTE 290A sub.

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---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

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Took another look and see that -6vdc is produced by T-powered supply on the FIX board so you can pull FIX3 and use a 6vdc lantern battery to power -6vdc bus. Plus lead of battery to chassis ground. Very little current so cheap Dollar Store 6 vdc battery will last long time.

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Other standard test is to place a 10K ohm resistor in series with your test jumper and jump from Base to Collector while monitoring Collector voltage. This test you are biasing on the

transistor and if collector voltage drops then you know device has turned on.

Normally if you can turn on or turn off a transistor it is good. However, the test doesnt tell you anything about leakage or how well the transistor will amplify or oscillate especially at RF frequencies, but a pretty good test to find a shorted or open transistor.

I suggested turning off Q7 to see if noise at the input was the source of the problem. Schmitt trigger should have upper and lower thresholds and noise filtered out by the hysteresis loop should not trigger an output. Need a O-scope to look at Base of Q7 to see if noise is the issue.

I understand if you have limited funds you would prefer to troubleshoot and repair the board.

Perhaps Q9 is just leaky? It sees a lot of cycles and may simply be leaky.

I guess at this point you can order subs for Q7, Q8 and Q9 and try replacing all three while you have the board out. Would prefer to troubleshoot to id the problem but given age of rig and difficulty troubleshooting via long distance OK to just replace all three of them. If you do that also replace D17 while board is out.

Best I can do for you and perhaps someone else would have a suggestion to help you.

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45776. RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-07 21:12:32 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45776

Daniel

Q9 could be bad but it could also be getting input from the Schmitt trigger. So you can just replace it alone as a first step if you want or replace all three active devices while the board is out. Your choice.

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45777. RE: RE: RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 12:19:40 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45777

TYPO

40db is -73dBm but it is not 0.50uv

It is 50.0 uv (50 micro volts not 1/2 micro volt)

50.0uv will give you S-9 meter indication

Sorry about that

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK Bob:

I think you should find that a good RF Sig Gen is much more useful than a RF sweep gen. A Sweep gen is good for band pass filter alignments, but not first piece of gear would get.

Can use old LC type RF sig gens (Heath, Knight, Eico) and set to high output level as measured by your O-scope and then use external step attenuators to get the accurate low RF output levels you need to inject at various points in the Service Manual alignment steps. It is a little convoluted and most LC types are not very well shielded so not good for very low level signal injection.

These old sig gens are fine for troubleshooting but are not very good for alignments.

Also, remember your RF Sig Gen doesnt use the KW hybrid Japanese dBu levels called out in the Service Manual.

When you are going to use the RF Sig Gen in lieu of the Marker signal to do the Coil Pack alignment you must convert from the KW levels to standard American values. Calculator with Log and Anti-log is handy and can find some calculators and charts on line. I made a conversion chart for common values and have an excel spread sheet. I also marked up the Service manual any place it called out a dBu level.

So if you are going to use your Heath IG-102 to perform TS830 Step 16 Coil Pack Alignment how will you set the output for the required 40dB and -6dB? Might make a good W5RKL test exercise down the road?

As I said can be done but not as easy as with a good PLL based RF sig gen or one of the new DDS RF sig gens.

By the way to check your calcs should find that 40db = -73dBm or 0.50uv and -6dB = -119 dBm or 0.25uv. These are units that a good RF sig gen present directly at the calibrated step attenuator.

Sorry if you already know all of this.

For those that dont and dont have RF bench then I still recommend using the Maintenance Section of their respective KW hybrid manuals to set their TX and RX performance pretty close to factory spec.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

Hi Joe & Terry, et al,

I made my own dummy load. Bunch of 5 watters sitting in mineral oil. It measures 50.4ohms. And I have a scope, several generators, dvms, FETVOM's, EICO tube tester, ESR meter, ... ie- more test equipment than sense/knowledge. But I don't have a good sweeper (I don't think). I need a good vulcan mind transfer to enable full utilization on all the junk I got.

I will look at the band switches & clean them & try to remember to unplug the unit while doing so. I try to unplug the devise I am working on once I am done with it for the day. I have had too many mistakes. Unencumbered by the thought process, so to speak.

I may put it on the air today. I found an old Turner +3 to stick on it.

Thanx for all the continued help. - Bob

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Bob,

Nice job!

Quite possible that the low power on 18Mhz was caused by "dirty" band switch wafer contacts.
This is common...especially for a rig that may have sat for lord knows how long. Continue to monitor that situation. Maybe a good cleaning with your choice of contact cleaner/lube and a good blow off with canned air. Follow the directions...that stuff is flammable...use with rig OFF...and preferably UNPLUGGED,,,but that's just me

Neutralization can make one nervous...at first..as....ya don't want to blow it up...but you did right, by reading the directions..and following(I hope) safety precautions. As you found out...your chances of getting a complete zero reading on your o'scope or DMM/VTVM is not always possible....adjust for the lowest possible reading/dip.

Having the "load" control "at or near the top" is fine.(.using a dummy load..I hope)

When using an "actual" antenna...as to paraphrase... "your actual readings/settings may vary."

73 Joe
WB7UQU

On Wednesday, November 6, 2013 3:35 PM, "rrmvargo@..." <rrmvargo@...> wrote:

So after learning the heater tip from Terry, I took a look at the SM & I also found it there. But when I went to do it last nite, flipping the send switch would pin the ALC meter. I musta worked on that issue while I slept because I told myself in the AM to look

at that ground connection that broke when I tried to remove the panel ground screw and darned if I didn’t find that the carrier control ground was also broken. There is such a mass of wires there, it is hard to see let alone work in that area. So I fixed that & was able to back off the carrier and the drive section alignment went well. Everything was pretty close already. A good sign.

I also checked the reference oscillator & it was very close to the 10MHz. I spot checked a few other frequency test points and made a few tweaks, but again, there were pretty close. Measurement error probably.

I then tackled the neutralization. This was another scary thing as it was the first time in my short Ham career. Remember: First do no harm. I found it to be pretty close also. I had my scope on 5mV/div and the signal P-P was still pretty small. But I tweaked it a bit lower. Done!

Then I started checking the output on all bands. I found that this 830 would put out 80 -115W on all bands but 18MHz, where I could only get ~20W. So I went back to 18MHz after I completing 29MHz and I got ~95W on the 2nd try. So either my technique got better or …..? Could a dirty band switch do that? Any other thoughts? I also find that the load control on some bands is at or near it's stop Typical? 73 - Bob

45778. Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 13:43:11 UTC
From: <ke5ftf@...>
Topic: 45778 Message: 45778

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45779. RE: RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 14:12:05 UTC
From: <wagstw46@...>
Topic: 45740 Message: 45779

Daniel

Thinking about your inability to acquire replacement FIX board at this time and wanting to continue working on your TS820 consider this approach:

1. Remove your jumper from Q9
2. Apply B-E jumper at Q7 (be 100% on correct leads) OR try unplugging FIX2 connector to stop the on/off relay keying in Rx mode. Easier than applying B-E jumper.
3. Flip to Send to see if the rig relays can now be keyed on and off by Q9.
4. If this works all you have lost is the VOX function.

This allows you to continue working on the receiver and transmitter. Can come back later and replace transistors on FIX board or swap out FIX boards to restore VOX function.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Daniel

Q9 could be bad but it could also be getting input from the Schmitt trigger. So you can just replace it alone as a first step if you want or replace all three active devices while the board is out. Your choice.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry, Darn I was hoping that meant a bad transistor. Ive seem them on ebay, ill dig back into it later after im done reading tonight see I can find the exact issue. Thanks again

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK then you have reverse biased the B-E junction and transistor is cut off and will be no voltage at Collector. Still does not tell you what is wrong. By the way the voltages shown on my FIX board schematic at Q9 are wrong . Not 16vdc but closer to 13.8vdc.

If you plan to replace Q9 check on Ebay first for a NOS 2SA562Y before you buy a NTE 290A sub.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry, I put a jumper from B to E on Q9 and the relays stop cycling collector voltage stayed at 0v and the radio began receiving great, There are a few problems with 10 and 15 meters but I'm going to enjoy 20 - 160m for now while I read up and wait for some new

transistors in the mail. Thank you so much for all your help this has been a great lesson and you've been a great help getting this radio back work. Cant wait to learn more about this radio and electronics.

Daniel

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Dan:

Took another look and see that -6vdc is produced by T-powered supply on the FIX board so you can pull FIX3 and use a 6vdc lantern battery to power -6vdc bus. Plus lead of battery to chassis ground. Very little current so cheap Dollar Store 6 vdc battery will last long time.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK sorry about that . I did a quick look and didnt see a problem pulling the connector.

What you are doing when you jumper from Base to Emitter is turning the transistor off. When you do that should monitor Collector voltage and if the transistor was on then the Collector voltage should move up toward supply voltage. This is a standard in circuit transistor troubleshooting test but must be 100% sure you are on the B-E leads.

Other standard test is to place a 10K ohm resistor in series with your test jumper and jump from Base to Collector while monitoring Collector voltage. This test you are biasing on the transistor and if collector voltage drops then you know device has turned on.

Normally if you can turn on or turn off a transistor it is good. However, the test doesnt tell you anything about leakage or how well the transistor will amplify or oscillate especially at RF frequencies, but a pretty good test to find a shorted or open transistor.

I suggested turning off Q7 to see if noise at the input was the source of the problem. Schmitt trigger should have upper and lower thresholds and noise filtered out by the hysteresis loop should not trigger an output. Need a O-scope to look at Base of Q7 to see if noise is the issue.

I understand if you have limited funds you would prefer to troubleshoot and repair the board.

Perhaps Q9 is just leaky? It sees a lot of cycles and may simply be leaky.

I guess at this point you can order subs for Q7, Q8 and Q9 and try replacing all three while you have the board out. Would prefer to troubleshoot to id the problem but given age of rig and difficulty troubleshooting via long distance OK to just replace all three of them. If you do that also replace D17 while board is out.

Best I can do for you and perhaps someone else would have a suggestion to help you.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry, I tried unplugging Molex conn 3 and there was no receive then. Is there any reason to put a jumper from base to emitter on Q8 or Q9? I didn't get much reading done on the Schmidt trigger circuit today, hoping for more time tomorrow. I'm only wondering cause a transistor swap would be better for me financially (no job) then a whole board. Thanks

Daniel

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OK it looks like you have done everything that you can. SS would normally be 14vdc in Rx mode and when you flip to Send it should go to zero.

If running VOX SS will be approx 14vdc and when you speak in mic and key the relays with audio SS will drop from approx 14vdc to approx 11vdc. So normal for SS to be dropping when the relays are cycling.

I think time to contact Bob Mansker and see if he has a FIX board.

If you want to use rig as receiver in mean time should be able to unplug FIX-3 Molex conn.

Terry K9TW

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Terry, sorry, im not sure what happened I cant read it either. But I am still experiencing relay cycling with the grounded VS line, I've already cleaned all the connectors, and it does cycle in all modes. I took some voltage measurements with my VTVM today at the connector, TO = 5.2v, 9 = 9v, VS = 0, SS = 14v but its unstable when the relays are cycling, RL= 0 when receiving unstable with relays cycling around 9 - 11 volts, 14A = 14. I also tried a jumper on Q7 from base to emitter and the relays still cycle.

Daniel

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I cannot see what you wrote?

Terry

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Terry,
Yes I am still experiencing Relay cycling in Rx ad yes it happens on CW. I have already cleaned all the connectors that I can get too and feel comfortable removing. I also tried grounding the VS and no change either. I took some voltage measurements at the molex connectors with my VTVM today, TO = 5.2vdc, 9 = 9vdc, VS = 0, SS = 14v buts it's unstable and varies +/- 1v when relays cycle, RL = 0 volts when I hear it receiving (you can hear CW when the relays aren't cycling) but it also unstable when the relays do cycle and jumps to between 9-11 vdc, the 14A = 13.9vdc. I also tried attaching a jumper to the base and emitter of Q7, and no change. Getting it working in receive is my main goal for now, I don't have a license yet, but I would like to listen to some chatter, help me learn CW and just have fun. Thanks Terry

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Dan:

I assume you are still experiencing the TR and AUX relays randomly keying when your TS-820 is in Rx mode. Does it do this in all modes? Have you tried it in CW mode? If not do so.

Dirty Anti-Vox pot can be a problem, but not easy to access and clean on the 820.

Let me know if it does it in all modes.

Have you removed and cleaned and re-inserted the FIX2 and FIX3 Molex connectors on the FIX board? If not try that.

If that does not help then can try placing a temporary ground on VS at Molex Conn FIX 3 Pin 2. Make absolutely sure you are on the VS pin. If this works then bad wire or bad/dirty contact at VOX switch not picking up chassis ground.

Trying to rule out noise first before saying there is problem with Q7/Q8. If had O-scope could start by looking at TO line (base of Q7).

Would like to be able to see you at least be able to use the rig in Rx mode.

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Dan

You are asking basic schematic reading questions and KW hybrid abbreviations and conventions. There is no complete list of abbreviations. You can search them out in all the hybrid service manuals. There are various charts in the various manuals.

Some you have to figure out by studying the schematic and some are just common sense. SS for example would be Send Switch. RL CONT is Relay Control because Q9 is configured as a switch that controls the on off cycling of the TR and Aux relay closing coils.

The heavy dashed lines you see on the schematic are control signal lines. If you look at the legend at top of TS820 main schematic you will see this. It means the lead leaves the board and goes to a control and in this case the VOX delay pot.

You can Google on how to read Schematics and find numerous primers and tutorials.

Lastly in this case "SHUNIT" on block diagram is most likely a translation error for Schmitt. With time and experience you should start to recognize some common configurations like Schmitt triggers, Differential amps, Ring diode modulators , Mosfet Doubly Balanced Modulators etc. when you see them on the schematic.

Terry K9TW

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Terry,

Ok thanks that's what I thought but I wanted to double check. a couple more questions while Im looking at the schematic, The pins on the FIX VOX board are labeled but some Im not sure

of their meanings, Ill stick to the ones we've discussed and the few others attached to the relay circuit. The 14A, not sure about the A, SS, VS, and TO. Also the block diagram has a line drawn from Q5 to Q7 but I don't see any connection on the schematic. and Q7, Q8 are labeled what looks like the word SHUMIT on the block diagram, some letters are hard to read, and Q9 is labeled RL CONT. I think RL stands for Relay but im not sure about the cont.

Thanks again,
Daniel

45780. Re: [TS-520_820_530_830] RE: RE: RE: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 14:47:31 UTC
From: amfone
Topic: 45740 Message: 45780

I have an 820S needing repair, who does the repair work on these wonderful radios?

Thanks Tim

On Friday, November 8, 2013 9:12 AM, "wagstw46@yahoo.com" <wagstw46@...> wrote:

Daniel

Thinking about your inability to acquire replacement FIX board at this time and wanting to continue working on your TS820 consider this approach:

1. Remove your jumper from Q9
2. Apply B-E jumper at Q7 (be 100% on correct leads) OR try unplugging FIX2 connector to stop the on/off relay keying in Rx mode. Easier than applying B-E jumper.
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>>>>>>>>>>>Thanks again,
>>>>>>>>>>>Daniel

45781. Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 14:31:28 UTC
From: Byron Tatum
Topic: 45778 Message: 45781

Hello-Do you have a nice cond TS-520S front panel?
    Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45782. RE: RE: RE: RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 16:55:26 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45782

I was going to correct you... NOT! My limited tolerance for all the conversions puts me at a decided disadvantage to you, Terry. I can do it, but have little energy around it. I still remember 14.53PSI (not 14.7) per Bar, but that is little help here.

I put the old gal on the air last nite! I found I had to turn the IF shift fully clockwise to receive good audio on SSB. Not good. When centered, audio was very pinched. Worse yet, I got horrible audio reports when transmitting. I tried 2 mics, to no avail. On the plus side, it did put out 100+W on 80M while still being below 225mA Ip.

So I disconnected & started the laborious and mentally challenging, because I have trouble with directions, alignment procedure from step 1. Are there any known mistakes? I even found D40 TP3 on the PLL board even tho it isn't marked on the test point layout on pg 43. Getting Carrier L19&20 to level out was a PITB. L19& 20 are very interactive & requires twisted logic to get them close to the 0.3VDC. I also checked the ESR on all the HV electrolytics & they were very good.

So I'll give it a go again tonite & see if I made things worse or better. If worse, look for me on the QRZ SK list. ;-) 73 - Bob

TYPO

40db is -73dBm but it is not 0.50uv

It is 50.0 uv (50 micro volts not 1/2 micro volt)

50.0uv will give you S-9 meter indication

Sorry about that

Terry K9TW

--TRIMMED.....

45783. Re: Relay transistor question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 19:25:27 UTC
From: popeyebob@...
Topic: 45740 Message: 45783

I don't have 2SA562's in stock, but I have 2SA564's. I think I have about six of them. The are N.O.S. parts.
I have the contents of three electronic service departments that have all gone out of business.
They were in business from 1970's through the year 2001.
Let me know if I can help with other N.O.S. transistors. (CHEAP!)
P/S please don't ask me to make up a list of what I have. (It could take years)

73
Robert Fitch

NB9G

45784. RE: RE: RE: RE: RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 21:42:56 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45784

Bob

Any time what I say doesnt make sense or look correct please speak up. It also lets me know someone cares and is reading this stuff. No this was not a test!

Yes L19 and L20 are interactive and not easy until you get the hang of it. I recommend using an O-scope unless you have a good RF millivolt meter that can read 0.30v rms. On the scope you will be adjusting for 0.848 P-P in both LSB and USB. Remember to turn L20 CCW direction.

Plus or minus 1dB tolerance means a high of 337mv and a low of 267mv. This is 0.953 P-P to 0.755 P-P.

I think Gordon N6WK was one of the first in the group to help with this.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

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50.0uv will give you S-9 meter indication

Sorry about that

Terry K9TW

--TRIMMED..............

45785. RE: RE: RE: RE: RE: RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 22:31:32 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45785

Hi Terry,
I am a neophyte here & not likely to correct anyone, because most know more than I do. I did not check your math. Nor have I checked your recent conversion from dB to mV. I know I got them very close to 0.31VDC which was close enough for me. And you just confirmed it was close enough. Know that I read all of your posts.

It has been a great adventure working on this 830. I have had tube receivers (several Hammarlunds) but this is my first Hybrid transceiver. I appreciate the help & patience.

Still looking for an MC50 or if anyone has tried a Heil HM12 on their 830, I'd like to know how it worked out. - 73 Bob

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Bob

Any time what I say doesnt make sense or look correct please speak up. It also lets me know someone cares and is reading this stuff. No this was not a test!

Yes L19 and L20 are interactive and not easy until you get the hang of it. I recommend using an O-scope unless you have a good RF millivolt meter that can read 0.30v rms. On the scope you will be adjusting for 0.848 P-P in both LSB and USB. Remember to turn L20 CCW direction.

Plus or minus 1dB tolerance means a high of 337mv and a low of 267mv. This is 0.953 P-P to 0.755 P-P.

I think Gordon N6WK was one of the first in the group to help with this.

Terry K9TW

--TRIMMED.....

45786. Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 22:53:03 UTC
From: Ronald Robinson
Topic: 45778 Message: 45786

hey Bob i am in need of a x50-1350-00 or q9 transister

On Friday, November 8, 2013 7:43 AM, "ke5ftf@..." <ke5ftf@...> wrote:

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45787. 502 VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 22:57:42 UTC
From: <bozo231@...>
Topic: 45787 Message: 45787

does anyone know if a remote 820 vfo will work on a 520

thanks Ron KK4PWF

45788. 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 23:07:06 UTC
From: <bozo231@...>
Topic: 6044 Message: 45788

Mike i know some of the remarks and measurements seemed way out of whack but u don't understand I am working on a radio that was sent to the radio junk yard the cathode wiring has been chopped all to hadies and tried to be put back without no success. i am determined to see this project thru and to learn the needed skills to repair this unit ,I respect your opinion, with due respect i am declining your request that I let a shop do it.

KK4PWF Ron

P.S> i am sure my discovery of this unit is not over but it will be a great unit to learn on !!!

45789. transisters

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 23:16:16 UTC
From: <bozo231@...>
Topic: 45789 Message: 45789

Bob do u have any2sa552(y) an 2sc450 (b) if u do how much for 2 or 4 of each thanks

Ron KK4PWF

45790. Re: [TS-520_820_530_830] 502 VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 23:31:42 UTC
From: Don Allen
Topic: 45787 Message: 45790

Yes, it an 820 external VFO will work fine with the 520.

Don W9CW

On 11/8/2013 4:57 PM, bozo231@... wrote:
>
> does anyone know if a remote 820 vfo will work on a 520
>
>
> thanks Ron KK4PWF
>
>

45791. RE: RE: RE: RE: RE: RE: RE: Re: [TS-520_820_530_830] Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-08 23:34:26 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45791

Bob

You cant adjust the 8.830mhz Carrier Osc to 0.31vdc. You adjust it to 0.31vac. Have to use RF probe and VTVM, RF millivolt meter, or an O-scope.

It is an AC signal at RF frequency. Whenever you see RF VTVM listed under the Test Equipment heading it tells you that you are measuring a high frequency AC signal.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

Hi Terry,
I am a neophyte here & not likely to correct anyone, because most know more than I do. I did not check your math. Nor have I checked your recent conversion from dB to mV. I know I got them very close to 0.31VDC which was close enough for me. And you just confirmed it was close enough. Know that I read all of your posts.

It has been a great adventure working on this 830. I have had tube receivers (several Hammarlunds) but this is my first Hybrid transceiver. I appreciate the help & patience.

Still looking for an MC50 or if anyone has tried a Heil HM12 on their 830, I'd like to know how it worked out. - 73 Bob

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Bob

Any time what I say doesnt make sense or look correct please speak up. It also lets me know someone cares and is reading this stuff. No this was not a test!

Yes L19 and L20 are interactive and not easy until you get the hang of it. I recommend using an O-scope unless you have a good RF millivolt meter that can read 0.30v rms. On the scope you will be adjusting for 0.848 P-P in both LSB and USB. Remember to turn L20 CCW direction.

Plus or minus 1dB tolerance means a high of 337mv and a low of 267mv. This is 0.953 P-P to 0.755 P-P.

I think Gordon N6WK was one of the first in the group to help with this.

Terry K9TW

--TRIMMED.....

45792. Re: [TS-520_820_530_830] 502 VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 01:10:59 UTC
From: Ron
Topic: 45787 Message: 45792

Ron KK4PWF

On Nov 8, 2013, at 5:31 PM, Don Allen <w9cw@...> wrote:

>
>
> Yes, it an 820 external VFO will work fine with the 520.
>
> Don W9CW
>
>
>
> On 11/8/2013 4:57 PM, bozo231@... wrote:
>> does anyone know if a remote 820 vfo will work on a 520
>>
>>
>> thanks Ron KK4PWF
>>
>
>
>
>

45793. Re: [TS-520_820_530_830] 502 VFO

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 01:12:05 UTC
From: Ron
Topic: 45787 Message: 45793

Ok thanks Don , just didn't want to ruin my remote vfo !!!!!!

Ron KK4PWF

On Nov 8, 2013, at 5:31 PM, Don Allen <w9cw@...> wrote:

>
>
> Yes, it an 820 external VFO will work fine with the 520.
>
> Don W9CW
>
>
>
> On 11/8/2013 4:57 PM, bozo231@... wrote:
>> does anyone know if a remote 820 vfo will work on a 520
>>
>>
>> thanks Ron KK4PWF
>>
>
>
>
>

45794. 520s and DG-5 questions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 02:34:36 UTC
From: <timothy.f.johnston@...>
Topic: 45794 Message: 45794

I have built a "clone" of the DG-5. I have also built the DDF2-520 display kit. I do not have a DG-5. I have noticed a "loading" effect on the S-meter when I connect either one. It will go up 3-4 s units upon connection. Does this happen with the DG-5 as well or should I investigate the input buffering?

K4TFJ
TS-520s

45795. Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 02:50:47 UTC
From: William Houghton
Topic: 45778 Message: 45795

Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
    Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45796. Re: [TS-520_820_530_830] 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 03:16:49 UTC
From: W5RKL
Topic: 6044 Message: 45796

No problem Ron.

The 520 final amplifier can be easily fixed, rewired back to it's original state. You MUST follow the 520 schematic. Use new 10 ohm 1 watt resistors in the cathode, a new 1/2 watt 3.3K meter multiplier resistors, and new 100 ohm 1/2 watt resistors for the SG circuit.

The pins on the 2 final tube sockets, as viewed from below the chassis, are oriented "clockwise". Look close at each pin on the bottom of the sockets, the pin numbers are usually stamped next to each pin. If you can't see them, look at the center "guide hole", there's a single tab. The tab points between pins 1 and 8. Pin 1 is just to the left of the tab.

A jumper wire must connect pin 1 on the front tube socket to pin 1 on the rear final tube socket. This puts both final tube cathodes in "parallel".

Pin 1 on both sockets should have a 1 watt 10 ohm resistor connected from pin 1 to ground (chassis). The 3.3K 1/2 watt meter multiplier resistors is connected from pin 1 to the tab on the terminal strip then a wire connects that tab to the meter switch "IP" position.

Pin 8 on both final tube sockets is connected to ground. Pin 8 on the final tube connects to the metal ring at the bottom of the 6146s so each of the tube socket's pin 8 is connected to the chassis (ground).

There are "six" .004ufd disc bypass capacitors to ground in the cathode circuit. This results in a total capacitance of .24ufd of cathode bypass capacitance. Bypass capacitors should have short leads to ground (chassis). Long bypass capacitor leads are not an option so make sure the bypass cap leads, when connected between the tube socket pins and ground are as short as possible. You may have to use insulation around the cap leads to prevent shorts.

Each SG tube socket pin 3 has a .01ufd bypass capacitor connected to the chassis.

A 100 ohm 1/2 watt resistor is connected to each socket's pin 3 (SG) and the other leads of the resistors are tied together then a wire connects that junction to the "SG" switch on the rear panel..

Both tube sockets should have a shorting wire connecting pins 1, 4, and 6. Pins 1 and 6 are the cathodes on each tube socket. Pin 4 is the tube socket's connection to the beam forming plates inside the 6146s. The beam forming plates AND the cathode are "negative" in respects to the plate which is what they should be and that's why there's a jumper wire connecting pins 1, 4, and 6 on each tube socket.

Filament voltage for the 6146s, 12VAC, comes from the HEATER switch and connects to pin 2 of the front final tube socket (V1). Pin 7 of V1 final tube socket connects to pin 2 of the rear final tube socket, V2, through a jumper wire. Pin 7 of V2 connects to ground. This completes the filament wiring for both tube sockets. There also should be a wire from pin 2 on V1 that connects to the RF Unit board's "H" terminal. This connection provides 12VAC for the 12BY7 driver tube.

All this wiring is clearly shown on the 520 schematic.

73
Mike W5RKL

On 11/8/2013 5:07 PM, bozo231@... wrote:
>
> Mike i know some of the remarks and measurements seemed way out of
> whack but u don't understand I am working on a radio that was sent to
> the radio junk yard the cathode wiring has been chopped all to hadies
> and tried to be put back without no success. i am determined to see
> this project thru and to learn the needed skills to repair this unit
> ,I respect your opinion, with due respect i am declining your request
> that I let a shop do it.
>
>
> KK4PWF Ron
>
>
> P.S> i am sure my discovery of this unit is not over but it will be a
> great unit to learn on !!!
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45797. Re: [TS-520_820_530_830] 520s and DG-5 questions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 03:42:52 UTC
From: Don Allen
Topic: 45794 Message: 45797

Tim,

I will check this on my TS-520S/DG-5 over the weekend. I'm knee-deep in a master bathroom remodel, and will check out the 520S interface ASAP, and get back to you with my findings.

73
Don W9CW

On 11/8/2013 8:34 PM, timothy.f.johnston@... wrote:
>
> I have built a "clone" of the DG-5. I have also built the DDF2-520
> display kit. I do not have a DG-5. I have noticed a "loading" effect
> on the S-meter when I connect either one. It will go up 3-4 s units
> upon connection. Does this happen with the DG-5 as well or should I
> investigate the input buffering?
>
>
> K4TFJ
> TS-520s
>

45798. RE: Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 04:02:36 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45798

Hi Terry,
I was using a Fluke 82RF HF probe that goes into my Fluke 189 set for DC. According to the specs: 0.25V at 10MHz in =0.25VDC out plus/minus 1.5dB. At 0.5V to 2.0V RF it is + - 0.5dB. It is all I have. But I could try doing it on my scope as you suggest. What is the downside if the level is off, but balanced? It seems to work very well on both receive & transmit. Dial alignment is quite good.

I put the 830 on the air tonite on 80M & got very good reports using a $10 hand mic & a Turner+3 hand mic. Everyone was impressed that it was up & running. It does have a little drift. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Bob

You cant adjust the 8.830mhz Carrier Osc to 0.31vdc. You adjust it to 0.31vac. Have to use RF probe and VTVM, RF millivolt meter, or an O-scope.

It is an AC signal at RF frequency. Whenever you see RF VTVM listed under the Test Equipment heading it tells you that you are measuring a high frequency AC signal.

Terry K9TW

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Hi Terry,
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It has been a great adventure working on this 830. I have had tube receivers (several Hammarlunds) but this is my first Hybrid transceiver. I appreciate the help & patience.

Still looking for an MC50 or if anyone has tried a Heil HM12 on their 830, I'd like to know how it worked out. - 73 Bob

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Bob

Any time what I say doesnt make sense or look correct please speak up. It also lets me know someone cares and is reading this stuff. No this was not a test!

Yes L19 and L20 are interactive and not easy until you get the hang of it. I recommend using an O-scope unless you have a good RF millivolt meter that can read 0.30v rms. On the scope you will be adjusting for 0.848 P-P in both LSB and USB. Remember to turn L20 CCW direction.

Plus or minus 1dB tolerance means a high of 337mv and a low of 267mv. This is 0.953 P-P to 0.755 P-P.

I think Gordon N6WK was one of the first in the group to help with this.

Terry K9TW

--TRIMMED..............

45799. RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 07:46:50 UTC
From: <n0dks1@...>
Topic: 45778 Message: 45799

Bob by any chance do you have the plate that go's over the control's on the side

of the TS- 520? If so what would you want for it ?

Dave n0dks

---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com http://qth.com/ under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45800. Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 10:54:08 UTC
From: Ron
Topic: 45778 Message: 45800

I'd like a control cover if u have one also

Ron KK4PWF

On Nov 9, 2013, at 2:46 AM, <n0dks1@...> wrote:

>
>
> Bob by any chance do you have the plate that go's over the control's on the side
>
> of the TS- 520? If so what would you want for it ?
>
>
>
> Dave n0dks
>
>
>
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:
>
> Bob,
>
> Any chance you have a nice front panel for a TS-520 (non-S)?
>
> From: Byron Tatum <bjtatum1@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Friday, November 8, 2013 6:31 AM
> Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced
>
> Hello-Do you have a nice cond TS-520S front panel?
> Byron WA5THJ
>
> From: "ke5ftf@..." <ke5ftf@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Friday, November 8, 2013 7:43 AM
> Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced
>
> I thought I would let the hybrid group know that I am reducing my prices on the 520 &
520S parts....
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> Thanks,
> Bob
> ************
>

>
>
>
>

45801. RE: RE: Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 11:35:37 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45801

OK just wanted to make sure you were not using a dc meter to try to measure RF.

Using a RF probe you are measuring the RF carrier voltage by rectifying it with a diode and filtering it and then reading the resulting dc voltage with a Fluke DMM set on a dc range. Your RF probe sees the peak of the ac voltage level.

I think you are quoting Fluke accuracy specs?

There is no problem using any of the three instruments I previously mentioned.

If you read 0.31vdc on your Fluke that means you were reading 0.31 x 1.414 or 0.41 peak RF (ac) volts.

All is fine.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

Hi Terry,
I was using a Fluke 82RF HF probe that goes into my Fluke 189 set for DC. According to the specs: 0.25V at 10MHz in =0.25VDC out plus/minus 1.5dB. At 0.5V to 2.0V RF it is + - 0.5dB. It is all I have. But I could try doing it on my scope as you suggest. What is the downside if the level is off, but balanced? It seems to work very well on both receive & transmit. Dial alignment is quite good.

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Bob

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Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

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---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Bob

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Terry K9TW

--TRIMMED.....

45802. RE: transisters

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 11:40:47 UTC
From: <wagstw46@...>
Topic: 45789 Message: 45802

Ron:

I think you have a typo and mean 2SA562 (Y). Can find these on eBay sometimes and can use a NTE sub.

Also curious why you need the 2SC450 (B). Are you saying the crystal oscillator Q2 buffer and Q3 amp is bad on FIX board?

Are you planning on operating fixed channel? Curious how you determined Q2 and Q3 are bad?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Bob do u have any2sa552(y) an 2sc450 (b) if u do how much for 2 or 4 of each thanks

Ron KK4PWF

45803. RE: 520s and DG-5 questions

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 11:52:38 UTC
From: <wagstw46@...>
Topic: 45794 Message: 45803

Does your Clone have a Cal output to the X-verter input on your TS520?

If so unplug that cable and see what happens to S-meter indication.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <timothy.f.johnston@...> wrote:

I have built a "clone" of the DG-5. I have also built the DDF2-520 display kit. I do not have a DG-5. I have noticed a "loading" effect on the S-meter when I connect either one. It will go up 3-4 s units upon connection. Does this happen with the DG-5 as well or should I investigate the input buffering?

K4TFJ
TS-520s

45804. Re: [TS-520_820_530_830] RE: transisters

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 12:15:17 UTC
From: Ron
Topic: 45789 Message: 45804

I would just like to have some spare ones to be sure. Is theQ9 a 2sa562(y) if so that's what I need Thanks Terry

Ron KK4PWF

On Nov 9, 2013, at 6:40 AM, <wagstw46@...> wrote:

>
>
> Ron:
>
>
>
> I think you have a typo and mean 2SA562 (Y). Can find these on eBay sometimes and can use a NTE sub.
>
>
>
> Also curious why you need the 2SC450 (B). Are you saying the crystal oscillator Q2 buffer and Q3 amp is bad on FIX board?
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>
>
>
> Terry K9TW
>
>
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> ---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
>
> Bob do u have any2sa552(y) an 2sc450 (b) if u do how much for 2 or 4 of each thanks
>
> Ron KK4PWF
>
>
>

45805. RE: Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 12:45:48 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45805

I should have been a little more exact in my statement. I knew the RF probe rectified the signal to enable the DVM to read. And yes those are Fluke specs. Thanx for the confirmation. 73 - Bob

--TRIMMED.....

45806. RE: Re: [TS-520_820_530_830] RE: transisters

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 12:53:09 UTC
From: <wagstw46@...>
Topic: 45789 Message: 45806

OK if you are just trying to get an inventory of spare active devices for your TS-820 then might want to start with those that are more likely to fail. Rather than just buying spares for all devices on a given board. Might ask on forum what are the more common failures.

Can also buy spare boards or a parts rig to harvest parts from. Easier to use NOS parts when you can find them.

Q9 relay switch would make my list. Here are couple more:

1. Q2 RF amp dual gate mosfet 3SK35 (GR) (most likely will have to sub)
2. Q7 AVR board Pass transistor 2SA496 (Y)
3. Q4 IF board meter FET 2SK19

Some 1N60 diodes (Scotts Electronics Crystal Radio Parts carries supply of NOS 1N60 and 1N270 diodes)

Power supply rectifier diodes and silicon switching diodes can be easily subbed.

Fortunately very seldom have any active device failures.

Others may have different experience?

A few folks reach for transistor and mosfet replacement but do so by guessing and hoping and not by troubleshooting and determining that the device has failed.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

I would just like to have some spare ones to be sure. Is theQ9 a 2sa562(y) if so that's what I need Thanks Terry

Ron KK4PWF

On Nov 9, 2013, at 6:40 AM, <wagstw46@... mailto:wagstw46@...> wrote:

Ron:

I think you have a typo and mean 2SA562 (Y). Can find these on eBay sometimes and can use a NTE sub.

Also curious why you need the 2SC450 (B). Are you saying the crystal oscillator Q2 buffer and Q3 amp is bad on FIX board?

Are you planning on operating fixed channel? Curious how you determined Q2 and Q3 are bad?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Bob do u have any2sa552(y) an 2sc450 (b) if u do how much for 2 or 4 of each thanks

Ron KK4PWF

45807. RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 14:17:41 UTC
From: <ke5ftf@...>
Topic: 45778 Message: 45807

I don't have any side covers at this time... Sorry.. :(
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

I'd like a control cover if u have one also

Ron KK4PWF

On Nov 9, 2013, at 2:46 AM, <n0dks1@... mailto:n0dks1@...> wrote:

Bob by any chance do you have the plate that go's over the control's on the side

of the TS- 520? If so what would you want for it ?

Dave n0dks

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
<rdrbill@...> wrote:

Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S
parts....
You can find my ads on QTH.com http://qth.com/ under the HF section, just do a Search on
KE5FTF...
Thanks,
Bob
****

45808. RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 14:20:41 UTC
From: <ke5ftf@...>
Topic: 45778 Message: 45808

I should have some nice front panels for the 520 & 520S, will have to find them...
Sell a nice one for $25 plus my cost to mail....
I'll look today...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com http://qth.com/ under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45809. RE: Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 15:03:47 UTC
From: <rrmvargo@...>
Topic: 45759 Message: 45809

As I thought more on your comment:

If you read 0.31vdc on your Fluke that means you were reading 0.31 x 1.414 or 0.41 peak RF (ac) volts.

I understand that, but the 830 spec: 0.3V in the alignment is RMS, is it not? Actually, it is not specified. According to to the Fluke 82RF documentation: 0.25 to 0.5 RMS @10MHz will translate to 0.25-0.5VDC +- 1.5dB (When the signal get to 0.5V, the accuracy improves to +-0.5dB). Therefore no conversion to peak is require, if my RMS premise is correct. Or do RF VTVM's only read in Peak, & therefore it is understood by default that it is a peak spec? 73 Bob

---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I should have been a little more exact in my statement. I knew the RF probe rectified the signal to enable the DVM to read. And yes those are Fluke specs. Thanx for the confirmation. 73 - Bob

--TRIMMED.....

45810. RE: RE: Whackamole continued...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 17:11:58 UTC
From: <wagstw46@...>
Topic: 45759 Message: 45810

Bob:

I dont know how that post happened. I did not intend to send.

Yes the value listed in the Service Manual is RMS. Your RF probe sees the peak so that is why you need to know and/or use the correct PIV rating for the signal diode. This is the only concern you should have when measuring any RF voltages in your rig. Your probe should caution you about the rf voltage measuring limit.

What this means is a typical single germanium diode probe is only good for approx 30rf volts so you can read up to the control grid on your Driver tube. Do not attempt to measure the RF voltage at plate of Driver Tube or at 6146 control grids as can burn out your probes diode.

Conversely the germanium diode barrier voltage is approx 250mv so cannot measure low level rf voltages like your TIF signal with it.

Disregard my last post. I thought I hit cancel but clearly did not.

Sorry about that.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

As I thought more on your comment:

If you read 0.31vdc on your Fluke that means you were reading 0.31 x 1.414 or 0.41 peak RF (ac) volts.

I understand that, but the 830 spec: 0.3V in the alignment is RMS, is it not? Actually, it is not specified. According to to the Fluke 82RF documentation: 0.25 to 0.5 RMS @10MHz will translate to 0.25-0.5VDC +- 1.5dB (When the signal get to 0.5V, the accuracy improves to +-0.5dB). Therefore no conversion to peak is require, if my RMS premise is correct. Or do RF VTVM's only read in Peak, & therefore it is understood by default that it is a peak spec? 73 Bob

---In ts-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I should have been a little more exact in my statement. I knew the RF probe rectified the signal to enable the DVM to read. And yes those are Fluke specs. Thanx for the confirmation. 73 - Bob

--TRIMMED.....

45811. RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 04:23:43 UTC
From: <hardedge@...>
Topic: 45778 Message: 45811

If not,
http://www.ebay.com/itm/KENWOOD-TS-520S-FRONT-BEZEL-/281201048799?pt=LH_DefaultDomain_0&hash=item4178e37cdf

It's eBay. Caveat Emptor.

-O'B.
ex-KA2MKI

---In ts-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com http://qth.com/ under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45812. Re: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 15:23:30 UTC
From: Byron Tatum
Topic: 45778 Message: 45812

OK Bob-
    Real fine. I would like to see if I could get an Audio Output board also. Would you accept 43.00 plus shipping for the two? Thanks, Byron

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 9, 2013 8:20 AM
Subject: RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I should have some nice front panels for the 520 & 520S, will have to find them...
Sell a nice one for $25 plus my cost to mail....
I'll look today...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:
Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
    Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....You can find my ads on QTH.com under the HF section, just do a Search on KE5FTF...Thanks,Bob**********

45813. TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 20:10:28 UTC
From: <wagstw46@...>
Topic: 45813 Message: 45813

Ron?Daniel

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By the picture and the board number it is. He just has it listed as VOX board.

Terry K9TW

45814. Re: [TS-520_820_530_830] TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 20:20:05 UTC
From: Joe - W7RKN
Topic: 45813 Message: 45814

Terry..what are you replying to? Please quote something from the 'replied to' message so we all can follow the thread...

Obviously, the topic title is a new post, as there is no RE: to refer back to.

Also, if you are going to report something on eBay, it is obvious you have been there, so why not make it easy on everybody and cut and paste that URL?

Thanks..

Joe - W7RKN
----- Original Message -----
From: wagstw46@...
Subject: [TS-520_820_530_830] TS820 FIX Board

Ron?Daniel

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By the picture and the board number it is. He just has it listed as VOX board.

45815. Re: [TS-520_820_530_830] TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 20:33:10 UTC
From: Joe - W7RKN
Topic: 45813 Message: 45815

http://www.ebay.com/itm/KENWOOD-TS-820-FIX-VOX-BOARD-X50-1350-00-UNTESTED-AS-IS-/321243089930?pt=US_Ham_Radio_Transceivers&hash=item4acb948c0a
----- Original Message -----
From: wagstw46@...
Subject: [TS-520_820_530_830] TS820 FIX Board

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By the picture and the board number it is. He just has it listed as VOX board.

45816. Re: [TS-520_820_530_830] TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 20:39:30 UTC
From: Joe - W7RKN
Topic: 45813 Message: 45816

And the one mentioned by Terry:

http://www.ebay.com/itm/Kenwood-TS-820S-VOX-Board-X50-1350-00-Working-Pull-Free-Ship-Con-US-/161094110659?pt=LH_DefaultDomain_0&hash=item2581f50dc3
----- Original Message -----
From: wagstw46@...
Subject: [TS-520_820_530_830] TS820 FIX Board

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By the picture and the board number it is. He just has it listed as VOX board.

45817. RE: Re: [TS-520_820_530_830] TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 20:46:43 UTC
From: <wagstw46@...>
Topic: 45813 Message: 45817

First trim my responses and know my post are too cryptic. Just have to give me an F on my report card. You would have been great on the Titanic arranging those deck chairs!

You would have to be living on Mars not to know that Ron and especially Daniel are working on TS820 FIX boards.

I am pretty confident they can find ebay and search on Kenwood TS820. Most folks refurbing hybrid rigs look there daily. I know I sure do.

When you can provide some constructive criticism of my KW hybrid technical responses and posts I will be glad to receive it. Never want to bum dope any of the fellows.

Ron/Daniel please contact me off list if you cannot find the FIX boards listed on Ebay.

Terry K9TW

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <w7rkn.7@...> wrote:

☐ Terry..what are you replying to? Please quote something from the 'replied to' message so we all can follow the thread...

Obviously, the topic title is a new post, as there is no RE: to refer back to.

Also, if you are going to report something on eBay, it is obvious you have been there, so why not make it easy on everybody and cut and paste that URL?

Thanks..

Joe - W7RKN
----- Original Message -----
From: wagstw46@... mailto:wagstw46@...
Subject: [TS-520_820_530_830] TS820 FIX Board

Ron?Daniel

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By the picture and the board number it is. He just has it listed as VOX board.

45818. Re: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 20:49:15 UTC
From: William Houghton
Topic: 45778 Message: 45818

Bob,

Please let me know what you find.

73,

Bill, WA6NEQ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 9, 2013 6:20 AM
Subject: RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I should have some nice front panels for the 520 & 520S, will have to find them...
Sell a nice one for $25 plus my cost to mail....
I'll look today...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote:

Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
    Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts....
You can find my ads on QTH.com under the HF section, just do a Search on KE5FTF...
Thanks,
Bob
****

45819. RE: Re: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 21:18:06 UTC
From: <ke5ftf@...>
Topic: 45778 Message: 45819

OK, $43 for the 520S front face & audio board....
I will ship by Priority Flat Rate mail for $12.00...
$55 total...
Let me know how you want to fund...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <bjtatum1@...> wrote:

OK Bob-
Real fine. I would like to see if I could get an Audio Output board also. Would you accept 43.00 plus shipping for the two? Thanks, Byron

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 9, 2013 8:20 AM
Subject: RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I should have some nice front panels for the 520 & 520S, will have to find them...
Sell a nice one for $25 plus my cost to mail....
I'll look today...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote: Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts.... You can find my ads on QTH.com http://qth.com/ under the HF section, just do a Search on KE5FTF... Thanks, Bob **********

45820. Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 22:02:42 UTC
From: kk6ezq
Topic: 45820 Message: 45820

Kenwood Group,

My rig arcs across somewhere near the wafers switches in the final cage. A little history...

I have some electronic technician experience, and have enjoyed restoring my inherited TS-820S. She has new finals, a new driver, a new brass band-shaft coupler.

Recently, when trying to tune-up for 10 meters using the MFJ dummy load on my antenna match, I heard a sound something like those snake type firecrackers make when burning - similar to the noise on 10 meters when the band is poor and the speaker volume is up.

I localized the arcing to an area around the wafer switch S4. I then purchased (thanks to K4EAA)and installed a new L1 rf choke, new C7 plate coupling capacitor, a new C8 plate choke bypas cap, and while I was at it new R2\3 10 ohm, and R5\6 100 ohm resistors.

The old resistors measured out-of-circuit: 10.7 and 10.7 ohms, and 104.2 and 111.2 ohms. A ball-park L1 measurement shows about 4 uH (should be 6.8 uH).

When I tested the new configuration I discovered I could tune fine, as before, to the lower bands - arcing returned at 7 MHz. I cleaned the contacts with the cheap Radio Shack spray and discovered I could tune to 7 MHz, but the arcing returned at 14 MHz.

At that point I decided I should consult the experts (you) before causing any more damage.

Steve
KK6EZQ

45821. Re: [TS-520_820_530_830] TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 00:05:32 UTC
From: <danweed85@...>
Topic: 45813 Message: 45821

Thanks Terry, I think Ill give the transistor swap a try first, I did see the board on ebay and it was tempting, but I managed to find a HP1740a 100mhz scope for 108$ and I think im going to wait to install the transistors till after I get the scope so I can really trouble shoot the problem. It really helping me learn. So thanks again for all your help you've great.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

First trim my responses and know my post are too cryptic. Just have to give me an F on my report card. You would have been great on the Titanic arranging those deck chairs!

You would have to be living on Mars not to know that Ron and especially Daniel are working on TS820 FIX boards.

I am pretty confident they can find ebay and search on Kenwood TS820. Most folks refurbing hybrid rigs look there daily. I know I sure do.

When you can provide some constructive criticism of my KW hybrid technical responses and posts I will be glad to receive it. Never want to bum dope any of the fellows.

Ron/Daniel please contact me off list if you cannot find the FIX boards listed on Ebay.

Terry K9TW

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <w7rkn.7@...> wrote:

☐ Terry..what are you replying to? Please quote something from the 'replied to' message so we all can follow the thread...

Obviously, the topic title is a new post, as there is no RE: to refer back to.

Also, if you are going to report something on eBay, it is obvious you have been there, so why not make it easy on everybody and cut and paste that URL?

Thanks..

Joe - W7RKN
----- Original Message -----
From: wagstw46@... mailto:wagstw46@...
Subject: [TS-520_820_530_830] TS820 FIX Board

Ron?Daniel

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By

the picture and the board number it is. He just has it listed as VOX board.

45822. ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-09 22:33:55 UTC
From: <tomdulisch@...>
Topic: 45822 Message: 45822

Greetings.
New to the group and I need help with a TS-580S that until recently has been performing flawlessly.
Rig operates fine in CW position. Runs 110 watts out
into a dummy load, and indicates RF output on the rigs meter
and external wattmeter. Load and dip is normal.

In USB or LSB mode, there is zero output indicated on both
the rig meter RF position and external wattmeter. The
rigs meter goes to full deflection in the ALC position when
either the mic is keyed or even without a mic when the
send/rec switch is set to the send position.
Bias current is set at 60 ma, plate voltage slightly over
800vdc.
I have cleaned switch and contacts on the relay, replaced the driver tube.
There are no visibly burned components.

There is no connection to the remote connector or outboard
VFO. SG switch is in the on position.

Currently my only test equipment is a digital VOM.
Any clues would be appreciated.

Tom
WA9TDD

45823. RE: ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 02:44:39 UTC
From: <tomdulisch@...>
Topic: 45822 Message: 45823

Sorry, dyslexia ya know. The rig is a TS-820 S

---In TS-520_820_530_830@yahoogroups.com, <tomdulisch@...> wrote:

Greetings. New to the group and I need help with a TS-580S that until recently has been performing flawlessly.
Rig operates fine in CW position. Runs 110 watts out
into a dummy load, and indicates RF output on the rigs meter
and external wattmeter. Load and dip is normal.

In USB or LSB mode, there is zero output indicated on both
the rig meter RF position and external wattmeter. The
rigs meter goes to full deflection in the ALC position when
either the mic is keyed or even without a mic when the
send/rec switch is set to the send position.
Bias current is set at 60 ma, plate voltage slightly over
800vdc.
I have cleaned switch and contacts on the relay, replaced the driver tube.
There are no visibly burned components.

There is no connection to the remote connector or outboard
VFO. SG switch is in the on position.

Currently my only test equipment is a digital VOM.
Any clues would be appreciated.

Tom
WA9TDD

45824. RE: Re: [TS-520_820_530_830] TS820 FIX Board

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 13:03:34 UTC
From: <wagstw46@...>
Topic: 45813 Message: 45824

OK learning to use a scope will be a big asset to you for troubleshooting these rigs. 100 mhz BW is good and you will now be able to look at low rf level signals like the Carrier in and out of xtal filters and the TIF signal. Hopefully it came with probes.

Have fun
Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <danweed85@...> wrote:

Thanks Terry, I think Ill give the transistor swap a try first, I did see the board on ebay and it was tempting, but I managed to find a HP1740a 100mhz scope for 108$ and I think im going to wait to install the transistors till after I get the scope so I can really trouble shoot the problem. It really helping me learn. So thanks again for all your help you've great.

Daniel

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

First trim my responses and know my post are too cryptic. Just have to give me an F on my report card. You would have been great on the Titanic arranging those deck chairs!

You would have to be living on Mars not to know that Ron and especially Daniel are working on TS820 FIX boards.

I am pretty confident they can find ebay and search on Kenwood TS820. Most folks refurbing hybrid rigs look there daily. I know I sure do.

When you can provide some constructive criticism of my KW hybrid technical responses and posts I will be glad to receive it. Never want to bum dope any of the fellows.

Ron/Daniel please contact me off list if you cannot find the FIX boards listed on Ebay.

Terry K9TW

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <w7rkn.7@...> wrote:

☐ Terry..what are you replying to? Please quote something from the 'replied to' message so we all can follow the thread...

Obviously, the topic title is a new post, as there is no RE: to refer back to.

Also, if you are going to report something on eBay, it is obvious you have been there, so why not make it easy on everybody and cut and paste that URL?

Thanks..

Joe - W7RKN
----- Original Message -----
From: wagstw46@... mailto:wagstw46@...
Subject: [TS-520_820_530_830] TS820 FIX Board

Ron?Daniel

There is a TS820 FIX board listed on Ebay now. It is incorrectly listed as a VOX board. The guy is asking 35.00 shipped. You might write him to confirm that it is the FIX board. By the picture and the board number it is. He just has it listed as VOX board.

45825. RE: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 14:14:32 UTC
From: <wagstw46@...>
Topic: 45820 Message: 45825

Not trying to be picky but you are citing component designators and values from the KW TS830 schematic from Kens website. Not the same as your TS820 components, but I get the idea.

As to L1 being 4uhy vs 6.8uhy you are OK with that value. Your schematic should call it out as a 3 uhy choke. The inductance is not too critical. The series resonance is more important for it to function as a vhf parasitic choke. My guess is there is nothing wrong with it however since it has many hours on it then I would replace it while installing one of Kens kits.

L1 serves two funcitons:
1 VHF parasitic choke
2. It provides additional series inductance for the main choke to provide enough reactance to facilitate 160 meter operation. Very hard to design a solenoid wound choke that can present enough XL across the band ratio that the Hybrids present. If you wound that additional inductance on the main choke likely would move a series resonant hole into the range and burn up the choke. One way to add the needed inductance and not move series resonant hole would be to space wind the choke on the big choke form, but then the choke would be too tall for the PA cage height limitations. So KW used the trick that 160 meter linear amp builders use and that is to insert another smaller choke is series with the big choke and place it at base of big choke and orient it at a right angle to reduce the "mutual coupling". That is called "orthogonally" and this is thrown in for free!

If interested see old ARRL Handbook for inductors and mutual coupling. More of that W5RKL fundamental stuff.

As to your PA cage arcing. First of all BE VERY CAREFUL trying to identify the location of this arcing inside the PA cage as you will be working in very close proximity to 900 vdc. Dont want to make any hand contact or drop tools or flashlite into the cage.

Couple of things come to mind
1. Fixed padder cap breaking down (in stack under plate load cap)
2. Bad L4 470uhy "safety inductor" in shunt with Plate Loading capacitor. You will see it depicted close to RL-1 TR relay on your schematic. It would be rare for it to fail. A visual may reveal signs of overheating?

L4 serves two purposes:
1. It is there to blow the transformer primary fuse if C1 Plate blocking/coupling capacitor should fail. You dont want 900vdc applied to your Pi-network, output of your SO-239 connector, your antenna coax or worse your fingers.

2. L4 also serves to prevent your tank capacitor from charging to peak of the anode voltage. It is a DC ground return. If you look at the schematic you will see that C1 .001 3KV cap is in series with the 200pf Tank cap. The tank cap is in parallel with the Load cap. So you have a capacitive voltage divider for DC voltage. Depending on how far the plates of both air variables are meshed will determine the dc voltage divider ratio. Assuming approx max capacitance then this capacitive divider of .001uf to .0018uf will

charge to the peak of 900vdc x 1.414 = 1272vdc. This ratio of capacitance will result in approx 636vdc charge across the tank and load caps. The tank cap should handle that as it is wide spaced, but the load cap cannot and perhaps the bandswitch contacts that are fed from tank coil taps cannot?

Anyway I have never see a bad safety choke in any KW hybrid. Have seen them missing. Worth checking it. If you have a LCR bridge can lift one end and measure it. Per the Service manual it is 470uhy. I have never measured one.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <kk6ezq@...> wrote:

Kenwood Group,

My rig arcs across somewhere near the wafers switches in the final cage. A little history...

I have some electronic technician experience, and have enjoyed restoring my inherited TS-820S. She has new finals, a new driver, a new brass band-shaft coupler.

Recently, when trying to tune-up for 10 meters using the MFJ dummy load on my antenna match, I heard a sound something like those snake type firecrackers make when burning - similar to the noise on 10 meters when the band is poor and the speaker volume is up.

I localized the arcing to an area around the wafer switch S4. I then purchased (thanks to K4EAA)and installed a new L1 rf choke, new C7 plate coupling capacitor, a new C8 plate choke bypas cap, and while I was at it new R2\3 10 ohm, and R5\6 100 ohm resistors.

The old resistors measured out-of-circuit: 10.7 and 10.7 ohms, and 104.2 and 111.2 ohms. A ball-park L1 measurement shows about 4 uH (should be 6.8 uH).

When I tested the new configuration I discovered I could tune fine, as before, to the lower bands - arcing returned at 7 MHz. I cleaned the contacts with the cheap Radio Shack spray and discovered I could tune to 7 MHz, but the arcing returned at 14 MHz.

At that point I decided I should consult the experts (you) before causing any more damage.

Steve
KK6EZQ

45826. Group rules on thread length

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 15:50:09 UTC
From: Mike
Topic: 45826 Message: 45826

There has been some complaints from members about the use of proper "email etiquette" where threads are not being trimmed. There is/are no group rules that require threads to be trimmed.

I will say this about long threads, they preserves the "history" of a problem which includes the symptoms, steps taken to isolate and identify the source of the problem, and the steps taken to fix the problem including components identified and replaced. It also identifies steps that should not be taken and/or components that are not part of the problem. A long thread is also a learning tool for those members who are learning to troubleshoot problems or are experiencing similar problems with/in their KW hybrids.

The bottom line is, whether a member trims their response or not is entirely up to that member. Therefore, if you don't like or care for long threads then simply don't read them, it's that simple.

73
Mike W5RKL
TS-520_TS-820_TS-530_TS-830 Moderator

45827. Re: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 17:42:49 UTC
From: kk6ezq
Topic: 45820 Message: 45827

Terry,

You are not being picky - just accurate. And that is exactly why your posts are so valuable.

Thank-you for the caution about high voltage. I always unplug the unit and discharge through some hefty resistors the anodes of the finals, and am careful around any components that may be holding a charge.

I read with interest the explanations of why L1 is separate, and the purpose of L4. Both descriptions help to appreciate the engineering that went into the Kenwood products, and provide insight to newbies like me on how things work.

I inspected L4 - no signs of overheating or arcing. I would like to test to see if the padding cap is breaking down. The cap is tucked under the variable loading cap - and not very accessable.

Question: Would I damage the unit by disconnecting the fixed padding cap for testing?

--- In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
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> Steve
> KK6EZQ
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45828. RE: Re: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 19:20:57 UTC
From: <wagstw46@...>
Topic: 45820 Message: 45828

Steve:

Well if you disconnect padder caps (from either the Plate or Load cap) then you wont be able to tune to resonance on the related bands. I think you can get a better view of this arcing if it is happening below the Load cap if you remove the fan and look thru that opening.

Does the arcing occur as you adjust either the Plate or the Load capacitor or both capacitors? Does it do it at same place in the rotation?

It is normally easier to damage the Load capacitor due to its close plate spacing.

Sometimes once the Load capacitor (3 gang close spaced one) has arced over from movable plate to fixed plate it will keep arcing over with RF as it has raised metal at the location where the arc occurred and each time you rotate plates past that same place the plate spacing is now much closer and it is now easier to arc over at that spot.

Another thing you can do is go to Jim Showkers website at HybridRestore and read his test procedure for measuring the final cage capacitors at each band switch setting. If a padder cap is breaking down I would think the capacitance value would have to be affected.

It sounds like you confirmed that the safety choke is there and not discolored so not likely the problem.

Terry K9TW

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Terry,

You are not being picky - just accurate. And that is exactly why your posts are so valuable.

Thank-you for the caution about high voltage. I always unplug the unit and discharge through some hefty resistors the anodes of the finals, and am careful around any components that may be holding a charge.

I read with interest the explanations of why L1 is separate, and the purpose of L4. Both descriptions help to appreciate the engineering that went into the Kenwood products, and provide insight to newbies like me on how things work.

I inspected L4 - no signs of overheating or arcing. I would like to test to see if the padding cap is breaking down. The cap is tucked under the variable loading cap - and not very accessable.

Question: Would I damage the unit by disconnecting the fixed padding cap for testing?

--- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

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> ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <kk6ezq@> wrote:
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> My rig arcs across somewhere near the wafers switches in the final cage. A little history...
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> Steve
> KK6EZQ
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45829. RE: RE: ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 19:31:22 UTC
From: <wagstw46@...>
Topic: 45822 Message: 45829

Tom I did not see any responses?

Does it do this with the Mic gain turned all the way down and is the VOX off?

When you say full scale do you mean full scale deflection ie on the peg or full scale within the black printed ALC range on the meter face?

Did you try placing the meter in RF or IP and with a mic connected and mic gain turned up to say 1100 if you speak into the mic you will get RF output? Have to have audio input to the Balanced Modulator for RF output.

If this works you can adjust the mic gain to give you no more than about 1/4 to 1/3 of your 110 watts output on voice peaks (approx 25 to 30 watts) and use the rig until you can trouble shoot and fix the ALC indication issue.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <tomdulisch@...> wrote:

Sorry, dyslexia ya know. The rig is a TS-820 S

---In TS-520_820_530_830@yahoogroups.com, <tomdulisch@...> wrote:

Greetings. New to the group and I need help with a TS-580S that until recently has been performing flawlessly.
Rig operates fine in CW position. Runs 110 watts out
into a dummy load, and indicates RF output on the rigs meter
and external wattmeter. Load and dip is normal.

In USB or LSB mode, there is zero output indicated on both
the rig meter RF position and external wattmeter. The
rigs meter goes to full deflection in the ALC position when
either the mic is keyed or even without a mic when the
send/rec switch is set to the send position.
Bias current is set at 60 ma, plate voltage slightly over
800vdc.
I have cleaned switch and contacts on the relay, replaced the driver tube.
There are no visibly burned components.

There is no connection to the remote connector or outboard
VFO. SG switch is in the on position.

Currently my only test equipment is a digital VOM.
Any clues would be appreciated.

Tom
WA9TDD

45830. RE: RE: Re: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 19:41:41 UTC
From: <wagstw46@...>
Topic: 45820 Message: 45830

Steve:

This is probably intuitive but if you remove the fan you will need to set up a mirror to observe for arcing in the space below the Load cap as you load the rig.

Better would be to get someone who is experienced loading the rig to "drive" while you observe from behind. Might even leave the PA cage top cover on or place stiff cardboard over it so you are looking in to a darkened space.

Again be very careful.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

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choke bypas cap, and while I was at it new R2\3 10 ohm, and R5\6 100 ohm resistors.
>
> The old resistors measured out-of-circuit: 10.7 and 10.7 ohms, and 104.2 and 111.2 ohms. A ball-park L1 measurement shows about 4 uH (should be 6.8 uH).
>
> When I tested the new configuration I discovered I could tune fine, as before, to the lower bands - arcing returned at 7 MHz. I cleaned the contacts with the cheap Radio Shack spray and discovered I could tune to 7 MHz, but the arcing returned at 14 MHz.
>
> At that point I decided I should consult the experts (you) before causing any more damage.
>
> Steve
> KK6EZQ
>

45831. Re: [TS-520_820_530_830] Group rules on thread length

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 19:19:50 UTC
From: Steve Baer
Topic: 45826 Message: 45831

Thank-you Mike. I often 'catch-up' on topics at the end of a busy week by selecting the last post on a topic, and starting from the bottom. The 'history' is indeed important! Good to know you share that view!

Steve
KK6EZQ

On Nov 10, 2013, at 7:50 AM, Mike <w5rkl@...> wrote:

> There has been some complaints from members about the use of proper "email etiquette" where threads are not being trimmed. There is/are no group rules that require threads to be trimmed.
>
> I will say this about long threads, they preserves the "history" of a problem which includes the symptoms, steps taken to isolate and identify the source of the problem, and the steps taken to fix the problem including components identified and replaced. It also identifies steps that should not be taken and/or components that are not part of the problem. A long thread is also a learning tool for those members who are learning to troubleshoot problems or are experiencing similar problems with/in their KW hybrids.
>
> The bottom line is, whether a member trims their response or not is entirely up to that member. Therefore, if you don't like or care for long threads then simply don't read them, it's that simple.
>
>
> 73
> Mike W5RKL
> TS-520_TS-820_TS-530_TS-830 Moderator
>
>
>
>
>

45832. TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 19:18:11 UTC
From: <sv2dfu@...>
Topic: 45832 Message: 45832

Hi, my name is Pete, location Greece and I am relatively new to hybrids and to this forum.
Was wondering if there are any designs or ideas out there, about building a tuner suitable for a TS-830s?
Are there any guidelines about this?
In case this subject has been already covered, I apologize. This new Yahoo Groups look is anything but user friendly..
Is there a 'search forum' option somewhere?

Regards

Peter

45833. Re: [TS-520_820_530_830] Group rules on thread length

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 21:41:05 UTC
From: Gordon JC Pearce
Topic: 45826 Message: 45833

On Sun, Nov 10, 2013 at 09:50:09AM -0600, Mike wrote:

> I will say this about long threads, they preserves the "history" of
> a problem which includes the symptoms, steps taken to isolate and
> identify the source of the problem, and the steps taken to fix the
> problem including components identified and replaced. It also
> identifies steps that should not be taken and/or components that are
> not part of the problem. A long thread is also a learning tool for
> those members who are learning to troubleshoot problems or are
> experiencing similar problems with/in their KW hybrids.

But what you end up with is an exponentially-growing message, with random bits top-posted in, and it ends up being hard to read and not really making sense.

On mailing lists, we trim excess text from replies. It's just the way it's done. You know the big long thread about the correct way to tune your transmitter? You know how it's drummed into you that you don't tune up initially into the aerial, you tune up into a dummy load? Same thing. It's just the way we do it on the Internet.

--
Gordonjcp MM0YEQ

45834. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 21:46:25 UTC
From: Gordon JC Pearce
Topic: 45832 Message: 45834

On Sun, Nov 10, 2013 at 11:18:11AM -0800, sv2dfu@... wrote:
> Was wondering if there are any designs or ideas out there, about building a tuner suitable for a TS-830s?

If you build a Carolina Windom it will load up just fine on 40, 20, 15 and 10m without an additional tuner. Bear in mind that the pi network on the output of a valve PA is basically an ATU that expects to match a very high impedance (some thousands of ohms) to a very low (tens to hundreds).

If you're only interested in one or two bands then just make wire dipoles. At the moment my Windom is down and I've just got a dipole up for 40m - which of course loads up not too badly on 15m.

> Is there a 'search forum' option somewhere?

There was, but Yahoo! broke it.

--
Gordonjcp MM0YEQ

45835. RE: RE: RE: ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 20:17:34 UTC
From: <tomdulisch@...>
Topic: 45822 Message: 45835

Terry,
Thanks for the reply. I meant that the meter pegged all the way to the right on the ALC setting. There was no difference regardless of where the mic setting was, and yes the VOX was off. I did not get any indicated output in the RF setting. I think I may have solved the problem (hopefully).I I pulled all of the plugs that interconnect the boards and cleaned them, then worked them on and off a few times. The rig is currently behaving itself, I am running the mic gain at #1 position and getting 20 watts output on the peaks. I am thinking that this was 30 some odd years of oxidation on the interconnections. Thanks!
73s
Tom

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Tom I did not see any responses?

Does it do this with the Mic gain turned all the way down and is the VOX off?

When you say full scale do you mean full scale deflection ie on the peg or full scale within the black printed ALC range on the meter face?

Did you try placing the meter in RF or IP and with a mic connected and mic gain turned up to say 1100 if you speak into the mic you will get RF output? Have to have audio input to the Balanced Modulator for RF output.

If this works you can adjust the mic gain to give you no more than about 1/4 to 1/3 of your 110 watts output on voice peaks (approx 25 to 30 watts) and use the rig until you can trouble shoot and fix the ALC indication issue.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <tomdulisch@...> wrote:

Sorry, dyslexia ya know. The rig is a TS-820 S

---In TS-520_820_530_830@yahoogroups.com, <tomdulisch@...> wrote:

Greetings. New to the group and I need help with a TS-580S that until recently has been performing flawlessly.
Rig operates fine in CW position. Runs 110 watts out
into a dummy load, and indicates RF output on the rigs meter
and external wattmeter. Load and dip is normal.

In USB or LSB mode, there is zero output indicated on both
the rig meter RF position and external wattmeter. The
rigs meter goes to full deflection in the ALC position when
either the mic is keyed or even without a mic when the
send/rec switch is set to the send position.
Bias current is set at 60 ma, plate voltage slightly over

800vdc.
I have cleaned switch and contacts on the relay, replaced the driver tube.
There are no visibly burned components.

There is no connection to the remote connector or outboard
VFO. SG switch is in the on position.

Currently my only test equipment is a digital VOM.
Any clues would be appreciated.

Tom
WA9TDD

45836. Re: [TS-520_820_530_830] Group rules on thread length

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 22:41:25 UTC
From: Mike
Topic: 45826 Message: 45836

As I said, it's entirely up to the person/member posting their response whether they want to include previous information or remove/trim it in their responses. I also stated that any member who doesn't like/care for long messages they don't have to read them, it's that simple.

73
Mike W5RKL

On 11/10/2013 3:41 PM, Gordon JC Pearce wrote:
>
> On Sun, Nov 10, 2013 at 09:50:09AM -0600, Mike wrote:
>
> > I will say this about long threads, they preserves the "history" of
> > a problem which includes the symptoms, steps taken to isolate and
> > identify the source of the problem, and the steps taken to fix the
> > problem including components identified and replaced. It also
> > identifies steps that should not be taken and/or components that are
> > not part of the problem. A long thread is also a learning tool for
> > those members who are learning to troubleshoot problems or are
> > experiencing similar problems with/in their KW hybrids.
>
> But what you end up with is an exponentially-growing message, with
> random bits top-posted in, and it ends up being hard to read and not
> really making sense.
>
> On mailing lists, we trim excess text from replies. It's just the way
> it's done. You know the big long thread about the correct way to tune
> your transmitter? You know how it's drummed into you that you don't
> tune up initially into the aerial, you tune up into a dummy load? Same
> thing. It's just the way we do it on the Internet.
>
> --
> Gordonjcp MM0YEQ
>
>

45837. Re: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 22:57:01 UTC
From: clifford wright
Topic: 45832 Message: 45837

Hi Peter. Well I use my TS820S on all bands from 3.5 to 24 MHz .
My antenna is a G5RV (102 ft top with 38 ft of open wire feeders) to the shack.
My favourite antenna tuner is definitely the Z match. You can find several versions on line.
But after a lot of testing I finally went for a single coil version.
This gives over 90% efficiency
and the only band it can be a bit difficult on is 10.1 MHz where a small 1.5uH coil in series with one of the feeders cures any problems. With that I can get a virtual 1:1 SWR on all bands and my rig always sees a nice 50 Ohm load.
Windoms I have tried but you can get a lot of RF in the shack on some bands and the SWR is rarely (if ever) that close to unity.
Even dipoles have the old problem of an unbalanced feeder (coax) feeding a balanced antenna, so you still might need a balun.
The Z match is inherently a unbalanced to balanced network and open wire feeder is cheap and easy to make yourself.
73 ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45838. Re: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-10 23:03:31 UTC
From: kk6ezq
Topic: 45820 Message: 45838

Terry,

I was able to observe the general area of the arcing. It is on one of the wafer switches near the bottom of the cage and near the side of the cage near the HVT. I also noticed some carbon on the front of the wafer switch near the main choke.

I plan on taking lots of pictures and disassembling to allow for closer inspection and cleaning (replacement?) of some or all of the S4 contacts. Will probably replace all caps while there.

I am only able to work on the unit near the end of the week so it will be awhile until I have any results to report.

Thanks for the valued input! Include me as another group member who has benefited from your experiences!

73'
Steve
KK6EZQ

--- In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Steve:
>
>
> This is probably intuitive but if you remove the fan you will need to set up a mirror to observe for arcing in the space below the Load cap as you load the rig.
>
>
> Better would be to get someone who is experienced loading the rig to "drive" while you observe from behind. Might even leave the PA cage top cover on or place stiff cardboard over it so you are looking in to a darkened space.
>
>
> Again be very careful.
>
>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <wagstw46@> wrote:
>
> Steve:
>
>
> Well if you disconnect padder caps (from either the Plate or Load cap) then you wont be

able to tune to resonance on the related bands. I think you can get a better view of this arcing if it is happening below the Load cap if you remove the fan and look thru that opening.
>
>
> Does the arcing occur as you adjust either the Plate or the Load capacitor or both capacitors? Does it do it at same place in the rotation?
>
>
> It is normally easier to damage the Load capacitor due to its close plate spacing.
>
>
> Sometimes once the Load capacitor (3 gang close spaced one) has arced over from movable plate to fixed plate it will keep arcing over with RF as it has raised metal at the location where the arc occurred and each time you rotate plates past that same place the plate spacing is now much closer and it is now easier to arc over at that spot.
>
>
> Another thing you can do is go to Jim Showkers website at HybridRestore and read his test procedure for measuring the final cage capacitors at each band switch setting. If a padder cap is breaking down I would think the capacitance value would have to be affected.
>
>
> It sounds like you confirmed that the safety choke is there and not discolored so not likely the problem.
>
>
> Terry K9TW
>
>
>
>
>
>
>
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <kk6ezq@> wrote:
>
> Terry,
>
> You are not being picky - just accurate. And that is exactly why your posts are so valuable.
>
> Thank-you for the caution about high voltage. I always unplug the unit and discharge through some hefty resistors the anodes of the finals, and am careful around any components that may be holding a charge.
>
> I read with interest the explanations of why L1 is separate, and the purpose of L4. Both descriptions help to appreciate the engineering that went into the Kenwood products, and provide insight to newbies like me on how things work.

>
> I inspected L4 - no signs of overheating or arcing. I would like to test to see if the padding cap is breaking down. The cap is tucked under the variable loading cap - and not very accessable.
>
> Question: Would I damage the unit by disconnecting the fixed padding cap for testing?
>
> --- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <wagstw46@> wrote:
> >
> > Not trying to be picky but you are citing component designators and values from the KW TS830 schematic from Kens website. Not the same as your TS820 components, but I get the idea.
> >
> >
> > As to L1 being 4uhy vs 6.8uhy you are OK with that value. Your schematic should call it out as a 3 uhy choke. The inductance is not too critical. The series resonance is more important for it to function as a vhf parasitic choke. My guess is there is nothing wrong with it however since it has many hours on it then I would replace it while installing one of Kens kits.
> >
> >
> > L1 serves two funcitons:
> > 1 VHF parasitic choke
> > 2. It provides additional series inductance for the main choke to provide enough reactance to facilitate 160 meter operation. Very hard to design a solenoid wound choke that can present enough XL across the band ratio that the Hybrids present. If you wound that additional inductance on the main choke likely would move a series resonant hole into the range and burn up the choke. One way to add the needed inductance and not move series resonant hole would be to space wind the choke on the big choke form, but then the choke would be too tall for the PA cage height limitations. So KW used the trick that 160 meter linear amp builders use and that is to insert another smaller choke is series with the big choke and place it at base of big choke and orient it at a right angle to reduce the "mutual coupling". That is called "orthogonally" and this is thrown in for free!
> >
> >
> > If interested see old ARRL Handbook for inductors and mutual coupling. More of that W5RKL fundamental stuff.
> >
> >
> > As to your PA cage arcing. First of all BE VERY CAREFUL trying to identify the location of this arcing inside the PA cage as you will be working in very close proximity to 900 vdc. Dont want to make any hand contact or drop tools or flashlite into the cage.
> >
> >
> > Couple of things come to mind
> > 1. Fixed padder cap breaking down (in stack under plate load cap)
> > 2. Bad L4 470uhy "safety inductor" in shunt with Plate Loading capacitor. You will see it depicted close to RL-1 TR relay on your schematic. It would be rare for it to fail. A visual may reveal signs of overheating?

> >
> >
> > L4 serves two purposes:
> > 1. It is there to blow the transformer primary fuse if C1 Plate blocking/coupling capacitor should fail. You dont want 900vdc applied to your Pi-network, output of your SO-239 connector, your antenna coax or worse your fingers.
> >
> >
> > 2. L4 also serves to prevent your tank capacitor from charging to peak of the anode voltage. It is a DC ground return. If you look at the schematic you will see that C1 .001 3KV cap is in series with the 200pf Tank cap. The tank cap is in parallel with the Load cap. So you have a capacitive voltage divider for DC voltage. Depending on how far the plates of both air variables are meshed will determine the dc voltage divider ratio. Assuming approx max capacitance then this capacitive divider of .001uf to .0018uf will charge to the peak of 900vdc x 1.414 = 1272vdc. This ratio of capacitance will result in approx 636vdc charge across the tank and load caps. The tank cap should handle that as it is wide spaced, but the load cap cannot and perhaps the bandswitch contacts that are fed from tank coil taps cannot?
> >
> >
> > Anyway I have never see a bad safety choke in any KW hybrid. Have seen them missing. Worth checking it. If you have a LCR bridge can lift one end and measure it. Per the Service manual it is 470uhy. I have never measured one.
> >
> >
> > Terry K9TW
> >
> >
> > ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <kk6ezq@> wrote:
> >
> > Kenwood Group,
> >
> > My rig arcs across somewhere near the wafers switches in the final cage. A little history...
> >
> > I have some electronic technician experience, and have enjoyed restoring my inherited TS-820S. She has new finals, a new driver, a new brass band-shaft coupler.
> >
> > Recently, when trying to tune-up for 10 meters using the MFJ dummy load on my antenna match, I heard a sound something like those snake type firecrackers make when burning - similar to the noise on 10 meters when the band is poor and the speaker volume is up.
> >
> > I localized the arcing to an area around the wafer switch S4. I then purchased (thanks to K4EAA)and installed a new L1 rf choke, new C7 plate coupling capacitor, a new C8 plate choke bypas cap, and while I was at it new R2\3 10 ohm, and R5\6 100 ohm resistors.
> >
> > The old resistors measured out-of-circuit: 10.7 and 10.7 ohms, and 104.2 and 111.2 ohms. A ball-park L1 measurement shows about 4 uH (should be 6.8 uH).
> >

> > When I tested the new configuration I discovered I could tune fine, as before, to the lower bands - arcing returned at 7 MHz. I cleaned the contacts with the cheap Radio Shack spray and discovered I could tune to 7 MHz, but the arcing returned at 14 MHz.
> >
> > At that point I decided I should consult the experts (you) before causing any more damage.
> >
> > Steve
> > KK6EZQ
> >
>

45839. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 06:21:14 UTC
From: Craig Roberts
Topic: 45832 Message: 45839

Hello Peter,

I have been using a 55' (16.75 meter) long doublet fed with 600 ohm ladder line. It worked fine with the simple Kenwood AT-230 antenna tuner on most bands from 40 - 10 meters. However, the doublet antenna works much better with a tuner I built as described in a February, 1990 article in QST by Richard Measures called "A Balanced Balanced Antenna Tuner." If you are a member of the ARRL, you can download the article from their QST archives. I you are not a member of the ARRL, I will be happy to mail a PDF version of the article to you.

VY 73,

Craig
W3CRR

45840. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 08:27:00 UTC
From: Wes Will
Topic: 45832 Message: 45840

On 11/11/2013 12:21 AM, Craig Roberts wrote:
>
>
> Hello Peter,
>
> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
> ladder line. It worked fine with the simple Kenwood AT-230 antenna
> tuner on most bands from 40 - 10 meters. However, the doublet antenna

I am in the way of needing some form of antenna which might be so well hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS Waffen (Also known as a "Home Owner's Association) cannot complain of its existence.

The Ham in question is in the Carolinas, the house is currently under construction, and they're going to be moving in January or February.

The problem is that the roof contractor has placed some foam insulation boards on the underside of the actual sheathing of the roof. (Betweeb the trusses and the deck boards to which the shingles will be nailed.) That would present no real problem except that the foam boards are laminated with a fairly thick layer of aluminum foil.

The attic where we were going to install an antenna has been effectively turned into a Faraday Cage. Not a perfect one, as the individual bat of foam/foil composite are not bonded together and the entire thing grounded. But initial checks in completed portions of the attic by a local ham with a field strength meter show a marked decrease in RF compared to the uncompleted portions of the attic still open to the sky. About 80 percent signal loss, is what he told me.

Short of removing the shingles, decking, and ripping the foil off of the foam boards already placed (the roof was over three-fourths finished as of Friday evening last), is there something which can be recommended for her antenna installation?

Money is not a big deal, within reason here. (The re-roofing would be cost-prohibitive; some sort of commercial antenna with a decent tuner would NOT be out of the question.)

The antenna will be used mostly in the 40, 20, and 10 meter bands. The only real criterion is that it NOT be visible when the HOA anal-retentive idiots come knocking on their final inspection tour. (Oh, and these busy-biddies poke their noses around the neighbourhood at LEAST every week or two, so there will not be any taking it down/putting it up way around them. Also ANY other resident may (and very well might) report the violation of the HOA agreement. It HAS to be

invisible from the street.

Suggestions? Comments? Please, someone has GOT to have had this problem before. The web pages for this set of search terms are legion, but none have anything to say about this foil-lined roof problem. I will BUILD something for her and ship it from Illinois if it will get her an antenna that won't cause the HOA nosy-parkers to twitch their snouts at their house.

Thanks in advance.

--
Wes Will
N9KDY

Who is wondering why ANYONE would ever want to live somewhere that SNOOPS can dictate what you can and cannot have in or on your own home. I'd tend to meet those sorts at the property line, with heavy boots on, so as to be able to kick 'em a long, long way OFF of my land. www

45841. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 09:25:49 UTC
From: Gordon JC Pearce
Topic: 45832 Message: 45841

On Mon, Nov 11, 2013 at 02:27:00AM -0600, Wes Will wrote:

> Suggestions? Comments? Please, someone has GOT to have had this
> problem before. The web pages for this set of search terms are legion,
> but none have anything to say about this foil-lined roof problem. I
> will BUILD something for her and ship it from Illinois if it will get
> her an antenna that won't cause the HOA nosy-parkers to twitch their
> snouts at their house.

Big aluminium flagpole mounted on insulators and a bunch of radials or chickenwire?

Just put a wire dipole up anyway, on the basis that it cannot possibly be legal to put restrictions like that on what you can and cannot do with your property? In the UK they'd get told where to go in short order.

--
Gordonjcp MM0YEQ

45842. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 10:07:20 UTC
From: Wes Will
Topic: 45832 Message: 45842

On 11/11/2013 03:25 AM, Gordon JC Pearce wrote:
> it cannot possibly
> be legal to put restrictions like that on what you can and cannot do
> with your property?

LOLOL

So sorry to be the one to disillusion you. It most assuredly CAN be.

The "Home Owner's Associations" have a long track record of this kind of idiocy. They can tell you which colours you can or cannot paint your house or fence. They have veto power over the choice of the type of the bloody SHRUBBERY if they can make any sort of specious claim that it "lowers the property values of the other dwellings in the area."

> In the UK they'd get told where to go in short order.

Sorry, here in the Land of the FEE, they;ll sue the SOKS off you, in short order. AND you can be forced to either sell ouf even at a loss, or comply. LEGALLY.

Why do you think I used the terms "Lawn GESTAPO" and "Yard Appearance SS WAFFEN"?? I automatically "Godwinated" the post, on purpose. They really ARE that vicious, that petty, and that picky about ANYTHING and everything which can be seen in, on, or around the houses they have under their thumbs.

The original purpose of these "HOA's" was to reign in the rabid footballers and other stinking blokes who never trim the weeds they have instead of a lawn, who let the fences fall down like a set of bad teeth, and which pile garbage all about the place and put old tyre-less autos up on blocks in their side yards.

Against that sort of thing, they make some sense. Those kind of lazy bums need to be shaken up a little.

But the HOA quickly metamorphosed into petty little oligarchies, with small-minded people who, having no control over their own lives revel in dictating the details of other peoples'. It's a control and power thing, and these sorry sacks of snot enjoy every second of dragging 'miscreants' with the wrong type of sapling growing in their gardens before a judge and forcing them to cut it down.

Putting up a dipole "ANYWAY" will -not- be an option.

Now, anyone have a reasonable and useful antenna which can be kept out of sight and will provide some connection to the rest of us, despite the aluminized roof? Perhaps something along-side the gutters, which can

still get out of the back yard?

--
Wes Will
N9KDY

45843. RE: Re: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 11:33:51 UTC
From: <wagstw46@...>
Topic: 45820 Message: 45843

OK make sure you buy and use Class 1 caps for RF service. Also might want to contact Bob Mansker about a replacement switch as not easy to remove carbon tracking.

Dave VK5PDL has a lot of experience replacing these padder caps and may have a source of replacement capacitors.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <kk6ezq@...> wrote:

Terry,

I was able to observe the general area of the arcing. It is on one of the wafer switches near the bottom of the cage and near the side of the cage near the HVT. I also noticed some carbon on the front of the wafer switch near the main choke.

I plan on taking lots of pictures and disassembling to allow for closer inspection and cleaning (replacement?) of some or all of the S4 contacts. Will probably replace all caps while there.

I am only able to work on the unit near the end of the week so it will be awhile until I have any results to report.

Thanks for the valued input! Include me as another group member who has benefited from your experiences!

73'
Steve
KK6EZQ

--- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> Steve:
>
>
> This is probably intuitive but if you remove the fan you will need to set up a mirror to observe for arcing in the space below the Load cap as you load the rig.
>
>
> Better would be to get someone who is experienced loading the rig to "drive" while you observe from behind. Might even leave the PA cage top cover on or place stiff cardboard over it so you are looking in to a darkened space.
>
>
> Again be very careful.
>

>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
<wagstw46@> wrote:
>
> Steve:
>
>
> Well if you disconnect padder caps (from either the Plate or Load cap) then you wont be
able to tune to resonance on the related bands. I think you can get a better view of this
arcing if it is happening below the Load cap if you remove the fan and look thru that
opening.
>
>
> Does the arcing occur as you adjust either the Plate or the Load capacitor or both
capacitors? Does it do it at same place in the rotation?
>
>
> It is normally easier to damage the Load capacitor due to its close plate spacing.
>
>
> Sometimes once the Load capacitor (3 gang close spaced one) has arced over from movable
plate to fixed plate it will keep arcing over with RF as it has raised metal at the
location where the arc occurred and each time you rotate plates past that same place the
plate spacing is now much closer and it is now easier to arc over at that spot.
>
>
> Another thing you can do is go to Jim Showkers website at HybridRestore and read his test
procedure for measuring the final cage capacitors at each band switch setting. If a padder
cap is breaking down I would think the capacitance value would have to be affected.
>
>
> It sounds like you confirmed that the safety choke is there and not discolored so not
likely the problem.
>
>
> Terry K9TW
>
>
>
>
>
>
>
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
<kk6ezq@> wrote:

>
> Terry,
>
> You are not being picky - just accurate. And that is exactly why your posts are so valuable.
>
> Thank-you for the caution about high voltage. I always unplug the unit and discharge through some hefty resistors the anodes of the finals, and am careful around any components that may be holding a charge.
>
> I read with interest the explanations of why L1 is separate, and the purpose of L4. Both descriptions help to appreciate the engineering that went into the Kenwood products, and provide insight to newbies like me on how things work.
>
> I inspected L4 - no signs of overheating or arcing. I would like to test to see if the padding cap is breaking down. The cap is tucked under the variable loading cap - and not very accessable.
>
> Question: Would I damage the unit by disconnecting the fixed padding cap for testing?
>
> --- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <wagstw46@> wrote:
> >
> > Not trying to be picky but you are citing component designators and values from the KW TS830 schematic from Kens website. Not the same as your TS820 components, but I get the idea.
> >
> >
> > As to L1 being 4uhy vs 6.8uhy you are OK with that value. Your schematic should call it out as a 3 uhy choke. The inductance is not too critical. The series resonance is more important for it to function as a vhf parasitic choke. My guess is there is nothing wrong with it however since it has many hours on it then I would replace it while installing one of Kens kits.
> >
> >
> > L1 serves two funcitons:
> > 1 VHF parasitic choke
> > 2. It provides additional series inductance for the main choke to provide enough reactance to facilitate 160 meter operation. Very hard to design a solenoid wound choke that can present enough XL across the band ratio that the Hybrids present. If you wound that additional inductance on the main choke likely would move a series resonant hole into the range and burn up the choke. One way to add the needed inductance and not move series resonant hole would be to space wind the choke on the big choke form, but then the choke would be too tall for the PA cage height limitations. So KW used the trick that 160 meter linear amp builders use and that is to insert another smaller choke is series with the big choke and place it at base of big choke and orient it at a right angle to reduce the "mutual coupling". That is called "orthogonally" and this is thrown in for free!
> >
> >

> > If interested see old ARRL Handbook for inductors and mutual coupling. More of that W5RKL fundamental stuff.
> >
> >
> > As to your PA cage arcing. First of all BE VERY CAREFUL trying to identify the location of this arcing inside the PA cage as you will be working in very close proximity to 900 vdc. Dont want to make any hand contact or drop tools or flashlite into the cage.
> >
> >
> > Couple of things come to mind
> > 1. Fixed padder cap breaking down (in stack under plate load cap)
> > 2. Bad L4 470uhy "safety inductor" in shunt with Plate Loading capacitor. You will see it depicted close to RL-1 TR relay on your schematic. It would be rare for it to fail. A visual may reveal signs of overheating?
> >
> >
> > L4 serves two purposes:
> > 1. It is there to blow the transformer primary fuse if C1 Plate blocking/coupling capacitor should fail. You dont want 900vdc applied to your Pi-network, output of your SO-239 connector, your antenna coax or worse your fingers.
> >
> >
> > 2. L4 also serves to prevent your tank capacitor from charging to peak of the anode voltage. It is a DC ground return. If you look at the schematic you will see that C1 .001 3KV cap is in series with the 200pf Tank cap. The tank cap is in parallel with the Load cap. So you have a capacitive voltage divider for DC voltage. Depending on how far the plates of both air variables are meshed will determine the dc voltage divider ratio. Assuming approx max capacitance then this capacitive divider of .001uf to .0018uf will charge to the peak of 900vdc x 1.414 = 1272vdc. This ratio of capacitance will result in approx 636vdc charge across the tank and load caps. The tank cap should handle that as it is wide spaced, but the load cap cannot and perhaps the bandswitch contacts that are fed from tank coil taps cannot?
> >
> >
> > Anyway I have never see a bad safety choke in any KW hybrid. Have seen them missing. Worth checking it. If you have a LCR bridge can lift one end and measure it. Per the Service manual it is 470uhy. I have never measured one.
> >
> >
> > Terry K9TW
> >
> >
> > ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <kk6ezq@> wrote:
> >
> > Kenwood Group,
> >
> > My rig arcs across somewhere near the wafers switches in the final cage. A little history...

> >
> > I have some electronic technician experience, and have enjoyed restoring my inherited TS-820S. She has new finals, a new driver, a new brass band-shaft coupler.
> >
> > Recently, when trying to tune-up for 10 meters using the MFJ dummy load on my antenna match, I heard a sound something like those snake type firecrackers make when burning - similar to the noise on 10 meters when the band is poor and the speaker volume is up.
> >
> > I localized the arcing to an area around the wafer switch S4. I then purchased (thanks to K4EAA)and installed a new L1 rf choke, new C7 plate coupling capacitor, a new C8 plate choke bypas cap, and while I was at it new R2\3 10 ohm, and R5\6 100 ohm resistors.
> >
> > The old resistors measured out-of-circuit: 10.7 and 10.7 ohms, and 104.2 and 111.2 ohms. A ball-park L1 measurement shows about 4 uH (should be 6.8 uH).
> >
> > When I tested the new configuration I discovered I could tune fine, as before, to the lower bands - arcing returned at 7 MHz. I cleaned the contacts with the cheap Radio Shack spray and discovered I could tune to 7 MHz, but the arcing returned at 14 MHz.
> >
> > At that point I decided I should consult the experts (you) before causing any more damage.
> >
> > Steve
> > KK6EZQ
> >
>

45844. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 11:45:51 UTC
From: Gordon JC Pearce
Topic: 45832 Message: 45844

On Mon, Nov 11, 2013 at 04:07:20AM -0600, Wes Will wrote:
>
> Now, anyone have a reasonable and useful antenna which can be kept out
> of sight and will provide some connection to the rest of us, despite the
> aluminized roof? Perhaps something along-side the gutters, which can
> still get out of the back yard?

I was serious about the flagpole. Surely they can't object to that?

Get a 5m pole, mount it on some sort of insulated plinth and stick a tapped coil inside to match it for 80, 40 and 20. Performance won't exactly be stellar on 80 but it'll be quite acceptable on 40 and 20, and not look too ridiculous.

I did pretty much this with a "silver rod" type CB aerial back when I got licensed first - not so much due to neighbour issues as because I had a tiny suburban back garden just about big enough for a dipole for 10 spaced reasonably far from the house. With 10W (legal limit for MM3 licenses, achievable with the ALC biasing trick) I wasn't going to win any prizes but I got my logbook nice and full...

So, stick up a 5m flagpole, and if no-one starts shouting load it up and see what happens :-)

--
Gordonjcp MM0YEQ

45845. RE: Group rules on thread length

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 12:12:57 UTC
From: <paw_paw44036@...>
Topic: 45826 Message: 45845

I enjoy reading all the threads, even the long ones. I got my degree in 1970 and a lot of stuff has made great changes sense then. Being 68 yrs. now it is sometime hard to remember a lot of the things I have learned. I have serviced all kinds of electronics over the years, but not as a job, but more like a hobby. Reading through some of these threads is almost like going back to school as some of the stuff I had forgotten. Terry has refreshed my marbles a few times and I am very thankful for it. I know it takes time to read all of these, but in the long run it is good to refresh the gray matter and for the nubee's, its an education time. I thank all of you for the help. Thanks to all the Veteran's out there that have served to keep our country free and so we can read threads like this. God Bless All.

Bill WD8OSJ

---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

There has been some complaints from members about the use of proper "email etiquette" where threads are not being trimmed. There is/are no group rules that require threads to be trimmed.

I will say this about long threads, they preserves the "history" of a problem which includes the symptoms, steps taken to isolate and identify the source of the problem, and the steps taken to fix the problem including components identified and replaced. It also identifies steps that should not be taken and/or components that are not part of the problem. A long thread is also a learning tool for those members who are learning to troubleshoot problems or are experiencing similar problems with/in their KW hybrids.

The bottom line is, whether a member trims their response or not is entirely up to that member. Therefore, if you don't like or care for long threads then simply don't read them, it's that simple.

73
Mike W5RKL
TS-520_TS-820_TS-530_TS-830 Moderator

45846. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 12:16:01 UTC
From: John Boardman
Topic: 45832 Message: 45846

Having had a similar issue with the Waffen SS lawn gestapo in California, I used a loop of wire run around the eaves of the roof and fed with RG58 thru a balun. While assuredly NOT the world's greatest, I did get out and have a somewhat usable signal. I used 12ga THHN with brown insulation to match the roof.

The lawn gestapo once "fined" us because the grass was 7/8" long, exceeding the dictated 3/4". When I refused to pay, they took us to court - I prevaled when I asked the Court to order the minifuhrer to provide the NIST-traceable calibration certificate for his ruler and the approved procedure for lawn height measurement. Yes, they truly ARE that bad. Never again!

John
KD5ZGX

On Monday, November 11, 2013 5:44 AM, Gordon JC Pearce <gordon@...> wrote:

On Mon, Nov 11, 2013 at 04:07:20AM -0600, Wes Will wrote:
>
> Now, anyone have a reasonable and useful antenna which can be kept out
> of sight and will provide some connection to the rest of us, despite the
> aluminized roof? Perhaps something along-side the gutters, which can
> still get out of the back yard?

I was serious about the flagpole. Surely they can't object to that?

Get a 5m pole, mount it on some sort of insulated plinth and stick a tapped coil inside to match it for 80, 40 and 20. Performance won't exactly be stellar on 80 but it'll be quite acceptable on 40 and 20, and not look too ridiculous.

I did pretty much this with a "silver rod" type CB aerial back when I got licensed first - not so much due to neighbour issues as because I had a tiny suburban back garden just about big enough for a dipole for 10 spaced reasonably far from the house. With 10W (legal limit for MM3 licenses, achievable with the ALC biasing trick) I wasn't going to win any prizes but I got my logbook nice and full...

So, stick up a 5m flagpole, and if no-one starts shouting load it up and see what happens :-)

--
Gordonjcp MM0YEQ

45847. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 12:39:44 UTC
From: <zen18531@...>
Topic: 45832 Message: 45847

John, thanks, that has made my day :) :)

Alan m6xre

-- Original Message --
From: John Boardman <pyrrus2003@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Send: Mon, 11 Nov 2013 04:16:01 -0800 (PST)
Subject: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Having had a similar issue with the Waffen SS lawn gestapo in California, I used a loop of wire run around the eaves of the roof and fed with RG58 thru a balun. While assuredly NOT the world's greatest, I did get out and have a somewhat usable signal. I used 12ga THHN with brown insulation to match the roof. The lawn gestapo once "fined" us because the grass was 7/8" long, exceeding the dictated 3/4". When I refused to pay, they took us to court - I prevaled when I asked the Court to order the minifuhrer to provide the NIST-traceable calibration certificate for his ruler and the approved procedure for lawn height measurement. Yes, they truly ARE that bad. Never again!JohnKD5ZGX On Monday, November 11, 2013 5:44 AM, Gordon JC Pearce <gordon@...> wrote:

On Mon, Nov 11, 2013 at 04:07:20AM -0600, Wes Will wrote:
>
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> aluminized roof? Perhaps something along-side the gutters, which can
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I did pretty much this with a "silver rod" type CB aerial back when I got licensed first - not so much due to neighbour issues as because I had a tiny suburban back garden just about big enough for a dipole for 10 spaced reasonably far from the house. With 10W (legal limit for MM3 licenses, achievable with the ALC biasing trick) I wasn't going to win any prizes but I got my logbook nice and full...

So, stick up a 5m flagpole, and if no-one starts shouting load it up and see what happens :-)

--
Gordonjcp MM0YEQ

45848. RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 13:02:52 UTC
From: <sv2dfu@...>
Topic: 45832 Message: 45848

Craig, if possible forward the pdf, not a arrl member yet
Thank you

Peter

---In ts-520_820_530_830@yahoogroups.com, <crgrbrts@...> wrote:

Hello Peter,

I have been using a 55' (16.75 meter) long doublet fed with 600 ohm ladder line. It worked fine with the simple Kenwood AT-230 antenna tuner on most bands from 40 - 10 meters. However, the doublet antenna works much better with a tuner I built as described in a February, 1990 article in QST by Richard Measures called "A Balanced Balanced Antenna Tuner." If you are a member of the ARRL, you can download the article from their QST archives. I you are not a member of the ARRL, I will be happy to mail a PDF version of the article to you.

VY 73,

Craig
W3CRR

45849. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 10:10:02 UTC
From: clifford wright
Topic: 45832 Message: 45849

Well the other Ham in my street has a multi band beam. But he also has a very unobtrusive vertical.
My own aluminium masts are both insulated and used as verticals on 10.1 and 14 MHz with results only about 5 dB down on the G5RV. I don't think flying the flag can be complained of too much even by the most restrictive local authorities in the USA in particular.
They have a base matching network which can be controlled from the station with a simple relay circuit and give a very good match to 50 Ohms on those bands.
BTW I've been thinking about it myself for when we move to a pensioner housing area.
Years ago I had an attic antenna while we were flatting, but it was a great picker up of local interference even though it was under a clay tile roof, so I would not recommend it as a solution anyway. The vertical is probably the best way to go. Though how about an "invisible" dipole? if thin wire is used and small glass insulators it can be quite hard to see.

Zl1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45850. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 09:37:34 UTC
From: Mike Rolph
Topic: 45832 Message: 45850

Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
72 de mike m0 mcy
Sent from my iPhone

> On 11 Nov 2013, at 08:27, Wes Will <wwill@...> wrote:
>
>> On 11/11/2013 12:21 AM, Craig Roberts wrote:
>>
>>
>> Hello Peter,
>>
>> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
>> ladder line. It worked fine with the simple Kenwood AT-230 antenna
>> tuner on most bands from 40 - 10 meters. However, the doublet antenna
>
> I am in the way of needing some form of antenna which might be so well
> hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS
> Waffen (Also known as a "Home Owner's Association) cannot complain of
> its existence.
>
> The Ham in question is in the Carolinas, the house is currently under
> construction, and they're going to be moving in January or February.
>
> The problem is that the roof contractor has placed some foam insulation
> boards on the underside of the actual sheathing of the roof. (Betweeb
> the trusses and the deck boards to which the shingles will be nailed.)
> That would present no real problem except that the foam boards are
> laminated with a fairly thick layer of aluminum foil.
>
> The attic where we were going to install an antenna has been effectively
> turned into a Faraday Cage. Not a perfect one, as the individual bat of
> foam/foil composite are not bonded together and the entire thing
> grounded. But initial checks in completed portions of the attic by a
> local ham with a field strength meter show a marked decrease in RF
> compared to the uncompleted portions of the attic still open to the sky.
> About 80 percent signal loss, is what he told me.
>
> Short of removing the shingles, decking, and ripping the foil off of the
> foam boards already placed (the roof was over three-fourths finished as
> of Friday evening last), is there something which can be recommended for
> her antenna installation?
>
> Money is not a big deal, within reason here. (The re-roofing would be
> cost-prohibitive; some sort of commercial antenna with a decent tuner

> would NOT be out of the question.)
>
> The antenna will be used mostly in the 40, 20, and 10 meter bands. The
> only real criterion is that it NOT be visible when the HOA
> anal-retentive idiots come knocking on their final inspection tour.
> (Oh, and these busy-biddies poke their noses around the neighbourhood at
> LEAST every week or two, so there will not be any taking it down/putting
> it up way around them. Also ANY other resident may (and very well
> might) report the violation of the HOA agreement. It HAS to be
> invisible from the street.
>
> Suggestions? Comments? Please, someone has GOT to have had this
> problem before. The web pages for this set of search terms are legion,
> but none have anything to say about this foil-lined roof problem. I
> will BUILD something for her and ship it from Illinois if it will get
> her an antenna that won't cause the HOA nosy-parkers to twitch their
> snouts at their house.
>
> Thanks in advance.
>
> --
> Wes Will
> N9KDY
>
> Who is wondering why ANYONE would ever want to live somewhere that
> SNOOPS can dictate what you can and cannot have in or on your own home.
> I'd tend to meet those sorts at the property line, with heavy boots on,
> so as to be able to kick 'em a long, long way OFF of my land. www
>
>
> ------------------------------------
>
> Yahoo Groups Links
>
>
>

45851. DIY Antenna Tuner -- ooops!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 14:14:49 UTC
From: Craig Roberts
Topic: 45832 Message: 45851

With sincere apologies, I must retract my offer of providing a PDF copy of the February, 1990 QST article "A Balanced Balanced Antenna Tuner." Ownership of the article is the ARRL's, and I do not wish to violate the copyright law. As I said originally, the article is available for download to ARRL members -- along with nearly any other article ever published in QST and QEX. Access to this vast library, is, in my opinion, worth the price of membership alone.

The piece in question by Richard Measures is, however, available online elsewhere and can be located easily through search engines. Again, my apologies.

Oh -- Happy Veterans Day! I invite all to join my fellow vets on 14.275 MHz from 1300 - 2200 UTC today for The American Legion Amateur Radio Club's "Salute to Veterans". My colleagues in Indianapolis will be operating special event station W9L.

Details are at
http://www.legion.org/hamradio/clubupdates/217757/legion-salute-veterans-over-airwaves

I am now off to Arlington National Cemetery and the Vietnam Veterans Memorial ("The Wall") to cover the events of this special day.

VY 73!

Craig
W3CRR

45852. RE: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 14:21:28 UTC
From: <wagstw46@...>
Topic: 45832 Message: 45852

I have wintered in Florida since the late 80s and lived in condos on the beach, adult parks, and residential neighborhoods and in every case the HOA has not allowed any kind of outdoor antennas Ham, TV, FM, and in some cases no satellite dishes. Only cable was allowed..

Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.

Where I currently live I tried to sneak a wire under the eaves of my park model trailer and a nosy neighbor (we have self appointed sheriffs!) reported me. The small gauge wire came down.

So I spent the money as so many Snow Bird hams do and bought a ve rtical and placed it inside a fiberglass flag pole. Not cheap. Since lot size is small and no way to install a decent radial system in the off season I went down and buried a ground lead out to the pond that I am on and connected it to a metal plate and submerged it. As long at the pond level stays up I should be OK.

Now that I have published my transgressions someone will surely turn me in and my operation will then be limited to Virtual Ham Radio operation like Hamsphere.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <densoldman@...> wrote:

Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
72 de mike m0 mcy
Sent from my iPhone

> On 11 Nov 2013, at 08:27, Wes Will <wwill@... mailto:wwill@...> wrote:
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> Waffen (Also known as a "Home Owner's Association) cannot complain of
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> The Ham in question is in the Carolinas, the house is currently under
> construction, and they're going to be moving in January or February.
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> the trusses and the deck boards to which the shingles will be nailed.)
> That would present no real problem except that the foam boards are
> laminated with a fairly thick layer of aluminum foil.
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> local ham with a field strength meter show a marked decrease in RF
> compared to the uncompleted portions of the attic still open to the sky.
> About 80 percent signal loss, is what he told me.
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> it up way around them. Also ANY other resident may (and very well
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> Suggestions? Comments? Please, someone has GOT to have had this
> problem before. The web pages for this set of search terms are legion,
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> will BUILD something for her and ship it from Illinois if it will get
> her an antenna that won't cause the HOA nosy-parkers to twitch their
> snouts at their house.
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> Thanks in advance.
>
> --
> Wes Will

> N9KDY
>
> Who is wondering why ANYONE would ever want to live somewhere that
> SNOOPS can dictate what you can and cannot have in or on your own home.
> I'd tend to meet those sorts at the property line, with heavy boots on,
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> Yahoo Groups Links
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45853. Re: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 14:28:52 UTC
From: Gordon JC Pearce
Topic: 45832 Message: 45853

On Mon, Nov 11, 2013 at 06:21:28AM -0800, wagstw46@... wrote:
>
>
> Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.

TV aerials, eh? I'll just leave this here...
http://www.wrightsaerials.tv/roguesgallery/

--
Gordonjcp MM0YEQ

45854. RE: Re: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 14:43:45 UTC
From: <wagstw46@...>
Topic: 45832 Message: 45854

What is wrong with these?

I see no mast supported by cinder blocks, no off plumb 4x4 post sunk in the yard, no lag bolts securing 2x4 lumber to side of house, no mast held up with bungee cords lashed to deck post, no mast bent or leaning at 45 degrees, no feed line strung at head height.

Terry

---In TS-520_820_530_830@yahoogroups.com, <gordon@...> wrote:

On Mon, Nov 11, 2013 at 06:21:28AM -0800, wagstw46@... mailto:wagstw46@... wrote:
>
>
> Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.

TV aerials, eh? I'll just leave this here...
http://www.wrightsaerials.tv/roguesgallery/ http://www.wrightsaerials.tv/roguesgallery/

--
Gordonjcp MM0YEQ

45855. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 14:44:04 UTC
From: Mike
Topic: 45832 Message: 45855

In America the answer is "Yes" you can fly the flag on a Flag Pole.

Many hams use "Flag Pole Antennas", I worked a station yesterday on 40 meter CW that was using a "Flag Pole Antenna".

The following link is a company that sells Flag Pole antennas.

http://www.theflagpoleco.com/tefl.html

However, before any ham who lives in an HOA restricted development decides to put up a Flag Pole antenna, they should read their HOA agreement thoroughly. The agreement could specify the "type" of flag pole that's acceptable and it could be something as simple as a Flag Pole that is mounted on a porch support post ONLY, not a Flag Pole in the middle of the front yard. So read your HOA restrictions FIRST before you purchase a Flag Pole antenna!

73
Mike W5RKL

On 11/11/2013 3:37 AM, Mike Rolph wrote:
>
> Just a thought. Am I right in saying you have a right to fly a flag
> and if so a vertical antenna could be hidden in such a pole!
> 72 de mike m0 mcy
> Sent from my iPhone
>
> > On 11 Nov 2013, at 08:27, Wes Will <wwill@...> wrote:
> >
> >> On 11/11/2013 12:21 AM, Craig Roberts wrote:
> >>
> >>
> >> Hello Peter,
> >>
> >> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
> >> ladder line. It worked fine with the simple Kenwood AT-230 antenna
> >> tuner on most bands from 40 - 10 meters. However, the doublet antenna
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> > I am in the way of needing some form of antenna which might be so well
> > hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS
> > Waffen (Also known as a "Home Owner's Association) cannot complain of
> > its existence.
> >
> > The Ham in question is in the Carolinas, the house is currently under
> > construction, and they're going to be moving in January or February.
> >

> > The problem is that the roof contractor has placed some foam insulation
> > boards on the underside of the actual sheathing of the roof. (Betweeb
> > the trusses and the deck boards to which the shingles will be nailed.)
> > That would present no real problem except that the foam boards are
> > laminated with a fairly thick layer of aluminum foil.
> >
> > The attic where we were going to install an antenna has been effectively
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> > grounded. But initial checks in completed portions of the attic by a
> > local ham with a field strength meter show a marked decrease in RF
> > compared to the uncompleted portions of the attic still open to the sky.
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> > foam boards already placed (the roof was over three-fourths finished as
> > of Friday evening last), is there something which can be recommended for
> > her antenna installation?
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> > Money is not a big deal, within reason here. (The re-roofing would be
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> > would NOT be out of the question.)
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> > (Oh, and these busy-biddies poke their noses around the neighbourhood at
> > LEAST every week or two, so there will not be any taking it down/putting
> > it up way around them. Also ANY other resident may (and very well
> > might) report the violation of the HOA agreement. It HAS to be
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> > will BUILD something for her and ship it from Illinois if it will get
> > her an antenna that won't cause the HOA nosy-parkers to twitch their
> > snouts at their house.
> >
> > Thanks in advance.
> >
> > --
> > Wes Will
> > N9KDY
> >
> > Who is wondering why ANYONE would ever want to live somewhere that
> > SNOOPS can dictate what you can and cannot have in or on your own home.
> > I'd tend to meet those sorts at the property line, with heavy boots on,
> > so as to be able to kick 'em a long, long way OFF of my land. www
> >

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> > ------------------------------------
> >
> > Yahoo Groups Links
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45856. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 16:11:49 UTC
From: Craig Roberts
Topic: 45832 Message: 45856

One of my ham buddies and work colleagues had lived with the compromises of an attic antenna for years due to neighborhood association restrictions. But, he recently erected a commercial flagpole antenna with excellent results. The association would not allow him to put the flagpole in his front yard, however, due to "political sensitivities." Undaunted, he put it up in his back yard, American flag proudly fluttering at the top (and radials neatly hidden 'neath the lawn).

There's (almost) always a way.

73,

Craig
W3CRR

45857. Re: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 16:13:37 UTC
From: Joe - W7RKN
Topic: 45832 Message: 45857

Federal law (I think, may be it is a state law here in Nevada) prevents HOA's from restricting satellite dishes.

Joe - W7RKN
----- Original Message -----
From: wagstw46@...
To: TS-520_820_530_830@...m
Sent: Monday, November 11, 2013 6:21 AM
Subject: RE: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

I have wintered in Florida since the late 80s and lived in condos on the beach, adult parks, and residential neighborhoods and in every case the HOA has not allowed any kind of outdoor antennas Ham, TV, FM, and in some cases no satellite dishes. Only cable was allowed..

Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.

Where I currently live I tried to sneak a wire under the eaves of my park model trailer and a nosy neighbor (we have self appointed sheriffs!) reported me. The small gauge wire came down.

So I spent the money as so many Snow Bird hams do and bought a ve rtical and placed it inside a fiberglass flag pole. Not cheap. Since lot size is small and no way to install a decent radial system in the off season I went down and buried a ground lead out to the pond that I am on and connected it to a metal plate and submerged it. As long at the pond level stays up I should be OK.

Now that I have published my transgressions someone will surely turn me in and my operation will then be limited to Virtual Ham Radio operation like Hamsphere.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <densoldman@...> wrote:

Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
72 de mike m0 mcy
Sent from my iPhone

> On 11 Nov 2013, at 08:27, Wes Will <wwill@...> wrote:
>

>> On 11/11/2013 12:21 AM, Craig Roberts wrote:
>>
>>
>> Hello Peter,
>>
>> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
>> ladder line. It worked fine with the simple Kenwood AT-230 antenna
>> tuner on most bands from 40 - 10 meters. However, the doublet antenna
>
> I am in the way of needing some form of antenna which might be so well
> hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS
> Waffen (Also known as a "Home Owner's Association) cannot complain of
> its existence.
>
> The Ham in question is in the Carolinas, the house is currently under
> construction, and they're going to be moving in January or February.
>
> The problem is that the roof contractor has placed some foam insulation
> boards on the underside of the actual sheathing of the roof. (Betweeb
> the trusses and the deck boards to which the shingles will be nailed.)
> That would present no real problem except that the foam boards are
> laminated with a fairly thick layer of aluminum foil.
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> The attic where we were going to install an antenna has been effectively
> turned into a Faraday Cage. Not a perfect one, as the individual bat of
> foam/foil composite are not bonded together and the entire thing
> grounded. But initial checks in completed portions of the attic by a
> local ham with a field strength meter show a marked decrease in RF
> compared to the uncompleted portions of the attic still open to the sky.
> About 80 percent signal loss, is what he told me.
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> Short of removing the shingles, decking, and ripping the foil off of the
> foam boards already placed (the roof was over three-fourths finished as
> of Friday evening last), is there something which can be recommended for
> her antenna installation?
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> Money is not a big deal, within reason here. (The re-roofing would be
> cost-prohibitive; some sort of commercial antenna with a decent tuner
> would NOT be out of the question.)
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> it up way around them. Also ANY other resident may (and very well
> might) report the violation of the HOA agreement. It HAS to be
> invisible from the street.
>
> Suggestions? Comments? Please, someone has GOT to have had this

> problem before. The web pages for this set of search terms are legion,
> but none have anything to say about this foil-lined roof problem. I
> will BUILD something for her and ship it from Illinois if it will get
> her an antenna that won't cause the HOA nosy-parkers to twitch their
> snouts at their house.
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> Thanks in advance.
>
> --
> Wes Will
> N9KDY
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> Who is wondering why ANYONE would ever want to live somewhere that
> SNOOPS can dictate what you can and cannot have in or on your own home.
> I'd tend to meet those sorts at the property line, with heavy boots on,
> so as to be able to kick 'em a long, long way OFF of my land. www
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> Yahoo Groups Links
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45858. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 16:17:32 UTC
From: Joe - W7RKN
Topic: 45832 Message: 45858

Yeah..ya gotsta read da rules that some HOA's put out, about flags. In one hoity-toity section of Reno, one is only allowed to fly the flag during recognized National holidays, and even at that, it can only fly from a pole assembly, attached to the frame of the front door, and must hang at a specified angle (Which I don't know). One gentleman is a M.o.H , recipient and put up a flagpole and flag, in his front yard. His HOA threatened to take it down and then 'fine' him. When they went to court to force him to take it down, the courts ruled he had every right to fly the flag, in any manner he so chose....The court did say that the ruling only applied to this gentleman, and that any antenna actions in the future would have to be decided on their own merits.

IMMHO, HOA's can stick their rules up their backsides, when dealing with Vets. They earned the right to fly the flag in any way they so choose!

Thanks you to all the Veterans out there!

Joe Wolfe - W7RKN
----- Original Message -----
From: Mike
Subject: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

In America the answer is "Yes" you can fly the flag on a Flag Pole.

Many hams use "Flag Pole Antennas", I worked a station yesterday on 40 meter CW that was using a "Flag Pole Antenna".

The following link is a company that sells Flag Pole antennas.

http://www.theflagpoleco.com/tefl.html

However, before any ham who lives in an HOA restricted development decides to put up a Flag Pole antenna, they should read their HOA agreement thoroughly.

45859. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 16:31:48 UTC
From: Joe - W7RKN
Topic: 45832 Message: 45859

Ya know..if anyone tried to restrict me from flying the flag, due to 'political sensitivities', I would have told them to put it where the sun don't shine. I am an American, and I will proudly fly the American Flag, when ever and where ever I choose..there should be only one political motive in flying the American Flag, **PATRIOTISM**!! Any that find that 'insensitive', can leave this country.

To our neighbors from Canada, or Overseas, I would expect the same reactions to someone stating a 'political sensitivity' as a reason to not fly *YOUR* flag.

(This is a soapbox I will never stand down from!)

----- Original Message -----
From: "Craig Roberts" <crgrbrts@...>
Subject: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

> One of my ham buddies and work colleagues had lived with the compromises
> of an attic antenna for years due to neighborhood association
> restrictions. But, he recently erected a commercial flagpole antenna
> with excellent results. The association would not allow him to put the
> flagpole in his front yard, however, due to "political sensitivities."

45860. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 16:31:55 UTC
From: R Oler
Topic: 45832 Message: 45860

one meter or less...federal law Robert WB5MZO/S2 use to be President of the Clear Lake City Community Association where we have a nice tower rule that "restricts" towers to no higher then 80 feet!

Sent from my iPad

> On Nov 11, 2013, at 10:13 PM, "Joe - W7RKN" <w7rkn.7@gmail.com> wrote:
>
> □
>
> Federal law (I think, may be it is a state law here in Nevada) prevents HOA's from restricting satellite dishes.
>
> Joe - W7RKN
> ----- Original Message -----
> From: wagstw46@yahoo.com
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Monday, November 11, 2013 6:21 AM
> Subject: RE: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner
>
> I have wintered in Florida since the late 80s and lived in condos on the beach, adult parks, and residential neighborhoods and in every case the HOA has not allowed any kind of outdoor antennas Ham, TV, FM, and in some cases no satellite dishes. Only cable was allowed..
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> Where I currently live I tried to sneak a wire under the eaves of my park model trailer and a nosy neighbor (we have self appointed sheriffs!) reported me. The small gauge wire came down.
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> So I spent the money as so many Snow Bird hams do and bought a ve rtical and placed it inside a fiberglass flag pole. Not cheap. Since lot size is small and no way to install a decent radial system in the off season I went down and buried a ground lead out to the pond that I am on and connected it to a metal plate and submerged it. As long at the pond level stays up I should be OK.
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>

> Now that I have published my transgressions someone will surely turn me in and my operation will then be limited to Virtual Ham Radio operation like Hamsphere.
>
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <densoldman@...> wrote:
>
> Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
> 72 de mike m0 mcy
> Sent from my iPhone
>
> > On 11 Nov 2013, at 08:27, Wes Will <wwill@...> wrote:
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> >>
> >> Hello Peter,
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> > local ham with a field strength meter show a marked decrease in RF
> > compared to the uncompleted portions of the attic still open to the sky.
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> > (Oh, and these busy-biddies poke their noses around the neighbourhood at
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> > it up way around them. Also ANY other resident may (and very well
> > might) report the violation of the HOA agreement. It HAS to be
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> > Suggestions? Comments? Please, someone has GOT to have had this
> > problem before. The web pages for this set of search terms are legion,
> > but none have anything to say about this foil-lined roof problem. I
> > will BUILD something for her and ship it from Illinois if it will get
> > her an antenna that won't cause the HOA nosy-parkers to twitch their
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> > --
> > Wes Will
> > N9KDY
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> > Who is wondering why ANYONE would ever want to live somewhere that
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> > ------------------------------------
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> > Yahoo Groups Links
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45861. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 17:08:09 UTC
From: Don Allen
Topic: 45832 Message: 45861

I know we're off-topic here, but I would never live in an area with
strict covenants and restrictions. However, I also know that it's
becoming more difficult to avoid.

73
Don W9CW
ex-USN

On 11/11/2013 10:17 AM, Joe - W7RKN wrote:
>
> Yeah..ya gotsta read da rules that some HOA's put out, about flags.
> In one hoity-toity section of Reno, one is only allowed to fly the
> flag during recognized National holidays, and even at that, it can
> only fly from a pole assembly, attached to the frame of the front
> door, and must hang at a specified angle (Which I don't know). One
> gentleman is a M.o.H , recipient and put up a flagpole and flag, in
> his front yard. His HOA threatened to take it down and then 'fine'
> him. When they went to court to force him to take it down, the courts
> ruled he had every right to fly the flag, in any manner he so
> chose....The court did say that the ruling only applied to this
> gentleman, and that any antenna actions in the future would have to be
> decided on their own merits.
> IMMHO, HOA's can stick their rules up their backsides, when dealing
> with Vets. They earned the right to fly the flag in any way they so
> choose!
> Thanks you to all the Veterans out there!
> Joe Wolfe - W7RKN
>
> ----- Original Message -----
> *From:* Mike <mailto:w5rkl@...>
> *Subject:* Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner
>
> In America the answer is "Yes" you can fly the flag on a Flag Pole.
>
> Many hams use "Flag Pole Antennas", I worked a station yesterday
> on 40 meter CW that was using a "Flag Pole Antenna".
>
> The following link is a company that sells Flag Pole antennas.
>
> http://www.theflagpoleco.com/tefl.html
>
> However, before any ham who lives in an HOA restricted development
> decides to put up a Flag Pole antenna, they should read their HOA
> agreement thoroughly.
>

>

45862. Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 17:42:07 UTC
From: Joe - W7RKN
Topic: 45832 Message: 45862

OOPS! Please note the line, : 'and that any antenna actions in the future would have to be decided on their own merits' should read: 'and that any flag actions in the future would have to be decided on their own merits.'

Joe - W7RKN
On 11/11/2013 10:17 AM, Joe - W7RKN wrote:
The court did say that the ruling only applied to this gentleman, and that any antenna actions in the future would have to be decided on their own merits.

45863. Whackamole update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 20:32:57 UTC
From: <rrmvargo@...>
Topic: 45863 Message: 45863

I know you guys/gals are getting sick of this, but I have a new update that some may find useful.

My TS-830S that was given to me is now working quite well. I made an adapter for my MD100 mic & I get very good audio reports running the compression at 9:00 & mic gain just past 12:00.

But one thing that I did not like was the VFO drift. If I was to leave the radio on for 2 hours, it would drift upward in frequency 200-400Hz or more. I would regularly touch up the VFO knob to get back to where I started.

I searched here & the internet to find solutions to the drift but was never completely satisfied with what I found. So I removed the VFO for a look.

Not much there. Some brass gears, variable cap, 4 transistors, caps & resistors. So I added 2 drops of DeOxit to each end of the variable where the wipers are & I removed the 2 screws at the back end of the board where it grounds out to the chassis. I slipped 2 star washers under the board & reinstalled the screws. I cleaned the pins on the VFO connector that comes from the radio & reinstalled everything.

Now I didn't expect much, but it made an incredible improvement on my 830. Stability now stays within 100Hz over a few hours. Since the digital res is only good for 100Hz, it is hard to tell just how good it is.

So if you have some drift, & nothing else worked, you might try this.

73 - Bob

45864. Re: [TS-520_820_530_830] Whackamole update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 21:24:50 UTC
From: Wes Will
Topic: 45863 Message: 45864

On 11/11/2013 02:32 PM, rrmvargo@... wrote:
>
>
> I know you guys/gals are getting sick of this, but I have a new update
> that some may find useful.

,,,

> 830. Stability now stays within 100Hz over a few hours. Since the
> digital res is only good for 100Hz, it is hard to tell just how good it is.
>
> So if you have some drift, & nothing else worked, you might try this.

Keep it up, OM, and people are going to start asking you to fix their
rigs for them....

Good for you, glad to hear that it is back up to snuff. Gives me hope
that I'll be able to do the same when my rig gives me the gyp eventually.

I think if I ever have to pull anything which requires a chassis ground
through a mounting screw like that, from now on I'm not just going to
polish the spot and the stand-off, but I'll put a star washer on there
too, every time.

--
wes will
N9KDY

45865. RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 17:16:35 UTC
From: <sv2dfu@...>
Topic: 45832 Message: 45865

No problem, Craig. Will check

Thank you

Peter

---In ts-520_820_530_830@yahoogroups.com, <crgrbrts@...> wrote:

With sincere apologies, I must retract my offer of providing a PDF copy
of the February, 1990 QST article "A Balanced Balanced Antenna Tuner."
Ownership of the article is the ARRL's, and I do not wish to violate the
copyright law. As I said originally, the article is available for
download to ARRL members -- along with nearly any other article ever
published in QST and QEX. Access to this vast library, is, in my
opinion, worth the price of membership alone.

The piece in question by Richard Measures is, however, available online
elsewhere and can be located easily through search engines. Again, my
apologies.

Oh -- Happy Veterans Day! I invite all to join my fellow vets on 14.275
MHz from 1300 - 2200 UTC today for The American Legion Amateur Radio
Club's "Salute to Veterans". My colleagues in Indianapolis will be
operating special event station W9L.

Details are at
http://www.legion.org/hamradio/clubupdates/217757/legion-salute-veterans-over-airwaves
http://www.legion.org/hamradio/clubupdates/217757/legion-salute-veterans-over-airwaves

I am now off to Arlington National Cemetery and the Vietnam Veterans
Memorial ("The Wall") to cover the events of this special day.

VY 73!

Craig
W3CRR

45866. RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 17:19:44 UTC
From: <sv2dfu@...>
Topic: 45832 Message: 45866

Sincerely thanx to all members who spent time and effort to help.

Wonderful group of people!
Best regards

73s

Peter SV2DFU

---In ts-520_820_530_830@yahoogroups.com, <w9cw@...> wrote:

I know we're off-topic here, but I would never live in an area with strict covenants and restrictions. However, I also know that it's becoming more difficult to avoid.

73
Don W9CW
ex-USN

On 11/11/2013 10:17 AM, Joe - W7RKN wrote:

Yeah..ya gotsta read da rules that some HOA's put out, about flags. In one hoity-toity section of Reno, one is only allowed to fly the flag during recognized National holidays, and even at that, it can only fly from a pole assembly, attached to the frame of the front door, and must hang at a specified angle (Which I don't know). One gentleman is a M.o.H , recipient and put up a flagpole and flag, in his front yard. His HOA threatened to take it down and then 'fine' him. When they went to court to force him to take it down, the courts ruled he had every right to fly the flag, in any manner he so chose....The court did say that the ruling only applied to this gentleman, and that any antenna actions in the future would have to be decided on their own merits.

IMMHO, HOA's can stick their rules up their backsides, when dealing with Vets. They earned the right to fly the flag in any way they so choose!

Thanks you to all the Veterans out there!

Joe Wolfe - W7RKN
----- Original Message -----
From: Mike mailto:w5rkl@...
Subject: Re: [TS-520_820_530_830] TS-830S DIY Antenna Tuner

In America the answer is "Yes" you can fly the flag on a Flag Pole.

Many hams use "Flag Pole Antennas", I worked a station yesterday on 40 meter CW that was using a "Flag Pole Antenna".

The following link is a company that sells Flag Pole antennas.

http://www.theflagpoleco.com/tefl.html http://www.theflagpoleco.com/tefl.html

However, before any ham who lives in an HOA restricted development decides to put up a Flag Pole antenna, they should read their HOA agreement thoroughly.

45867. RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-11 13:30:38 UTC
From: <sv2dfu@...>
Topic: 45832 Message: 45867

Wow, what a spirited community! couldn't imagine that my request would raise a discussion like this!

Anyway would like to thank all that stepped in for help about antennas, tuners and 'Lawn' riots!
Will study the leads mentioned here, appreciate.
Sometimes living in the so called 'third world' isn't that bad..

----------are these comments, in the thread I started? or I'm f***ing up again?----------
Maybe we should find a way to deal with this NEW YAHOO after the Lawn Gestapos around..

73s

Peter SV2DFU

---In ts-520_820_530_830@yahoogroups.com, <sv2dfu@...> wrote:

Craig, if possible forward the pdf, not a arrl member yet
Thank you

Peter

---In ts-520_820_530_830@yahoogroups.com, <crgrbrts@...> wrote:

Hello Peter,

I have been using a 55' (16.75 meter) long doublet fed with 600 ohm ladder line. It worked fine with the simple Kenwood AT-230 antenna tuner on most bands from 40 - 10 meters. However, the doublet antenna works much better with a tuner I built as described in a February, 1990 article in QST by Richard Measures called "A Balanced Balanced Antenna Tuner." If you are a member of the ARRL, you can download the article from their QST archives. I you are not a member of the ARRL, I will be happy to mail a PDF version of the article to you.

VY 73,

Craig
W3CRR

45868. RE: RE: RE: ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 01:17:06 UTC
From: Willard Young
Topic: 45822 Message: 45868

I have the exact same problem! Just started last week. the 820 tunes up fine, just like always. Key the mike and WHAM, pins the alc and no transmit. If I hold the key down for a bit, the alc will slowly go down and the rig will start to transmit, but the alc never goes all the way down. I'm sure my tuning process is ok, since I am experienced on tube rigs. Call was WN6TOE in 1975. Any help will be much appreciated!, Tnx! Will KJ6JKA

45869. RE: [TS-520_820_530_830] RE: RE: Re: Ts-820S Final Cage Arcing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 10:02:40 UTC
From: fpath fpath
Topic: 45820 Message: 45869

Steve,

If you do as Terry has suggested and are going to use a long metal mirror, please insult the entire length as there is very little room and lots of potential. If your removing the fan and going in from the rear, make sure you insulate the 100v wires to the fan, have been bitten once or twice. If you do have issues with the padder caps, let me know and I can pull up my invoices and let you know where to get them from. Also if you let me know the values your looking for, Class 1 type caps in VK are now a special order.

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: wagstw46@...
Date: Sun, 10 Nov 2013 11:41:41 -0800
Subject: [TS-520_820_530_830] RE: RE: Re: Ts-820S Final Cage Arcing

Steve:

This is probably intuitive but if you remove the fan you will need to set up a mirror to observe for arcing in the space below the Load cap as you load the rig.

Better would be to get someone who is experienced loading the rig to "drive" while you observe from behind. Might even leave the PA cage top cover on or place stiff cardboard over it so you are looking in to a darkened space.

Again be very careful.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Steve:

Well if you disconnect padder caps (from either the Plate or Load cap) then you wont be able to tune to resonance on the related bands. I think you can get a better view of this arcing if it is happening below the Load cap if you remove the fan and look thru that opening.

Does the arcing occur as you adjust either the Plate or the Load capacitor or both capacitors? Does it do it at same place in the rotation?

It is normally easier to damage the Load capacitor due to its close plate spacing.

Sometimes once the Load capacitor (3 gang close spaced one) has arced over from movable plate to fixed plate it will keep arcing over with RF as it has raised metal at the

location where the arc occurred and each time you rotate plates past that same place the plate spacing is now much closer and it is now easier to arc over at that spot.

Another thing you can do is go to Jim Showkers website at HybridRestore and read his test procedure for measuring the final cage capacitors at each band switch setting. If a padder cap is breaking down I would think the capacitance value would have to be affected.

It sounds like you confirmed that the safety choke is there and not discolored so not likely the problem.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <kk6ezq@...> wrote:

Terry,

You are not being picky - just accurate. And that is exactly why your posts are so valuable.

Thank-you for the caution about high voltage. I always unplug the unit and discharge through some hefty resistors the anodes of the finals, and am careful around any components that may be holding a charge.

I read with interest the explanations of why L1 is separate, and the purpose of L4. Both descriptions help to appreciate the engineering that went into the Kenwood products, and provide insight to newbies like me on how things work.

I inspected L4 - no signs of overheating or arcing. I would like to test to see if the padding cap is breaking down. The cap is tucked under the variable loading cap - and not very accessable.

Question: Would I damage the unit by disconnecting the fixed padding cap for testing?

--- In TS-520_820_530_830@...m, <wagstw46@...> wrote:
>
> Not trying to be picky but you are citing component designators and values from the KW TS830 schematic from Kens website. Not the same as your TS820 components, but I get the idea.
>
>
> As to L1 being 4uhy vs 6.8uhy you are OK with that value. Your schematic should call it out as a 3 uhy choke. The inductance is not too critical. The series resonance is more important for it to function as a vhf parasitic choke. My guess is there is nothing wrong with it however since it has many hours on it then I would replace it while installing one of Kens kits.
>
>
> L1 serves two funcitons:
> 1 VHF parasitic choke
> 2. It provides additional series inductance for the main choke to provide enough reactance to facilitate 160 meter operation. Very hard to design a solenoid wound choke that can present enough XL across the band ratio that the Hybrids present. If you wound that additional inductance on the main choke likely would move a series resonant hole into the range and burn up the choke. One way to add the needed inductance and not move series

resonant hole would be to space wind the choke on the big choke form, but then the choke would be too tall for the PA cage height limitations. So KW used the trick that 160 meter linear amp builders use and that is to insert another smaller choke is series with the big choke and place it at base of big choke and orient it at a right angle to reduce the "mutual coupling". That is called "orthogonally" and this is thrown in for free!
>
>
> If interested see old ARRL Handbook for inductors and mutual coupling. More of that W5RKL fundamental stuff.
>
>
> As to your PA cage arcing. First of all BE VERY CAREFUL trying to identify the location of this arcing inside the PA cage as you will be working in very close proximity to 900 vdc. Dont want to make any hand contact or drop tools or flashlite into the cage.
>
>
> Couple of things come to mind
> 1. Fixed padder cap breaking down (in stack under plate load cap)
> 2. Bad L4 470uhy "safety inductor" in shunt with Plate Loading capacitor. You will see it depicted close to RL-1 TR relay on your schematic. It would be rare for it to fail. A visual may reveal signs of overheating?
>
>
> L4 serves two purposes:
> 1. It is there to blow the transformer primary fuse if C1 Plate blocking/coupling capacitor should fail. You dont want 900vdc applied to your Pi-network, output of your SO-239 connector, your antenna coax or worse your fingers.
>
>
> 2. L4 also serves to prevent your tank capacitor from charging to peak of the anode voltage. It is a DC ground return. If you look at the schematic you will see that C1 .001 3KV cap is in series with the 200pf Tank cap. The tank cap is in parallel with the Load cap. So you have a capacitive voltage divider for DC voltage. Depending on how far the plates of both air variables are meshed will determine the dc voltage divider ratio. Assuming approx max capacitance then this capacitive divider of .001uf to .0018uf will charge to the peak of 900vdc x 1.414 = 1272vdc. This ratio of capacitance will result in approx 636vdc charge across the tank and load caps. The tank cap should handle that as it is wide spaced, but the load cap cannot and perhaps the bandswitch contacts that are fed from tank coil taps cannot?
>
>
> Anyway I have never see a bad safety choke in any KW hybrid. Have seen them missing. Worth checking it. If you have a LCR bridge can lift one end and measure it. Per the Service manual it is 470uhy. I have never measured one.
>
>
> Terry K9TW
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <kk6ezq@> wrote:
>

> Kenwood Group,
>
> My rig arcs across somewhere near the wafers switches in the final cage. A little history...
>
> I have some electronic technician experience, and have enjoyed restoring my inherited TS-820S. She has new finals, a new driver, a new brass band-shaft coupler.
>
> Recently, when trying to tune-up for 10 meters using the MFJ dummy load on my antenna match, I heard a sound something like those snake type firecrackers make when burning - similar to the noise on 10 meters when the band is poor and the speaker volume is up.
>
> I localized the arcing to an area around the wafer switch S4. I then purchased (thanks to K4EAA)and installed a new L1 rf choke, new C7 plate coupling capacitor, a new C8 plate choke bypas cap, and while I was at it new R2\3 10 ohm, and R5\6 100 ohm resistors.
>
> The old resistors measured out-of-circuit: 10.7 and 10.7 ohms, and 104.2 and 111.2 ohms. A ball-park L1 measurement shows about 4 uH (should be 6.8 uH).
>
> When I tested the new configuration I discovered I could tune fine, as before, to the lower bands - arcing returned at 7 MHz. I cleaned the contacts with the cheap Radio Shack spray and discovered I could tune to 7 MHz, but the arcing returned at 14 MHz.
>
> At that point I decided I should consult the experts (you) before causing any more damage.
>
> Steve
> KK6EZQ
>

45870. RE: RE: RE: RE: ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 11:15:17 UTC
From: <wagstw46@...>
Topic: 45822 Message: 45870

Willard

Remember when you key the mic there can be no transmit rf output until you speak in the mic (modulate the radio) unless you have not nulled the Balanced Mod carrier properly.

Should only see steady 60ma resting plate current when you key the mic.

What is your resting plate current (Ip) doing? I check this with rig in LSB/USB with mic gained turned down.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <vintgam@...> wrote:

I have the exact same problem! Just started last week. the 820 tunes up fine, just like always. Key the mike and WHAM, pins the alc and no transmit. If I hold the key down for a bit, the alc will slowly go down and the rig will start to transmit, but the alc never goes all the way down. I'm sure my tuning process is ok, since I am experienced on tube rigs. Call was WN6TOE in 1975. Any help will be much appreciated!, Tnx! Will KJ6JKA

45871. RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 12:28:30 UTC
From: <paw_paw44036@...>
Topic: 45832 Message: 45871

Terry,

Food for thought,
Just read you post on the antenna restriction. I knew a ham in the same boat as you.
What he did was install 2 sets of gutter heaters with a tuner.
One to melt the ice in the winter and the other As an antenna.

I knew another ham that remove the first metal el-bow from his gutters and
Replaced with plastic as well as the short pipe about 2 feet long. He ran a ground wire through the
Gutter to a stake next to the downspout. The front and rear gutter were about 60 feet long
And all in one piece as they were custom made. The facers are vinyl so no interaction.
He set up a co-phase system. He can run parallel or in series.
He loaded the gutters with a tuner and works all bands with ease. 10 meters is hard to tune
But it does work. Less than 2 – 1 across the bands.

Co-phase May not be the right term.

Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I have wintered in Florida since the late 80s and lived in condos on the beach, adult parks, and residential neighborhoods and in every case the HOA has not allowed any kind of outdoor antennas Ham, TV, FM, and in some cases no satellite dishes. Only cable was allowed..

Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.

Where I currently live I tried to sneak a wire under the eaves of my park model trailer and a nosy neighbor (we have self appointed sheriffs!) reported me. The small gauge wire came down.

So I spent the money as so many Snow Bird hams do and bought a ve rtical and placed it inside a fiberglass flag pole. Not cheap. Since lot size is small and no way to install a decent radial system in the off season I went down and buried a ground lead out to the pond that I am on and connected it to a metal plate and submerged it. As long at the pond level stays up I should be OK.

Now that I have published my transgressions someone will surely turn me in and my operation will then be limited to Virtual Ham Radio operation like Hamsphere.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <densoldman@...> wrote:

Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
72 de mike m0 mcy
Sent from my iPhone

> On 11 Nov 2013, at 08:27, Wes Will <wwill@... mailto:wwill@...> wrote:
>
>> On 11/11/2013 12:21 AM, Craig Roberts wrote:
>>
>>
>> Hello Peter,
>>
>> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
>> ladder line. It worked fine with the simple Kenwood AT-230 antenna
>> tuner on most bands from 40 - 10 meters. However, the doublet antenna
>
> I am in the way of needing some form of antenna which might be so well
> hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS
> Waffen (Also known as a "Home Owner's Association) cannot complain of
> its existence.
>
> The Ham in question is in the Carolinas, the house is currently under
> construction, and they're going to be moving in January or February.
>
> The problem is that the roof contractor has placed some foam insulation
> boards on the underside of the actual sheathing of the roof. (Betweeb
> the trusses and the deck boards to which the shingles will be nailed.)
> That would present no real problem except that the foam boards are
> laminated with a fairly thick layer of aluminum foil.
>
> The attic where we were going to install an antenna has been effectively
> turned into a Faraday Cage. Not a perfect one, as the individual bat of
> foam/foil composite are not bonded together and the entire thing
> grounded. But initial checks in completed portions of the attic by a
> local ham with a field strength meter show a marked decrease in RF
> compared to the uncompleted portions of the attic still open to the sky.
> About 80 percent signal loss, is what he told me.
>
> Short of removing the shingles, decking, and ripping the foil off of the
> foam boards already placed (the roof was over three-fourths finished as
> of Friday evening last), is there something which can be recommended for
> her antenna installation?
>
> Money is not a big deal, within reason here. (The re-roofing would be
> cost-prohibitive; some sort of commercial antenna with a decent tuner
> would NOT be out of the question.)
>
> The antenna will be used mostly in the 40, 20, and 10 meter bands. The

> only real criterion is that it NOT be visible when the HOA
> anal-retentive idiots come knocking on their final inspection tour.
> (Oh, and these busy-biddies poke their noses around the neighbourhood at
> LEAST every week or two, so there will not be any taking it down/putting
> it up way around them. Also ANY other resident may (and very well
> might) report the violation of the HOA agreement. It HAS to be
> invisible from the street.
>
> Suggestions? Comments? Please, someone has GOT to have had this
> problem before. The web pages for this set of search terms are legion,
> but none have anything to say about this foil-lined roof problem. I
> will BUILD something for her and ship it from Illinois if it will get
> her an antenna that won't cause the HOA nosy-parkers to twitch their
> snouts at their house.
>
> Thanks in advance.
>
> --
> Wes Will
> N9KDY
>
> Who is wondering why ANYONE would ever want to live somewhere that
> SNOOPS can dictate what you can and cannot have in or on your own home.
> I'd tend to meet those sorts at the property line, with heavy boots on,
> so as to be able to kick 'em a long, long way OFF of my land. www
>
>
> ------------------------------------
>
> Yahoo Groups Links
>
>
>

45872. Antennas for 520,530,820,830 and others

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 12:31:18 UTC
From: <paw_paw44036@...>
Topic: 45872 Message: 45872

Food for thought for all hams,

Just read your post on the antenna restriction. I knew a ham in the same boat as you.
What he did was install 2 sets of gutter heaters with a tuner.
One to melt the ice in the winter and the other As an antenna.

I knew another ham that remove the first metal el-bow from his gutters and
Replaced with plastic as well as the short pipe about 2 feet long. He ran a ground wire through the
Gutter to a stake next to the downspout. The front and rear gutter were about 60 feet long
And all in one piece as they were custom made. The facers are vinyl so no interaction.
He set up a co-phase system. He can run parallel or in series.
He loaded the gutters with a tuner and works all bands with ease. 10 meters is hard to tune
But it does work. Less than 2 – 1 across the bands.

Co-phase May not be the right term.

Bill WD8OSJ

45873. RE: RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 12:59:07 UTC
From: <wagstw46@...>
Topic: 45832 Message: 45873

I suspect my neighbors and HOA might question my sanity if I was to install heat tapes on my gutters at my Fort Myers Beach Florida home!

Thanks for the thought.

Maybe some of our Northern members can consider this if have HOA restrictions.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

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> I'd tend to meet those sorts at the property line, with heavy boots on,
> so as to be able to kick 'em a long, long way OFF of my land. www
>
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>
> Yahoo Groups Links
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>

45874. Re: [TS-520_820_530_830] Antennas for 520,530,820,830 and others

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 13:04:22 UTC
From: Gordon JC Pearce
Topic: 45872 Message: 45874

On Tue, Nov 12, 2013 at 04:31:18AM -0800, paw_paw44036@... wrote:

> He loaded the gutters with a tuner and works all bands with ease. 10 meters is hard to tune
> But it does work. Less than 2 – 1 across the bands.
>
> Co-phase May not be the right term.
>
> Bill WD8OSJ

Y'know... If you had a squarish house and aluminium guttering with stratigically-placed plastic joiners, you could turn them into a Moxon at some frequency...

--
Gordonjcp MM0YEQ

45875. Re: [TS-520_820_530_830] RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 14:53:25 UTC
From: R Oler
Topic: 45832 Message: 45875

When I was in college at TAMU there was no way to put a beam on the roof...I struggled with a vertical then ran a dipole from one dorm to the next but the wire was so small to avoid observation that the wind was an issue. What I eventually did was build me a DDR on the top of the dorm. (flat roof)...for HF it worked pretty good..and was amazing immune to TVI. I have thought about doing that again on my apartment building here in Dhaka...I am on the 7th floor of eight...and while I am getting a beam for the upper H bands..>I want to give the lower ones a try. Was up on the roof today thinking of it. Robert WB5MZO/S2

Sent from my iPad

> On Nov 12, 2013, at 6:28 PM, paw_paw44036@yahoo.com wrote:
>
>
>
> Terry,
>
>
> Food for thought,
>
> Just read you post on the antenna restriction. I knew a ham in the same boat as you.
>
> What he did was install 2 sets of gutter heaters with a tuner.
>
> One to melt the ice in the winter and the other As an antenna.
>
>
> I knew another ham that remove the first metal el-bow from his gutters and
>
> Replaced with plastic as well as the short pipe about 2 feet long. He ran a ground wire through the
>
> Gutter to a stake next to the downspout. The front and rear gutter were about 60 feet long
>
> And all in one piece as they were custom made. The facers are vinyl so no interaction.
>
> He set up a co-phase system. He can run parallel or in series.
>
> He loaded the gutters with a tuner and works all bands with ease. 10 meters is hard to tune
>
> But it does work. Less than 2 – 1 across the bands.
>
>
> Co-phase May not be the right term.

>
>
> Bill WD8OSJ
>
>
>
>
> ---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> I have wintered in Florida since the late 80s and lived in condos on the beach, adult parks, and residential neighborhoods and in every case the HOA has not allowed any kind of outdoor antennas Ham, TV, FM, and in some cases no satellite dishes. Only cable was allowed..
>
>
>
> Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.
>
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>
> Where I currently live I tried to sneak a wire under the eaves of my park model trailer and a nosy neighbor (we have self appointed sheriffs!) reported me. The small gauge wire came down.
>
>
>
> So I spent the money as so many Snow Bird hams do and bought a ve rtical and placed it inside a fiberglass flag pole. Not cheap. Since lot size is small and no way to install a decent radial system in the off season I went down and buried a ground lead out to the pond that I am on and connected it to a metal plate and submerged it. As long at the pond level stays up I should be OK.
>
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> Now that I have published my transgressions someone will surely turn me in and my operation will then be limited to Virtual Ham Radio operation like Hamsphere.
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> Terry K9TW
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> ---In TS-520_820_530_830@yahoogroups.com, <densoldman@...> wrote:

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> Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
> 72 de mike m0 mcy
> Sent from my iPhone
>
> > On 11 Nov 2013, at 08:27, Wes Will <wwill@...> wrote:
> >
> >> On 11/11/2013 12:21 AM, Craig Roberts wrote:
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> >>
> >> Hello Peter,
> >>
> >> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
> >> ladder line. It worked fine with the simple Kenwood AT-230 antenna
> >> tuner on most bands from 40 - 10 meters. However, the doublet antenna
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> > I am in the way of needing some form of antenna which might be so well
> > hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS
> > Waffen (Also known as a "Home Owner's Association) cannot complain of
> > its existence.
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> > The Ham in question is in the Carolinas, the house is currently under
> > construction, and they're going to be moving in January or February.
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> > The problem is that the roof contractor has placed some foam insulation
> > boards on the underside of the actual sheathing of the roof. (Betweeb
> > the trusses and the deck boards to which the shingles will be nailed.)
> > That would present no real problem except that the foam boards are
> > laminated with a fairly thick layer of aluminum foil.
> >
> > The attic where we were going to install an antenna has been effectively
> > turned into a Faraday Cage. Not a perfect one, as the individual bat of
> > foam/foil composite are not bonded together and the entire thing
> > grounded. But initial checks in completed portions of the attic by a
> > local ham with a field strength meter show a marked decrease in RF
> > compared to the uncompleted portions of the attic still open to the sky.
> > About 80 percent signal loss, is what he told me.
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> > Short of removing the shingles, decking, and ripping the foil off of the
> > foam boards already placed (the roof was over three-fourths finished as
> > of Friday evening last), is there something which can be recommended for
> > her antenna installation?
> >
> > Money is not a big deal, within reason here. (The re-roofing would be
> > cost-prohibitive; some sort of commercial antenna with a decent tuner
> > would NOT be out of the question.)
> >
> > The antenna will be used mostly in the 40, 20, and 10 meter bands. The
> > only real criterion is that it NOT be visible when the HOA

> > anal-retentive idiots come knocking on their final inspection tour.
> > (Oh, and these busy-biddies poke their noses around the neighbourhood at
> > LEAST every week or two, so there will not be any taking it down/putting
> > it up way around them. Also ANY other resident may (and very well
> > might) report the violation of the HOA agreement. It HAS to be
> > invisible from the street.
> >
> > Suggestions? Comments? Please, someone has GOT to have had this
> > problem before. The web pages for this set of search terms are legion,
> > but none have anything to say about this foil-lined roof problem. I
> > will BUILD something for her and ship it from Illinois if it will get
> > her an antenna that won't cause the HOA nosy-parkers to twitch their
> > snouts at their house.
> >
> > Thanks in advance.
> >
> > --
> > Wes Will
> > N9KDY
> >
> > Who is wondering why ANYONE would ever want to live somewhere that
> > SNOOPS can dictate what you can and cannot have in or on your own home.
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45876. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 18:50:17 UTC
From: <eire36@...>
Topic: 45581 Message: 45876

sorry for the slow reply yes the the L1 on if is low but the FET it feeds is OK but the if cans L2 L5 L6 do not tune so it is either that they are not working or the mixer is not working as i do not have a manual i am not sure what i should read and where but i am looking for a manual so as to speed things up.
thank you

peter

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

A damaged L1 of the BCB filter on the RF board make sense, but accidental Transmit should never have got to L1 at RIF input to common gate RF amp on the IF board. If it did the RIF Mixer on RF board would have been damaged.

I would never remove L1 or any other component on IF board until replacing L41 and doing good Coil Pack alignment and RF and IF alignment.

DId you replace L1 on IF board? It is there for a reason.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

hi i have found that L1 on the RF board is low inductance and i did an RF test and found it to be dragging down the RF so i removed it an now the circuit is not attenuating the signal i have also found the same on the if board L1 and after removing it the signal is there now all this was done no power as suggested thank you all for you help
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

hi all i have ts530s that has had 100 watts of Rf inputted into the antenna socket before i purchased it i have rebuilt the rf amp for the TX and that is ok now but the rx takes 17 mv to get a signal 9 reading and 60 UV gives a zero reading but is barely heard if i inject a signal into the if board at connector 1 of 524 UV signal heard but no meter reading but 95 mv gives a signal 9 and at th ceramic filter input 524 uv gives signal 3 output s4 and the input to xtal filter s7 have checked all the components from the rif to the xtal filter and all seems ok but the if cans do not tune all measurements taken in cw mode and at 10 mhz with the narrow ssb filter in as the wide band one lowers the s meter from an s9 to an s7 the calibrator does not show a s meter reading but is heard and tune able any help greatly appreciated.

45877. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 18:52:53 UTC
From: <eire36@...>
Topic: 45581 Message: 45877

hi all sorry for the delay in getting back to you i am waiting for the return of L41 and the chokes that were partially shorted on both the RF and if boards
these were leaking the RF to ground thus making the radio deaf i checked out the rest of the RF board and it seems OK at the moment but the IF is giving me trouble as the three if cans on the IF board L2 L5 L6 do not tune so either they are shorted or the mixer is not working and i do not have a manual at this time but i am looking for one once again thank you all for the valuable help that you have given me.
peter
kf4jia

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

A damaged L1 of the BCB filter on the RF board make sense, but accidental Transmit should never have got to L1 at RIF input to common gate RF amp on the IF board. If it did the RIF Mixer on RF board would have been damaged.

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45878. RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 19:37:04 UTC
From: <paw_paw44036@...>
Topic: 45581 Message: 45878

Send a private message to paw_paw44036 @ yahoo.com and I can send you a copy of the 530 manual.
Bill

---In ts-520_820_530_830@yahoogroups.com, <eire36@...> wrote:

hi all sorry for the delay in getting back to you i am waiting for the return of L41 and the chokes that were partially shorted on both the RF and if boards
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peter
kf4jia

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the calibrator does not show a s meter reading but is heard and tune able any help greatly appreciated.

45879. 6146B test Data?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 19:51:42 UTC
From: Chris Maness
Topic: 45879 Message: 45879

I have an older mutual conductance/emission tube tester. It does not list the newer 6146B's as many do not. All of my 6146B's test at 120%. The knob that adjusts the meter level for pass/fail on my B&K 700 is the sensitivity adjustment. Does anybody know what percentage of correction should be made (assuming it is linear) to bring it in line with the A version of the tubes emission reading? I understand the tubes are similar, but the cathode coating is different giving the B version higher conductance.

Thanks,
Chris Maness KQ6UP

45880. Re: [TS-520_820_530_830] RE: deaf ts530s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 20:25:14 UTC
From: Mark Gilger
Topic: 45581 Message: 45880

Peter,

You can go to http://wb4hfn.com/KENWOOD/Kenwood-Manuals.htm to get a
good quality service manual for downloading.

Mark

At 01:52 PM 11/12/2013, eire36@... wrote:
>
>
>hi all sorry for the delay in getting back to you i am waiting for
>the return of L41 and the chokes that were partially shorted on both
>the RF and if boards
>
>these were leaking the RF to ground thus making the radio deaf i
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>
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>kf4jia
>
>
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>
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>an now the circuit is not attenuating the signal i have also found
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>there now all this was done no power as suggested thank you all for you help
>
>peter
>
>kf4jia

45881. Re: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 20:48:56 UTC
From: David Birnbaum
Topic: 45832 Message: 45881

The state of Florida has a law that allows any homeowner to erect a flagpole up to 20' in height regardless of HOA restrictions or deed restrictions. I have a Hy-Gain 18' vertical with a pulley on the top. If challenged I can always raise the flag I have in standby.

dave
k2lyv

45882. Re: [TS-520_820_530_830] Re: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 20:58:35 UTC
From: Craig Roberts
Topic: 45832 Message: 45882

Dave said: "If challenged, I can always raise the flag I have in standby..."

The Jolly Roger, we presume :-)

Craig
W3CRR

45883. Re: [TS-520_820_530_830] 6146B test Data?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 20:57:08 UTC
From: Lou Blasco
Topic: 45879 Message: 45883

Hi Chris,

I'm not familiar with the B&K tester but if you can measure the
voltages on the pins (maybe on one of the unused sockets?) and the
plate current you can work out the gm for a tube and cross check it
to the specification sheet.

Here's some simple math to work it out

http://tubes.nekhbet.com/math.shtml

Here's the spec sheet for the 6146B

http://frank.pocnet.net/sheets/079/6/6146B.pdf

Alternatively, you could use your tubes as the baseline for future
testing and set the sensitivity to 100%.

Lou
VK3ALB

At 06:51 13/11/2013, you wrote:
>
>
>I have an older mutual conductance/emission tube tester. It does not
>list the newer 6146B's as many do not. All of my 6146B's test at
>120%. The knob that adjusts the meter level for pass/fail on my B&K
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>of correction should be made (assuming it is linear) to bring it in
>line with the A version of the tubes emission reading? I understand
>the tubes are similar, but the cathode coating is different giving the
>B version higher conductance.
>
>Thanks,
>Chris Maness KQ6UP

45884. Re: [TS-520_820_530_830] Re: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 21:17:40 UTC
From: Mike
Topic: 45832 Message: 45884

Okay guys, I think the discussion about HOA rules/restrictions has gone
on long enough. Let's get back to KW issues.

73
Mike W5RKL
Moderator
On 11/12/2013 2:58 PM, Craig Roberts wrote:
>
> Dave said: "If challenged, I can always raise the flag I have in
> standby..."
>
> The Jolly Roger, we presume :-)
>
> Craig
> W3CRR
>
>

45885. Re: [TS-520_820_530_830] RE: RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 21:40:55 UTC
From: Jerry Barr
Topic: 45832 Message: 45885

how about some solar panels with loop antennas around them or someway hidden by or in them need wires to get the power in the house hihi

Jerry
 KJ6NTL
Skcc# 10843
10-10 # 76401

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, November 12, 2013 4:59 AM
Subject: [TS-520_820_530_830] RE: RE: TS-830S DIY Antenna Tuner

I suspect my neighbors and HOA might question my sanity if I was to install heat tapes on my gutters at my Fort Myers Beach Florida home!

Thanks for the thought.

Maybe some of our Northern members can consider this if have HOA restrictions.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

Terry,
Food for thought,
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One to melt the ice in the winter and the other As an antenna.
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Replaced with plastic as well as the short pipe about 2 feet long. He ran a ground wire through the
Gutter to a stake next to the downspout. The front and rear gutter were about 60 feet long
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>>>> only real criterion is that it NOT be visible when the HOA
>>>> anal-retentive idiots come knocking on their final inspection tour.
>>>> (Oh, and these busy-biddies poke their noses around the neighbourhood at
>>>> LEAST every week or two, so there will not be any taking it down/putting
>>>> it up way around them. Also ANY other resident may (and very well
>>>> might) report the violation of the HOA agreement. It HAS to be
>>>> invisible from the street.
>>>>
>>>> Suggestions? Comments? Please, someone has GOT to have had this
>>>> problem before. The web pages for this set of search terms are legion,
>>>> but none have anything to say about this foil-lined roof problem. I
>>>> will BUILD something for her and ship it from Illinois if it will get
>>>> her an antenna that won't cause the HOA nosy-parkers to twitch their
>>>> snouts at their house.
>>>>
>>>> Thanks in advance.
>>>>

>>>> --
>>>> Wes Will
>>>> N9KDY
>>>>
>>>> Who is wondering why ANYONE would ever want to live somewhere that
>>>> SNOOPS can dictate what you can and cannot have in or on your own home.
>>>> I'd tend to meet those sorts at the property line, with heavy boots on,
>>>> so as to be able to kick 'em a long, long way OFF of my land. www
>>>>
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>>>> Yahoo Groups Links
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45886. RE: Antennas for 520,530,820,830 and others

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 22:30:58 UTC
From: <paw_paw44036@...>
Topic: 45872 Message: 45886

The house is 60' x 35' So if you wanted to make an 80 meter Moxon it might just be right. He has his WAS and WAC from the ARRL and completed them in one year. I don't think he has to worry much about an antenna.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <gordon@...> wrote:

On Tue, Nov 12, 2013 at 04:31:18AM -0800, paw_paw44036@... mailto:paw_paw44036@... wrote:

> He loaded the gutters with a tuner and works all bands with ease. 10 meters is hard to tune
> But it does work. Less than 2 – 1 across the bands.
>
> Co-phase May not be the right term.
>
> Bill WD8OSJ

Y'know... If you had a squarish house and aluminium guttering with stratigically-placed plastic joiners, you could turn them into a Moxon at some frequency...

--
Gordonjcp MM0YEQ

45887. RE: TS-830S DIY Antenna Tuner

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 22:43:49 UTC
From: <paw_paw44036@...>
Topic: 45832 Message: 45887

We tried that one time on field day and the RF burned out the panel.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <kj6ntl@...> wrote:

how about some solar panels with loop antennas around them or someway hidden by or in them need wires to get the power in the house hihi

Jerry
KJ6NTL
Skcc# 10843
10-10 # 76401

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, November 12, 2013 4:59 AM
Subject: [TS-520_820_530_830] RE: RE: TS-830S DIY Antenna Tuner

I suspect my neighbors and HOA might question my sanity if I was to install heat tapes on my gutters at my Fort Myers Beach Florida home!

Thanks for the thought.

Maybe some of our Northern members can consider this if have HOA restrictions.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

Terry,

Food for thought,
Just read you post on the antenna restriction. I knew a ham in the same boat as you.
What he did was install 2 sets of gutter heaters with a tuner.
One to melt the ice in the winter and the other As an antenna.

I knew another ham that remove the first metal el-bow from his gutters and
Replaced with plastic as well as the short pipe about 2 feet long. He ran a ground wire through the
Gutter to a stake next to the downspout. The front and rear gutter were about 60 feet long
And all in one piece as they were custom made. The facers are vinyl so no interaction.
He set up a co-phase system. He can run parallel or in series.
He loaded the gutters with a tuner and works all bands with ease. 10 meters is hard to tune
But it does work. Less than 2 – 1 across the bands.

Co-phase May not be the right term.

Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I have wintered in Florida since the late 80s and lived in condos on the beach, adult parks, and residential neighborhoods and in every case the HOA has not allowed any kind of outdoor antennas Ham, TV, FM, and in some cases no satellite dishes. Only cable was allowed..

Partly in their defense you know these rules going in. If you allowed outdoor TV antennas you would have every config under the sun and mounted in manners you could not even imagine. Everyones definition of professional installation varies greatly. Same for working on your car in the drive way it is not allowed. Not even changing oil. No cars up on blocks or jacks etc. It sounds gestapo like, but drive thru any of the myriad of adult trailer parks that abound in Florida that have no such restrictions and you will see the difference. Some real eyes sores.

Where I currently live I tried to sneak a wire under the eaves of my park model trailer and a nosy neighbor (we have self appointed sheriffs!) reported me. The small gauge wire came down.

So I spent the money as so many Snow Bird hams do and bought a ve rtical and placed it inside a fiberglass flag pole. Not cheap. Since lot size is small and no way to install a decent radial system in the off season I went down and buried a ground lead out to the pond that I am on and connected it to a metal plate and submerged it. As long at the pond level stays up I should be OK.

Now that I have published my transgressions someone will surely turn me in and my operation will then be limited to Virtual Ham Radio operation like Hamsphere.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <densoldman@...> wrote:

Just a thought. Am I right in saying you have a right to fly a flag and if so a vertical antenna could be hidden in such a pole!
72 de mike m0 mcy
Sent from my iPhone

> On 11 Nov 2013, at 08:27, Wes Will <wwill@... mailto:wwill@...> wrote:
>
>> On 11/11/2013 12:21 AM, Craig Roberts wrote:
>>
>>
>> Hello Peter,
>>
>> I have been using a 55' (16.75 meter) long doublet fed with 600 ohm
>> ladder line. It worked fine with the simple Kenwood AT-230 antenna
>> tuner on most bands from 40 - 10 meters. However, the doublet antenna
>
> I am in the way of needing some form of antenna which might be so well
> hidden that a VERY restrictive Lawn Gestapo and Yard Appearance SS
> Waffen (Also known as a "Home Owner's Association) cannot complain of
> its existence.
>

> The Ham in question is in the Carolinas, the house is currently under
> construction, and they're going to be moving in January or February.
>
> The problem is that the roof contractor has placed some foam insulation
> boards on the underside of the actual sheathing of the roof. (Betweeb
> the trusses and the deck boards to which the shingles will be nailed.)
> That would present no real problem except that the foam boards are
> laminated with a fairly thick layer of aluminum foil.
>
> The attic where we were going to install an antenna has been effectively
> turned into a Faraday Cage. Not a perfect one, as the individual bat of
> foam/foil composite are not bonded together and the entire thing
> grounded. But initial checks in completed portions of the attic by a
> local ham with a field strength meter show a marked decrease in RF
> compared to the uncompleted portions of the attic still open to the sky.
> About 80 percent signal loss, is what he told me.
>
> Short of removing the shingles, decking, and ripping the foil off of the
> foam boards already placed (the roof was over three-fourths finished as
> of Friday evening last), is there something which can be recommended for
> her antenna installation?
>
> Money is not a big deal, within reason here. (The re-roofing would be
> cost-prohibitive; some sort of commercial antenna with a decent tuner
> would NOT be out of the question.)
>
> The antenna will be used mostly in the 40, 20, and 10 meter bands. The
> only real criterion is that it NOT be visible when the HOA
> anal-retentive idiots come knocking on their final inspection tour.
> (Oh, and these busy-biddies poke their noses around the neighbourhood at
> LEAST every week or two, so there will not be any taking it down/putting
> it up way around them. Also ANY other resident may (and very well
> might) report the violation of the HOA agreement. It HAS to be
> invisible from the street.
>
> Suggestions? Comments? Please, someone has GOT to have had this
> problem before. The web pages for this set of search terms are legion,
> but none have anything to say about this foil-lined roof problem. I
> will BUILD something for her and ship it from Illinois if it will get
> her an antenna that won't cause the HOA nosy-parkers to twitch their
> snouts at their house.
>
> Thanks in advance.
>
> --
> Wes Will
> N9KDY
>
> Who is wondering why ANYONE would ever want to live somewhere that
> SNOOPS can dictate what you can and cannot have in or on your own home.

> I'd tend to meet those sorts at the property line, with heavy boots on,
> so as to be able to kick 'em a long, long way OFF of my land. www
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>
> Yahoo Groups Links
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45888. RE: RE: RE: RE: ALC high in sideband positions, no RF output

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-12 16:56:34 UTC
From: Willard Young
Topic: 45822 Message: 45888

I think the resting current was 60ma. Cleaned connections and problem is gone. I'll let you know if it returns. Thanks&73, Will

45889. RE: RE: Re: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-13 01:01:52 UTC
From: <ke5ftf@...>
Topic: 45778 Message: 45889

Hi Bryon,
Have not heard back from you on the 520S Face & Audio board...
I have a nice front face for the 520S...

Please email me off board at ..... ke5ftf "at" mail.com
Thanks,
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <ke5ftf@...> wrote:

OK, $43 for the 520S front face & audio board....
I will ship by Priority Flat Rate mail for $12.00...
$55 total...
Let me know how you want to fund...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <bjtatum1@...> wrote:

OK Bob-
Real fine. I would like to see if I could get an Audio Output board also. Would you accept 43.00 plus shipping for the two? Thanks, Byron

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, November 9, 2013 8:20 AM
Subject: RE: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I should have some nice front panels for the 520 & 520S, will have to find them...
Sell a nice one for $25 plus my cost to mail....
I'll look today...
Bob
****

---In TS-520_820_530_830@yahoogroups.com, <rdrbill@...> wrote: Bob,

Any chance you have a nice front panel for a TS-520 (non-S)?

From: Byron Tatum <bjtatum1@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 6:31 AM
Subject: Re: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

Hello-Do you have a nice cond TS-520S front panel?
Byron WA5THJ

From: "ke5ftf@..." <ke5ftf@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 8, 2013 7:43 AM
Subject: [TS-520_820_530_830] Kenwood 520/520S Parts reduced

I thought I would let the hybrid group know that I am reducing my prices on the 520 & 520S parts.... You can find my ads on QTH.com http://qth.com/ under the HF section, just do a Search on KE5FTF... Thanks, Bob **********

45890. AT-200 Tuner for sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-13 19:59:19 UTC
From: <bonnevilleblb@...>
Topic: 45890 Message: 45890

All the talk about tuners reminded me - I've got a Kenwood AT-200 tuner in great shape that I am thinking about selling. At least an 8 out of 10 for looks and performance. Christmas is coming and I need to sell some stuff! $195 plus $20 shipping in the continental US. If nobody's interested it might go up on ebay sometime soon. There's one way over $200 selling right now.

I've got a Washburn Idol Pro like brand new with box and tags (played very little) that I need to sell since I just bought a new guitar, too...

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45891. Re: [TS-520_820_530_830] AT-200 Tuner for sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-13 22:32:16 UTC
From: Ron
Topic: 45890 Message: 45891

Barry I am interested in ur tuner. Thanks Ron kl4pwf

Ron KK4PWF

On Nov 13, 2013, at 1:59 PM, <bonnevilleblb@...> wrote:

>
>
> All the talk about tuners reminded me - I've got a Kenwood AT-200 tuner in great shape that I am thinking about selling. At least an 8 out of 10 for looks and performance. Christmas is coming and I need to sell some stuff! $195 plus $20 shipping in the continental US. If nobody's interested it might go up on ebay sometime soon. There's one way over $200 selling right now.
>
> I've got a Washburn Idol Pro like brand new with box and tags (played very little) that I need to sell since I just bought a new guitar, too...
>
> Barry
> KK4RXN
> Jeremiah 29:11-13 / John 3:16
>
>
>

45892. RE: AT-200 Tuner for sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 13:29:00 UTC
From: <bonnevilleblb@...>
Topic: 45890 Message: 45892

Good deal, Ron. With this new Yahoo layout I'm having a little trouble finding your email address to email you off the board, so if you don't mind, send me an email at bonnevilleblb@yahoo.com. I'll give you details. Thanks!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Barry I am interested in ur tuner. Thanks Ron kl4pwf

Ron KK4PWF

On Nov 13, 2013, at 1:59 PM, <bonnevilleblb@... mailto:bonnevilleblb@...> wrote:

All the talk about tuners reminded me - I've got a Kenwood AT-200 tuner in great shape that I am thinking about selling. At least an 8 out of 10 for looks and performance. Christmas is coming and I need to sell some stuff! $195 plus $20 shipping in the continental US. If nobody's interested it might go up on ebay sometime soon. There's one way over $200 selling right now.

I've got a Washburn Idol Pro like brand new with box and tags (played very little) that I need to sell since I just bought a new guitar, too...

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45893. TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 01:24:28 UTC
From: BARRY BROWN
Topic: 45893 Message: 45893

Hello to all,

I have recently purchased one of these units. Unfortunately the seller did not disclose that it does not receive. My certified Kenwood repair guru confirmed this. The unit does get power, the internal speaker hisses but otherwise I cannot tell what works and what doesn't. I do not have a microphone yet (mainly because I have no license yet and wanted to figure out the workings of the radio and to listen to the world) so transmitting wasn't an issue but I'll want to try it sometime.

So, I am wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

Now, please bear in mind that ham jargon is a foreign language to me. Plain English will be appreciated because I have no idea what any abbreviations mean.

Thanks in advance

Airwolff
No License Yet

45894. RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 14:40:05 UTC
From: <bonnevilleblb@...>
Topic: 45893 Message: 45894

Hey, Barry,

Glad to see you on here! I'm sure these guys will help you since they are the gurus on the 820.

I wanted to say hello and to warn the group - now there are TWO Barry Browns here. ;-)

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45895. RE: [TS-520_820_530_830] TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 14:49:08 UTC
From: Brad Allen
Topic: 45893 Message: 45895

It has nothing to do with Ham Jargon; it simply has to do with your electronic expertise. In all honesty, if you do not understand the electronics, do not open that radio. There is high voltage in the unit even if you do not wish to transmit. You can test that after the fact of a license or someone with you so they can teach you how to tune it up. So from the beginning, first thing to do is to try and pry out of the seller just what the radio was used for, Ham or CB which the latter would have been illegal and hopefully the inside has not been trashed. Second or at the same time, READ your manual, understand the whole thing. Read a service manual as well, basically the description of operation. If you know a certified Kenwood repairman, maybe he will fix it for you, but you should understand the operation including proper tuning of the finals. Since you plan to get a license, simple items you will need is an antenna. And a Dummy load for at least 100 watts and maybe a DVM or digital volt meter.

This will help you out and give you some understanding of the radio. Get a book on the tech license and read that as well. Have fun Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of BARRY BROWN
Sent: Wednesday, November 13, 2013 8:24 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] TS-820 Issue

Hello to all,

I have recently purchased one of these units. Unfortunately the seller did not disclose that it does not receive. My certified Kenwood repair guru confirmed this. The unit does get power, the internal speaker hisses but otherwise I cannot tell what works and what doesn't. I do not have a microphone yet (mainly because I have no license yet and wanted to figure out the workings of the radio and to listen to the world) so transmitting wasn't an issue but I'll want to try it sometime.

So, I am wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

Now, please bear in mind that ham jargon is a foreign language to me. Plain English will be appreciated because I have no idea what any abbreviations mean.

Thanks in advance

Airwolff

No License Yet

45896. RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 15:52:41 UTC
From: <rrmvargo@...>
Topic: 45893 Message: 45896

I would 2nd those comments. As soon as you hit that power button, there are LETHAL voltages inside the radio. Even the well experienced tech can be fooled or become unencumbered by the thought process. Now just because you are not a licensed Ham at this point, doesn't mean you aren't a very experienced tech. If so, let us know. Regardless, keep one hand inside your pocket should you decide to open up the 820. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <ballen@...> wrote:

It has nothing to do with Ham Jargon; it simply has to do with your electronic expertise. In all honesty, if you do not understand the electronics, do not open that radio. There is high voltage in the unit even if you do not wish to transmit. You can test that after the fact of a license or someone with you so they can teach you how to tune it up. So from the beginning, first thing to do is to try and pry out of the seller just what the radio was used for, Ham or CB which the latter would have been illegal and hopefully the inside has not been trashed. Second or at the same time, READ your manual, understand the whole thing. Read a service manual as well, basically the description of operation. If you know a certified Kenwood repairman, maybe he will fix it for you, but you should understand the operation including proper tuning of the finals. Since you plan to get a license, simple items you will need is an antenna. And a Dummy load for at least 100 watts and maybe a DVM or digital volt meter.
This will help you out and give you some understanding of the radio. Get a book on the tech license and read that as well. Have fun Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto: TS-520_820_530_830@yahoogroups.com] On Behalf Of BARRY BROWN
Sent: Wednesday, November 13, 2013 8:24 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] TS-820 Issue

Hello to all,

I have recently purchased one of these units. Unfortunately the seller did not disclose that it does not receive. My certified Kenwood repair guru confirmed this. The unit does get power, the internal speaker hisses but otherwise I cannot tell what works and what doesn't. I do not have a microphone yet (mainly because I have no license yet and wanted to figure out the workings of the radio and to listen to the world) so transmitting wasn't an issue but I'll want to try it sometime.

So, I am wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

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Thanks in advance

Airwolff

No License Yet

45897. TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 16:25:47 UTC
From: <geekorama@...>
Topic: 45897 Message: 45897

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45898. Re: [TS-520_820_530_830] RE: AT-200 Tuner for sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 19:06:57 UTC
From: John Boardman
Topic: 45890 Message: 45898

If Ron changes his mind, I'd like second consideration.

John Boardman
KD5ZGX

On Thursday, November 14, 2013 7:29 AM, "bonnevilleblb@..." <bonnevilleblb@...> wrote:

Good deal, Ron. With this new Yahoo layout I'm having a little trouble finding your email address to email you off the board, so if you don't mind, send me an email at bonnevilleblb@yahoo.com. I'll give you details. Thanks!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Barry I am interested in ur tuner. Thanks Ron kl4pwf

Ron KK4PWF

On Nov 13, 2013, at 1:59 PM, <bonnevilleblb@...> wrote:
>
>
All the talk about tuners reminded me - I've got a Kenwood AT-200 tuner in great shape that I am thinking about selling. At least an 8 out of 10 for looks and performance. Christmas is coming and I need to sell some stuff! $195 plus $20 shipping in the continental US. If nobody's interested it might go up on ebay sometime soon. There's one way over $200 selling right now.
>
>
>I've got a Washburn Idol Pro like brand new with box and tags (played very little) that I need to sell since I just bought a new guitar, too...
>
>
>Barry
>KK4RXN
>Jeremiah 29:11-13 / John 3:16

45899. Re: [TS-520_820_530_830] TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 19:19:09 UTC
From: W LEWIS
Topic: 45893 Message: 45899

My first question: is the VFO jumper plug in place?
Butch Lewis
KØPSA

From: Brad Allen <ballen@frontiernet.net>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, November 14, 2013 8:49 AM
Subject: RE: [TS-520_820_530_830] TS-820 Issue

It has nothing to do with Ham Jargon; it simply has to do with your electronic expertise. In all honesty, if you do not understand the electronics, do not open that radio. There is high voltage in the unit even if you do not wish to transmit. You can test that after the fact of a license or someone with you so they can teach you how to tune it up. So from the beginning, first thing to do is to try and pry out of the seller just what the radio was used for, Ham or CB which the latter would have been illegal and hopefully the inside has not been trashed. Second or at the same time, READ your manual, understand the whole thing. Read a service manual as well, basically the description of operation. If you know a certified Kenwood repairman, maybe he will fix it for you, but you should understand the operation including proper tuning of the finals. Since you plan to get a license, simple items you will need is an antenna. And a Dummy load for at least 100 watts and maybe a DVM or digital volt meter.
This will help you out and give you some understanding of the radio. Get a book on the tech license and read that as well. Have fun Brad KB2CHY

From:TS-520_820_530_830@yahoogroups.com [mailto: TS-520_820_530_830@yahoogroups.com] On Behalf Of BARRY BROWN
Sent: Wednesday, November 13, 2013 8:24 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] TS-820 Issue

Hello to all,

I have recently purchased one of these units. Unfortunately the seller did not disclose that it does not receive. My certified Kenwood repair guru confirmed this. The unit does get power, the internal speaker hisses but otherwise I cannot tell what works and what doesn't. I do not have a microphone yet (mainly because I have no license yet and wanted to figure out the workings of the

radio and to listen to the world) so transmitting wasn't an issue but I'll want to try it sometime.

So, I am
wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

Now, please
bear in mind that ham jargon is a foreign language to me. Plain English will be appreciated because I have no idea what any abbreviations mean.

Thanks in
advance

Airwolff
No License
Yet

45900. Re: [TS-520_820_530_830] TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 19:57:28 UTC
From: Gordon JC Pearce
Topic: 45893 Message: 45900

On Thu, Nov 14, 2013 at 11:19:09AM -0800, W LEWIS wrote:
> My first question: is the VFO jumper plug in place?
> Butch Lewis
> K?PSA

My question just before that would be "Have you got an aerial connected?"

You won't hear *anything* other than incredibly strong stations in the next room, without that.

--
Gordonjcp MM0YEQ

45901. RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 17:20:57 UTC
From: <geekorama@...>
Topic: 45897 Message: 45901

Also tapped on the relay with the end of a screwdriver while receiving without success...no change (another suggestion).

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45902. RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 17:16:46 UTC
From: <geekorama@...>
Topic: 45897 Message: 45902

Also did the tapping on the relay without success.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
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73 Jim, N7JS

45903. RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 21:07:36 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45903

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45904. Re: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-14 23:17:57 UTC
From: clifford wright
Topic: 45893 Message: 45904

Well Airwolff!
I regret to say that you don't really have the right equipment for your level of expertise.
The Kenwood Ts820 is quite a complex bit of kit. Of course this means that there could be dozens of possibilities for a fault. I have restored and updated 2 of them, but then I have 60 years of electronics experience behind me.
So my own feeling is that you would be better off with a more modern type of receiver for now.
Although the Kenwood hybrids are great sets to tinker with, they do need a LOT of know how especially as they combine both tube and semiconductor technology (and dangerous high voltages!!).
So, I hope you succeed in your efforts, but you will need a very good "Elmer" to help out at the very least.
73 ZL1BDA ex G3NIA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45905. RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 11:59:22 UTC
From: <wagstw46@...>
Topic: 45893 Message: 45905

How did your "certified" Kenwood repair guru confirm that the radio does not receive?

Did he have the radio in his possession or was his confirmation based on talking you thru some form of testing?

You have been given good advice not to remove the covers and to obtain the operating and service manuals and start reading for starters..

I would suggest that since you want to just listen at this time to make sure that the Send/Receive switch is placed in Receive and left there, the CAR level control is set full CCW, and that the Heater switch is left in the OFF position. This ensures that there is no way to have any unintentional transmit that could damage your final tubes.

Read the operating manual and familiarize yourself with the controls. Then pre-set all the controls for Receive mode as listed under Section 4.2 Receiver Tuning Table 1.

One test you can do that will tell you something about the Coil Pack and RF and IFT alignment is:

1. Set the VFO to approx 200 (Band switch at 14mhz)
2. Set the Drive Control to 1200
3. Set the RF Gain to Full CW or max open (AF gain to comfortable level)
4. Set the Function Switch to 25khz (Marker or Crystal calibrator on)
5. Tune the VFO around 200 until you hear the Marker signal
6. Peak the Marker signal using the Drive Control (peak = max deflection on S meter)
7. Should see approx S9 indication on the S-meter
8. Repeat this procedure on each band.

If you can peak the Marker signal on each band to approx S9 you know that the receiver RF and IF stages are functioning and alignment is pretty good. The rig should be able to copy off air signals.

Make sure you turn off Marker when done.

As someone mentioned connect as much wire as you can to the SO-239 antenna connector on rear of rig (single lead inserted into the center will work). Wont work as well as resonant dipole, but should be able to copy off air signals. Probably listen on 40 meters for starters.

If that works then suggest you put up a 40 meter dipole or inverted Vee as high as you can for starters. Will receive much better than piece of wire strung around perimeter of your room.

If you get no Maker signal or very low Marker signal, you need hands on help from a "certified" Kenwood guru. Not sure what that means, but can get the help here but will be slow and tedious to talk you thru tests and repairs. Local club may produce and Elmer?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <airwolff@...> wrote:

Hello to all,

I have recently purchased one of these units. Unfortunately the seller did not disclose that it does not receive. My certified Kenwood repair guru confirmed this. The unit does get power, the internal speaker hisses but otherwise I cannot tell what works and what doesn't. I do not have a microphone yet (mainly because I have no license yet and wanted to figure out the workings of the radio and to listen to the world) so transmitting wasn't an issue but I'll want to try it sometime.

So, I am wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

Now, please bear in mind that ham jargon is a foreign language to me. Plain English will be appreciated because I have no idea what any abbreviations mean.

Thanks in advance

Airwolff
No License Yet

45906. RE: RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 12:28:18 UTC
From: <wagstw46@...>
Topic: 45893 Message: 45906

I forgot to mention that Butch also gave you good advice to confirm that Pins 8 and 9 jumper is installed in the External VFO socket on rear panel. Your manual shows this in Figure 4 around page 8. Your guru should have confirmed this.

If the black plug is missing you can use a piece of hook-up wire but not the best and must be correct gauge to make reliable contact as it is inserted into the socket. This jumper provides 9vdc regulated supply to your internal VFO.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

How did your "certified" Kenwood repair guru confirm that the radio does not receive?

Did he have the radio in his possession or was his confirmation based on talking you thru some form of testing?

You have been given good advice not to remove the covers and to obtain the operating and service manuals and start reading for starters..

I would suggest that since you want to just listen at this time to make sure that the Send/Receive switch is placed in Receive and left there, the CAR level control is set full CCW, and that the Heater switch is left in the OFF position. This ensures that there is no way to have any unintentional transmit that could damage your final tubes.

Read the operating manual and familiarize yourself with the controls. Then pre-set all the controls for Receive mode as listed under Section 4.2 Receiver Tuning Table 1.

One test you can do that will tell you something about the Coil Pack and RF and IFT alignment is:

1. Set the VFO to approx 200 (Band switch at 14mhz)
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4. Set the Function Switch to 25khz (Marker or Crystal calibrator on)
5. Tune the VFO around 200 until you hear the Marker signal
6. Peak the Marker signal using the Drive Control (peak = max deflection on S meter)
7. Should see approx S9 indication on the S-meter
8. Repeat this procedure on each band.

If you can peak the Marker signal on each band to approx S9 you know that the receiver RF and IF stages are functioning and alignment is pretty good. The rig should be able to copy off air signals.

Make sure you turn off Marker when done.

As someone mentioned connect as much wire as you can to the SO-239 antenna connector on rear of rig (single lead inserted into the center will work). Wont work as well as resonant

dipole, but should be able to copy off air signals. Probably listen on 40 meters for starters.

If that works then suggest you put up a 40 meter dipole or inverted Vee as high as you can for starters. Will receive much better than piece of wire strung around perimeter of your room.

If you get no Maker signal or very low Marker signal, you need hands on help from a "certified" Kenwood guru. Not sure what that means, but can get the help here but will be slow and tedious to talk you thru tests and repairs. Local club may produce and Elmer?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <airwolff@...> wrote:

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So, I am wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

Now, please bear in mind that ham jargon is a foreign language to me. Plain English will be appreciated because I have no idea what any abbreviations mean.

Thanks in advance

Airwolff
No License Yet

45907. CW/Tune TX offset adjustment TS820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 14:38:37 UTC
From: <zigs68@...>
Topic: 45907 Message: 45907

Hi all -

I was trying to read through previous posts on this and there was some mention of how to adjust the CW/Tune TX offset to get the normal 800 Hz from what I read was the TX frequency for USB. The TS820S I have seems to show an offset of 400 Hz only according to the display which on receive is rather accurate judging by the signals I am receiving and that the WWV signal received is accurate to the display. Now it could be that the display is not reading this right but how do you adjust the CWTune offset if it is off?

The previous posts mentioned fiddling with trimmers on CAR1 and CAR2 but they were not too specific on the details. I see in the service manual a carrier unit adjustment which may take care of this offset perhaps? The radio works fine otherwise after fixing an intermittent no TX issue which was traced to a loose set of what I call header pins on the IF board that was re-soldered and the TX works fine now

Any info would be great - Sig - KB2HHU

45908. Re: [TS-520_820_530_830] RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 14:41:28 UTC
From: K5MYJ
Topic: 45893 Message: 45908

He needs to know the time of day to listen on each band.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: wagstw46@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 3:59 AM
Subject: [TS-520_820_530_830] RE: TS-820 Issue

How did your "certified" Kenwood repair guru confirm that the radio does not receive?

Did he have the radio in his possession or was his confirmation based on talking you thru some form of testing?

You have been given good advice not to remove the covers and to obtain the operating and service manuals and start reading for starters..

I would suggest that since you want to just listen at this time to make sure that the Send/Receive switch is placed in Receive and left there, the CAR level control is set full CCW, and that the Heater switch is left in the OFF position. This ensures that there is no way to have any unintentional transmit that could damage your final tubes.

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2. Set the Drive Control to 1200

3. Set the RF Gain to Full CW or max open (AF gain to comfortable level)

4. Set the Function Switch to 25khz (Marker or Crystal calibrator on)

5. Tune the VFO around 200 until you hear the Marker signal

6. Peak the Marker signal using the Drive Control (peak = max deflection on S meter)

7. Should see approx S9 indication on the S-meter

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off air signals.

Make sure you turn off Marker when done.

As someone mentioned connect as much wire as you can to the SO-239 antenna connector on rear of rig (single lead inserted into the center will work). Wont work as well as resonant dipole, but should be able to copy off air signals. Probably listen on 40 meters for starters.

If that works then suggest you put up a 40 meter dipole or inverted Vee as high as you can for starters. Will receive much better than piece of wire strung around perimeter of your room.

If you get no Maker signal or very low Marker signal, you need hands on help from a "certified" Kenwood guru. Not sure what that means, but can get the help here but will be slow and tedious to talk you thru tests and repairs. Local club may produce and Elmer?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <airwolff@...> wrote:

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Thanks in advance

Airwolff
No License Yet

45909. Re: [TS-520_820_530_830] RE: RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 14:50:22 UTC
From: Mike
Topic: 45893 Message: 45909

Airwolff,

I'll assume that the rear remote VFO socket has either the factory 9 pin plug inserted or a wire connecting pins 8 and 9 together.

You did not mentioned whether your TS-820 has the digital display or not. If your TS-820 does, in fact, have the digital display and with your TS-820 powered up, what is the digital display showing? If it's "dark", nothing displayed, then that is a clear indication the TS-820's PLL Unit has changed states from "Lock" to "Unlock". This is a simple test you can perform without removing any covers and it is a test your "certified Kenwood guru" should have asked you!

73
Mike W5RKL

On 11/15/2013 6:28 AM, wagstw46@... wrote:
>
> I forgot to mention that Butch also gave you good advice to confirm
> that Pins 8 and 9 jumper is installed in the External VFO socket on
> rear panel. Your manual shows this in Figure 4 around page 8. Your
> guru should have confirmed this.
>
>
> If the black plug is missing you can use a piece of hook-up wire but
> not the best and must be correct gauge to make reliable contact as it
> is inserted into the socket. This jumper provides 9vdc regulated
> supply to your internal VFO.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
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>
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>
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> to have any unintentional transmit that could damage your final tubes.
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> 2. Set the Drive Control to 1200
>
> 3. Set the RF Gain to Full CW or max open (AF gain to comfortable level)
>
> 4. Set the Function Switch to 25khz (Marker or Crystal calibrator on)
>
> 5. Tune the VFO around 200 until you hear the Marker signal
>
> 6. Peak the Marker signal using the Drive Control (peak = max
> deflection on S meter)
>
> 7. Should see approx S9 indication on the S-meter
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> 8. Repeat this procedure on each band.
>
>
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> pretty good. The rig should be able to copy off air signals.
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>
> Make sure you turn off Marker when done.
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> Terry K9TW
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> ---In TS-520_820_530_830@yahoogroups.com, <airwolff@...> wrote:
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> Hello to all,
> I have recently purchased one of these units. Unfortunately the
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> Thanks in advance
> Airwolff
> No License Yet
>
>

45910. RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 16:23:27 UTC
From: <geekorama@...>
Topic: 45897 Message: 45910

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

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I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45911. RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 16:49:34 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45911

Jim:

If you turn the RF gain pot full CCW or down does the S meter peg up scale?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Hi Terry,

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45912. RE: Re: [TS-520_820_530_830] RE: RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 17:03:19 UTC
From: <wagstw46@...>
Topic: 45893 Message: 45912

Yes no PLL then no reason to check Maker signal strength.

No Display usually and most commonly means PLL is unlocked, but not always. Can be a bad display.

I would call it more of a symptom or description of the current operational condition than a "test", but an important piece of information that would be readily apparent if rig was on the bench. .

I clearly failed to ask about this so good reason why I am not a "certified" Kenwood guru!

If anyone knows how one attains that certification I would be interested in the study guides and where and who administers the test. I am not kidding.

Perhaps what we are really talking about is an "authorized dealer" or "service center?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Airwolff,

I'll assume that the rear remote VFO socket has either the factory 9 pin plug inserted or a wire connecting pins 8 and 9 together.

You did not mentioned whether your TS-820 has the digital display or not. If your TS-820 does, in fact, have the digital display and with your TS-820 powered up, what is the digital display showing? If it's "dark", nothing displayed, then that is a clear indication the TS-820's PLL Unit has changed states from "Lock" to "Unlock". This is a simple test you can perform without removing any covers and it is a test your "certified Kenwood guru" should have asked you!

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Read the operating manual and familiarize yourself with the controls. Then pre-set all the controls for Receive mode as listed under Section 4.2 Receiver Tuning Table 1.

One test you can do that will tell you something about the Coil Pack and RF and IFT alignment is:

1. Set the VFO to approx 200 (Band switch at 14mhz)
2. Set the Drive Control to 1200
3. Set the RF Gain to Full CW or max open (AF gain to comfortable level)
4. Set the Function Switch to 25khz (Marker or Crystal calibrator on)
5. Tune the VFO around 200 until you hear the Marker signal
6. Peak the Marker signal using the Drive Control (peak = max deflection on S meter)
7. Should see approx S9 indication on the S-meter
8. Repeat this procedure on each band.

If you can peak the Marker signal on each band to approx S9 you know that the receiver RF and IF stages are functioning and alignment is pretty good. The rig should be able to copy off air signals.

Make sure you turn off Marker when done.

As someone mentioned connect as much wire as you can to the SO-239 antenna connector on rear of rig (single lead inserted into the center will work). Wont work as well as resonant dipole, but should be able to copy off air signals. Probably listen on 40 meters for starters.

If that works then suggest you put up a 40 meter dipole or inverted Vee as high as you can for starters. Will receive much better than piece of wire strung around perimeter of your room.

If you get no Maker signal or very low Marker signal, you need hands on help from a "certified" Kenwood guru. Not sure what that means, but can get the help here but will be slow and tedious to talk you thru tests and repairs. Local club may produce and Elmer?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <airwolff@...> mailto:airwolff@... wrote:

Hello to all,

I have recently purchased one of these units. Unfortunately the seller did not disclose that it does not receive. My certified Kenwood repair guru confirmed this. The unit does get power, the internal speaker hisses but otherwise I cannot tell what works and what doesn't. I do not have a microphone yet (mainly because I have no license yet and wanted to figure out the workings of the radio and to listen to the world) so transmitting wasn't an issue but I'll want to try it sometime.

So, I am wondering if anyone has had to address the issue of not receiving and what steps anyone took to resolve said issue.

Now, please bear in mind that ham jargon is a foreign language to me. Plain English will be appreciated because I have no idea what any abbreviations mean.

Thanks in advance

Airwolff
No License Yet

45913. Re: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 18:40:55 UTC
From: Young Kim
Topic: 45897 Message: 45913

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:
>
>
>Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.

>I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
>73 Jim, N7JS

45914. RE: Re: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 18:59:45 UTC
From: <geekorama@...>
Topic: 45897 Message: 45914

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <ykpwr45@...> wrote:

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

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I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45915. Re: [TS-520_820_530_830] RE: RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-15 19:47:36 UTC
From: Mike
Topic: 45893 Message: 45915

Barry,

I mean no disrespect by what I am about to say.

If your knowledge of what you refer to as "ham jargon" which I assume is terms/phrases used in normal operation of your TS-820/ham equipment and electronic troubleshooting discussions, is non-existent, then you are going to have a very difficult time understanding and performing various tasks, even when stated in "Plain English", that will be asked of you.

One of the biggest misconceptions hams or people who want to be hams have is, especially those people/hams who's level of knowledge/skills and experience is either very low or non-existent, they believe for some odd reason they can learn all they need to know to fix their complex Kenwood hybrid by simply asking some questions of those who know more than they do. That's ludicrous thinking Barry. You can't gain the knowledge, experience, and skills necessary to properly and "safely" troubleshooting and repair you Kenwood TS-820 transceiver, over night, over a weekend, or even in 6 months. It takes time, a lot of time studying. In short, you can't learn it all by asking a few questions.

There are voltages inside the TS-820 that can easily kill you! You also must have experience using test equipment and skills using the test equipment when working around and measuring high voltage. Without those skills and experience, the chances of you damaging your TS-820, the test equipment, even yourself, is very high.

You didn't say whether the operator's manual came with your TS-820? If it didn't, that should have been the first thing you obtained and thoroughly read AND understood what you read, BEFORE you plugged the 820 into the wall outlet and powered it up! Too many people ignore this simple but very important and necessary step.

73
Mike W5RKL

On 11/15/2013 11:03 AM, wagstw46@... wrote:
>
> Yes no PLL then no reason to check Maker signal strength.
>
>
> No Display usually and most commonly means PLL is unlocked, but not
> always. Can be a bad display.
>
>
> I would call it more of a symptom or description of the current
> operational condition than a "test", but an important piece of

> information that would be readily apparent if rig was on the bench. .
>
>
> I clearly failed to ask about this so good reason why I am not a
> "certified" Kenwood guru!
>
>
> If anyone knows how one attains that certification I would be
> interested in the study guides and where and who administers the test.
> I am not kidding.
>
>
> Perhaps what we are really talking about is an "authorized dealer" or
> "service center?
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:
>
> Airwolff,
>
> I'll assume that the rear remote VFO socket has either the factory 9
> pin plug inserted or a wire connecting pins 8 and 9 together.
>
> You did not mentioned whether your TS-820 has the digital display or
> not. If your TS-820 does, in fact, have the digital display and with
> your TS-820 powered up, what is the digital display showing? If it's
> "dark", nothing displayed, then that is a clear indication the
> TS-820's PLL Unit has changed states from "Lock" to "Unlock". This is
> a simple test you can perform without removing any covers and it is a
> test your "certified Kenwood guru" should have asked you!
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 11/15/2013 6:28 AM, wagstw46@... <mailto:wagstw46@...> wrote:
>
>> I forgot to mention that Butch also gave you good advice to
>> confirm that Pins 8 and 9 jumper is installed in the External VFO
>> socket on rear panel. Your manual shows this in Figure 4 around
>> page 8. Your guru should have confirmed this.

>>
>>
>> If the black plug is missing you can use a piece of hook-up wire
>> but not the best and must be correct gauge to make reliable
>> contact as it is inserted into the socket. This jumper provides
>> 9vdc regulated supply to your internal VFO.
>>
>>
>> Terry K9TW
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>, <wagstw46@...>
>> <mailto:wagstw46@...> wrote:
>>
>> How did your "certified" Kenwood repair guru confirm that the
>> radio does not receive?
>>
>>
>> Did he have the radio in his possession or was his confirmation
>> based on talking you thru some form of testing?
>>
>>
>> You have been given good advice not to remove the covers and to
>> obtain the operating and service manuals and start reading for
>> starters..
>>
>>
>> I would suggest that since you want to just listen at this time
>> to make sure that the Send/Receive switch is placed in Receive
>> and left there, the CAR level control is set full CCW, and that
>> the Heater switch is left in the OFF position. This ensures that
>> there is no way to have any unintentional transmit that could
>> damage your final tubes.
>>
>>
>> Read the operating manual and familiarize yourself with the
>> controls. Then pre-set all the controls for Receive mode as
>> listed under Section 4.2 Receiver Tuning Table 1.
>>
>>
>> One test you can do that will tell you something about the Coil
>> Pack and RF and IFT alignment is:
>>
>>
>> 1. Set the VFO to approx 200 (Band switch at 14mhz)
>>
>> 2. Set the Drive Control to 1200
>>

>> 3. Set the RF Gain to Full CW or max open (AF gain to comfortable
>> level)
>>
>> 4. Set the Function Switch to 25khz (Marker or Crystal
>> calibrator on)
>>
>> 5. Tune the VFO around 200 until you hear the Marker signal
>>
>> 6. Peak the Marker signal using the Drive Control (peak = max
>> deflection on S meter)
>>
>> 7. Should see approx S9 indication on the S-meter
>>
>> 8. Repeat this procedure on each band.
>>
>>
>> If you can peak the Marker signal on each band to approx S9 you
>> know that the receiver RF and IF stages are functioning and
>> alignment is pretty good. The rig should be able to copy off air
>> signals.
>>
>>
>> Make sure you turn off Marker when done.
>>
>>
>> As someone mentioned connect as much wire as you can to the
>> SO-239 antenna connector on rear of rig (single lead inserted
>> into the center will work). Wont work as well as resonant dipole,
>> but should be able to copy off air signals. Probably listen on 40
>> meters for starters.
>>
>>
>> If that works then suggest you put up a 40 meter dipole or
>> inverted Vee as high as you can for starters. Will receive much
>> better than piece of wire strung around perimeter of your room.
>>
>>
>> If you get no Maker signal or very low Marker signal, you need
>> hands on help from a "certified" Kenwood guru. Not sure what that
>> means, but can get the help here but will be slow and tedious to
>> talk you thru tests and repairs. Local club may produce and Elmer?
>>
>>
>>
>> Terry K9TW
>>
>>
>>
>> ---In TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>, <airwolff@...>

>> <mailto:airwolff@...> wrote:
>>
>> Hello to all,
>> I have recently purchased one of these units. Unfortunately
>> the seller did not disclose that it does not receive. My
>> certified Kenwood repair guru confirmed this. The unit does
>> get power, the internal speaker hisses but otherwise I cannot
>> tell what works and what doesn't. I do not have a microphone
>> yet (mainly because I have no license yet and wanted to
>> figure out the workings of the radio and to listen to the
>> world) so transmitting wasn't an issue but I'll want to try
>> it sometime.
>> So, I am wondering if anyone has had to address the issue of
>> not receiving and what steps anyone took to resolve said issue.
>> Now, please bear in mind that ham jargon is a foreign
>> language to me. Plain English will be appreciated because I
>> have no idea what any abbreviations mean.
>> Thanks in advance
>> Airwolff
>> No License Yet
>>
>
>

45916. RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-16 16:08:17 UTC
From: <rrmvargo@...>
Topic: 45897 Message: 45916

I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <ykpwr45@...> wrote:

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45917. RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-16 18:05:31 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45917

TS520 do not have connectors they use wire wrap terminal posts. Molex connectors were introduced with the TS-820

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

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I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

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Jim:

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Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45918. RE: AT-200 Tuner for sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-16 19:38:11 UTC
From: <bonnevilleblb@...>
Topic: 45890 Message: 45918

I just emailed you, John.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <pyrrus2003@...> wrote:

If Ron changes his mind, I'd like second consideration.

John Boardman
KD5ZGX

On Thursday, November 14, 2013 7:29 AM, "bonnevilleblb@..." <bonnevilleblb@...> wrote:

Good deal, Ron. With this new Yahoo layout I'm having a little trouble finding your email address to email you off the board, so if you don't mind, send me an email at bonnevilleblb@.... I'll give you details. Thanks!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Barry I am interested in ur tuner. Thanks Ron kl4pwf

Ron KK4PWF

On Nov 13, 2013, at 1:59 PM, <bonnevilleblb@... mailto:bonnevilleblb@...> wrote:

All the talk about tuners reminded me - I've got a Kenwood AT-200 tuner in great shape that I am thinking about selling. At least an 8 out of 10 for looks and performance. Christmas is coming and I need to sell some stuff! $195 plus $20 shipping in the continental US. If nobody's interested it might go up on ebay sometime soon. There's one way over $200 selling right now.

I've got a Washburn Idol Pro like brand new with box and tags (played very little) that I need to sell since I just bought a new guitar, too...

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45919. Nylon rivets for side-door (and other places)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-16 21:44:46 UTC
From: <sm7fyw@...>
Topic: 45919 Message: 45919

Hello everybody KB3WBT here
I just came downstairs from the net, I talked to Mark about those "plastic rivets" for the side-door on TS-520 (and other places)
I found a nylon replacement, at my local Lowes store, they fit right, only difference, you have to screw them in, instead of pushing, (just don't over-tighten) but looks good, and works perfect!
The price is also ok, $1 and some change for a pair.
I'm adding some pictures, hope you don't mind that the one is of another brand radio, but same function

Lars

45920. TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-16 23:05:28 UTC
From: <tjb813@...>
Topic: 45920 Message: 45920

I just picked up my first TS-820s at the Fort Wayne hamfest today. Its in great cosmetic shape. It had not been used for awhile. Inside it is pristine and it appears that it is in original "unmolested" condition. The owner stated that it had "issues" and described them as "low receive" and intermittent frequency display. The display works OK some times and I believe it to probably be a dirty contact causing it. No problem there. The real issue is that the ATT switch is pushed in and melted. Close examination is that the green and orange wires are fine. Those wires are part of the circuit to work the light at the top of the display. The bad part is there are two gray shielded wires and two resistors on the other side of the switch. They are burned beyond recognition. I have removed the switch to ready for replacement.

I downloaded the schematics and service manual for the TS-820S. I can find on the diagram the light circuit. I figure the other melted circuit probably controls the front end gain somehow. I can't seem to locate where on the schematic it is shown. I imagine there will be some other components that will need replacing as I dig in to be sure. I just need to find the circuit on the schematic.

Just to be clear on my experience, I have experience working with the TS-520 series. Having restored more than a dozen so far. This is my first 820.

Sorry for the long intro. Any help will be appreciated. BTW is this a common problem on the 820?

Thanks,
Tim
KD8CN

45921. RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 02:33:32 UTC
From: <wagstw46@...>
Topic: 45920 Message: 45921

I saw you carrying it to the door! I was a little disappointed as this hamfest gets smaller every year. Probably my last year to attend.

The RF attenuator switch S8 is just to the left of the Relay unit board. You will see it uses a 470 ohm and 56 ohm voltage divider. Another deck is used to illuminate a LED to tell you that you have the RF atten on.

If these resistors are burned up I would be concerned that this unit experienced accidental transmit RF. With off air signals should be no way to burn anything up on this switch.

It would not be common to have any damage to this switch. You can just connect the two mini coax cables together to see if you have good receive sensitivity. Marker signal should be approx S9 if rig is functioning per design and aligned.

May need to lift the 9vdc off S8-2 to make sure it is not shorted.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <tjb813@...> wrote:

I just picked up my first TS-820s at the Fort Wayne hamfest today. Its in great cosmetic shape. It had not been used for awhile. Inside it is pristine and it appears that it is in original "unmolested" condition. The owner stated that it had "issues" and described them as "low receive" and intermittent frequency display. The display works OK some times and I believe it to probably be a dirty contact causing it. No problem there. The real issue is that the ATT switch is pushed in and melted. Close examination is that the green and orange wires are fine. Those wires are part of the circuit to work the light at the top of the display. The bad part is there are two gray shielded wires and two resistors on the other side of the switch. They are burned beyond recognition. I have removed the switch to ready for replacement.

I downloaded the schematics and service manual for the TS-820S. I can find on the diagram the light circuit. I figure the other melted circuit probably controls the front end gain somehow. I can't seem to locate where on the schematic it is shown. I imagine there will be some other components that will need replacing as I dig in to be sure. I just need to find the circuit on the schematic.

Just to be clear on my experience, I have experience working with the TS-520 series. Having restored more than a dozen so far. This is my first 820.

Sorry for the long intro. Any help will be appreciated. BTW is this a common problem on the 820?

Thanks,
Tim
KD8CN

45922. RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-16 23:17:17 UTC
From: <geekorama@...>
Topic: 45897 Message: 45922

Have checked all pots, connectors, untightened and retightened all boards, checked relays...still the same. There is one thing concerning the marker signal. It is very strong on WWV/JJY and in fact that band is quite sensitive. The rest of the bands peaked out with the drive are low on sensitivity. The radio is indeed receiving stations but a signal that would be S20 is more like an S5. Not sure if that points to a direction.
Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

TS520 do not have connectors they use wire wrap terminal posts. Molex connectors were introduced with the TS-820

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <ykpwr45@...> wrote:

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady

tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45923. Re: RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 01:17:07 UTC
From: airwolff@prodigy.net
Topic: 45893 Message: 45923

Hello Everyone,

Since I am the new "Kid" here, I guess I needed to sort of introduce myself. I apologize for not doing so.
I sincerely hope that I am not stepping on anyone's toes. If you ever meet me you'll find that I speak my mind. I grew up in a time where you speak straight to the point and being "PC" was how a politician conduced business, usually right before you found out you should have voted for the other person. I still firmly believe that "NOTA" should be a valid vote on any ballot (None of the above-that party member now has 30 days to clean out their desk).

First, I want to thank everyone for replying to my query. To me, all of you are just a small yet valuable number of the "elmers" that some of you mention because the knowledge that you have far exceeds mine and it is that experience that I hope to reach out to from time to time. I hope that you will nurse me through my learning periods as someone almost certainly did the same for you.

Second, I am not afraid of a challenge. I purchased my radio because of reading reviews provided by folks like yourselves who have stated that the 820 was/is a great radio. I knew going in that It was old but still functional, just like many of you. And that maintaining the unit would be a cool way of learning about the older radios and the whole ham atmosphere. Kind of like why your wives decided to marry you despite knowing you. ;)

Third, Any and all actions I have taken with my radio was done AFTER I consulted with folks that actually have or had an 820. I downloaded (and consulted by the way) all the pertinent manuals that I could find because this unit did not come with any of any kind. I have further obtained books/manuals on getting my license, how to build antennas, how to have proper radio manners and etiquette and how to log contacts and on and on and on. I had already found my local ham club and am in contact with this group of VERY experienced operators. In fact, some of them look like Santa's Dad. I have, in the past, been one of those booger eating morons that has grabbed the wrong portion of the electronic device and reaped the benefits. I also pulled the plug wire off of my running car (a 1965 mustang that I sold) and found myself lying on the ground. Needless to say I no longer play with the electrical portions of my stuff, my radio nor my life.

Fourth, after taking my set to a certified Kenwood repair shop and letting the tech (who, by the way had an 820 as a young adult) has confirmed that it just plain ol' will not receive. He is troubleshooting and I am awaiting his findings. I have contacted the seller and we are communicating.

For those of you that specifically addressed my query and offered tips and suggestions on how to help, you are the folks I am most grateful to. From this interaction I believe that you will be willing to help anyone at any turn. I look forward to reaching out to you in the future.

Barry Brown
Lexington, KY

No, not the one in SC. He has been doing a SUPERB job at mentoring me.
My words are my own.

--- In TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
>
> Barry,
>
> I mean no disrespect by what I am about to say.
>
> If your knowledge of what you refer to as "ham jargon" which I assume is
> terms/phrases used in normal operation of your TS-820/ham equipment and
> electronic troubleshooting discussions, is non-existent, then you are
> going to have a very difficult time understanding and performing various
> tasks, even when stated in "Plain English", that will be asked of you.
>
> One of the biggest misconceptions hams or people who want to be hams
> have is, especially those people/hams who's level of knowledge/skills
> and experience is either very low or non-existent, they believe for some
> odd reason they can learn all they need to know to fix their complex
> Kenwood hybrid by simply asking some questions of those who know more
> than they do. That's ludicrous thinking Barry. You can't gain the
> knowledge, experience, and skills necessary to properly and "safely"
> troubleshooting and repair you Kenwood TS-820 transceiver, over night,
> over a weekend, or even in 6 months. It takes time, a lot of time
> studying. In short, you can't learn it all by asking a few questions.
>
> There are voltages inside the TS-820 that can easily kill you! You also
> must have experience using test equipment and skills using the test
> equipment when working around and measuring high voltage. Without those
> skills and experience, the chances of you damaging your TS-820, the test
> equipment, even yourself, is very high.
>
> You didn't say whether the operator's manual came with your TS-820? If
> it didn't, that should have been the first thing you obtained and
> thoroughly read AND understood what you read, BEFORE you plugged the 820
> into the wall outlet and powered it up! Too many people ignore this
> simple but very important and necessary step.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
>
>
>
>

>
> On 11/15/2013 11:03 AM, wagstw46@... wrote:
> >
> > Yes no PLL then no reason to check Maker signal strength.
> >
> >
> > No Display usually and most commonly means PLL is unlocked, but not
> > always. Can be a bad display.
> >
> >
> > I would call it more of a symptom or description of the current
> > operational condition than a "test", but an important piece of
> > information that would be readily apparent if rig was on the bench. .
> >
> >
> > I clearly failed to ask about this so good reason why I am not a
> > "certified" Kenwood guru!
> >
> >
> > If anyone knows how one attains that certification I would be
> > interested in the study guides and where and who administers the test.
> > I am not kidding.
> >
> >
> > Perhaps what we are really talking about is an "authorized dealer" or
> > "service center?
> >
> >
> > Terry K9TW
> >
> >
> >
> > ---In TS-520_820_530_830@yahoogroups.com, <w5rkl@> wrote:
> >
> > Airwolff,
> >
> > I'll assume that the rear remote VFO socket has either the factory 9
> > pin plug inserted or a wire connecting pins 8 and 9 together.
> >
> > You did not mentioned whether your TS-820 has the digital display or
> > not. If your TS-820 does, in fact, have the digital display and with
> > your TS-820 powered up, what is the digital display showing? If it's
> > "dark", nothing displayed, then that is a clear indication the
> > TS-820's PLL Unit has changed states from "Lock" to "Unlock". This is
> > a simple test you can perform without removing any covers and it is a
> > test your "certified Kenwood guru" should have asked you!
> >
> >
> > 73
> > Mike W5RKL

> >
> >
> >
> >
> >
> >
> > On 11/15/2013 6:28 AM, wagstw46@ <mailto:wagstw46@> wrote:
> >
> >> I forgot to mention that Butch also gave you good advice to
> >> confirm that Pins 8 and 9 jumper is installed in the External VFO
> >> socket on rear panel. Your manual shows this in Figure 4 around
> >> page 8. Your guru should have confirmed this.
> >>
> >>
> >> If the black plug is missing you can use a piece of hook-up wire
> >> but not the best and must be correct gauge to make reliable
> >> contact as it is inserted into the socket. This jumper provides
> >> 9vdc regulated supply to your internal VFO.
> >>
> >>
> >> Terry K9TW
> >>
> >>
> >>
> >> ---In TS-520_820_530_830@yahoogroups.com
> >> <mailto:TS-520_820_530_830@yahoogroups.com>, <wagstw46@>
> >> <mailto:wagstw46@> wrote:
> >>
> >> How did your "certified" Kenwood repair guru confirm that the
> >> radio does not receive?
> >>
> >>
> >> Did he have the radio in his possession or was his confirmation
> >> based on talking you thru some form of testing?
> >>
> >>
> >> You have been given good advice not to remove the covers and to
> >> obtain the operating and service manuals and start reading for
> >> starters..
> >>
> >>
> >> I would suggest that since you want to just listen at this time
> >> to make sure that the Send/Receive switch is placed in Receive
> >> and left there, the CAR level control is set full CCW, and that
> >> the Heater switch is left in the OFF position. This ensures that
> >> there is no way to have any unintentional transmit that could
> >> damage your final tubes.
> >>
> >>
> >> Read the operating manual and familiarize yourself with the

> >> controls. Then pre-set all the controls for Receive mode as
> >> listed under Section 4.2 Receiver Tuning Table 1.
> >>
> >>
> >> One test you can do that will tell you something about the Coil
> >> Pack and RF and IFT alignment is:
> >>
> >>
> >> 1. Set the VFO to approx 200 (Band switch at 14mhz)
> >>
> >> 2. Set the Drive Control to 1200
> >>
> >> 3. Set the RF Gain to Full CW or max open (AF gain to comfortable
> >> level)
> >>
> >> 4. Set the Function Switch to 25khz (Marker or Crystal
> >> calibrator on)
> >>
> >> 5. Tune the VFO around 200 until you hear the Marker signal
> >>
> >> 6. Peak the Marker signal using the Drive Control (peak = max
> >> deflection on S meter)
> >>
> >> 7. Should see approx S9 indication on the S-meter
> >>
> >> 8. Repeat this procedure on each band.
> >>
> >>
> >> If you can peak the Marker signal on each band to approx S9 you
> >> know that the receiver RF and IF stages are functioning and
> >> alignment is pretty good. The rig should be able to copy off air
> >> signals.
> >>
> >>
> >> Make sure you turn off Marker when done.
> >>
> >>
> >> As someone mentioned connect as much wire as you can to the
> >> SO-239 antenna connector on rear of rig (single lead inserted
> >> into the center will work). Wont work as well as resonant dipole,
> >> but should be able to copy off air signals. Probably listen on 40
> >> meters for starters.
> >>
> >>
> >> If that works then suggest you put up a 40 meter dipole or
> >> inverted Vee as high as you can for starters. Will receive much
> >> better than piece of wire strung around perimeter of your room.
> >>
> >>
> >> If you get no Maker signal or very low Marker signal, you need

> >> hands on help from a "certified" Kenwood guru. Not sure what that
> >> means, but can get the help here but will be slow and tedious to
> >> talk you thru tests and repairs. Local club may produce and Elmer?
> >>
> >>
> >>
> >> Terry K9TW
> >>
> >>
> >>
> >> ---In TS-520_820_530_830@yahoogroups.com
> >> <mailto:TS-520_820_530_830@yahoogroups.com>, <airwolff@>
> >> <mailto:airwolff@> wrote:
> >>
> >> Hello to all,
> >> I have recently purchased one of these units. Unfortunately
> >> the seller did not disclose that it does not receive. My
> >> certified Kenwood repair guru confirmed this. The unit does
> >> get power, the internal speaker hisses but otherwise I cannot
> >> tell what works and what doesn't. I do not have a microphone
> >> yet (mainly because I have no license yet and wanted to
> >> figure out the workings of the radio and to listen to the
> >> world) so transmitting wasn't an issue but I'll want to try
> >> it sometime.
> >> So, I am wondering if anyone has had to address the issue of
> >> not receiving and what steps anyone took to resolve said issue.
> >> Now, please bear in mind that ham jargon is a foreign
> >> language to me. Plain English will be appreciated because I
> >> have no idea what any abbreviations mean.
> >> Thanks in advance
> >> Airwolff
> >> No License Yet
> >>
> >
> >
>

45924. RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 11:45:30 UTC
From: <tjb813@...>
Topic: 45920 Message: 45924

Thanks for the reply. I finally found the rest of the switch on the schematic. It appears to be connected at the antenna input to the coil pack. I agree with you 100%. Looks to me that someone transmitted INTO the rig. Maybe a crossed coax connection. I fear that the input winding on the first coil may be damaged. Got too tired last night to check. That will be the first thing this morning. I am now looking for a replacement switch.

The filter caps are going bad and they will be replaced. Like I said in my first post, its VERY clean and fixing it will be a joy.

Tim
KD8CN

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I saw you carrying it to the door! I was a little disappointed as this hamfest gets smaller every year. Probably my last year to attend.

The RF attenuator switch S8 is just to the left of the Relay unit board. You will see it uses a 470 ohm and 56 ohm voltage divider. Another deck is used to illuminate a LED to tell you that you have the RF atten on.

If these resistors are burned up I would be concerned that this unit experienced accidental transmit RF. With off air signals should be no way to burn anything up on this switch.

It would not be common to have any damage to this switch. You can just connect the two mini coax cables together to see if you have good receive sensitivity. Marker signal should be approx S9 if rig is functioning per design and aligned.

May need to lift the 9vdc off S8-2 to make sure it is not shorted.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <tjb813@...> wrote:

I just picked up my first TS-820s at the Fort Wayne hamfest today. Its in great cosmetic shape. It had not been used for awhile. Inside it is pristine and it appears that it is in original "unmolested" condition. The owner stated that it had "issues" and described them as "low receive" and intermittent frequency display. The display works OK some times and I believe it to probably be a dirty contact causing it. No problem there. The real issue is that the ATT switch is pushed in and melted. Close examination is that the green and orange wires are fine. Those wires are part of the circuit to work the light at the top of the display. The bad part is there are two gray shielded wires and two resistors on the other side of the switch. They are burned beyond recognition. I have removed the switch to ready for replacement.

I downloaded the schematics and service manual for the TS-820S. I can find on the diagram the light circuit. I figure the other melted circuit probably controls the front end gain somehow. I can't seem to locate where on the schematic it is shown. I imagine there will be

some other components that will need replacing as I dig in to be sure. I just need to find the circuit on the schematic.

Just to be clear on my experience, I have experience working with the TS-520 series. Having restored more than a dozen so far. This is my first 820.

Sorry for the long intro. Any help will be appreciated. BTW is this a common problem on the 820?

Thanks,
Tim
KD8CN

45925. RE: RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 11:59:52 UTC
From: <wagstw46@...>
Topic: 45920 Message: 45925

Well if that has occurred then L8 step up xfmr and L24/L25 8.830mhz wave traps are suspect as well. These are not available. Have to ask here if anyone has any that they can harvest from junk board or check with Bob Mansker to see if he has a Coil Pack Board. Accidental RF usually stops at Q2 RF amp and can buy sub replacements for it.

Can use Marker signal or better yet RF Sig gen to troubleshoot this to confirm what is bad and not just assume these components in the signal path are hurt.

Hopefully RF attenuator acted like a fuse?

Terry K9TW

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May need to lift the 9vdc off S8-2 to make sure it is not shorted.

Terry K9TW

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Sorry for the long intro. Any help will be appreciated. BTW is this a common problem on the 820?

Thanks,
Tim
KD8CN

45926. RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 12:52:35 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45926

WWV uses different RF Amp and Mixer. The good thing is it tells you that everything from the BPF on was not damaged in the dropping/damage incident.

It also tells you that the TR relay contacts are good, the Rec Ant switch is good, the Xverter switch is good, and the RF Attenuator switch is good.

It tells you where to start signal injection for troubleshooting.

Do you have a RF Signal Generator of any kind? If so can find where attenuation is occurring in about 10 minutes by injecting test signal starting at ANT and RFG. For example if you inject at RFG and signal is weak and then inject at MD and signal is good you know problem is at Q3 RF amp stage. You then perform DC voltages (DSG) at Q3. I dont think Q3 is bad as dual gate mosfets typically dont get weak. Either good or bad and a dropping incident should not damage them.

Absent a signal generator it will be very hard to troubleshoot.

Only other thing I can think of is.....Are Q3 RF amp and Q2 Mixer mosfets on the RF Board in sockets? I cant remember if they are or not. If they are then you could try with power off un-plugginig and re-seating them.making sure not to rotate and cross the leads.

Any kind of RF Sig gen will work for troubleshooting. You dont need an accurate RF output level just a source of RF for injection.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Have checked all pots, connectors, untightened and retightened all boards, checked relays...still the same. There is one thing concerning the marker signal. It is very strong on WWV/JJY and in fact that band is quite sensitive. The rest of the bands peaked out with the drive are low on sensitivity. The radio is indeed receiving stations but a signal that would be S20 is more like an S5. Not sure if that points to a direction.
Jim, N7JS

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TS520 do not have connectors they use wire wrap terminal posts. Molex connectors were introduced with the TS-820

Terry K9TW

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I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

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That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

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I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

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To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

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73 Jim, N7JS

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Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

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Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition:

the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45927. RE: Re: RE: TS-820 Issue

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 13:44:07 UTC
From: <wagstw46@...>
Topic: 45893 Message: 45927

Barry

In your very first post you said you had a new to you TS820 that did not receive and your Kenwood guru said "Yep it does not receive". So to me that means he eliminated Operator error (which surely does occur with all of us). You then went on to ask what could cause no receive and oh by the way please explain it to me without using proper rig specific and fundamental radio electronic terminology ie jargon.

If you seriously reflect on that you should see it was a silly request. Like me saying my car will not start and asking on an Auto forum what could be the cause.

No receive in a Kenwood Hybrid could be a myriad of reasons. Same as my car not starting. It requires numerous follow up questions like does it try to start, is it turning over, does it crank, does solenoid chatter, does it fire and stall......etc.

All Mike is trying to tell you is that with this medium we are limited to Telling (in written form only). We cannot Show, We cannot Observe, and We cannot Demonstrate to you. It is a very laborious process even helping a more experienced person who has the fundamental knowledge, experience, tools and test equipment.

Troubleshooting a Kenwood Hybrid requires a way of Thinking. It starts with analyzing the symptoms, studying the schematics, applying test equipment, and analyzing the test results.

Yes you can come here and get the "experiential based" stuff and that is what most members will first feed back to you. Such as is the 8 to 9 jumper installed,or is the Digital display illuminated, or wiggle all connectors or tighten all board grounding screws. After those are exhausted then you have to put on thinking cap and troubleshoot and that requires understanding of basic SSB receiver/transmitter, how to read a schematic, a minimum amount of test gear and knowing how to use it.

Lastly, when someone ask a question like you did on your initial post the Alarm Bells all sound off. We cannot in good conscience direct you to take covers off and start wiggling connectors and tightening board screws without a stern warning about the safety risks and how to manage those hazards.

So it appears the rig is now with the Kenwood tech which is best at this stage of your development.

I have to go now and Google on which is the best single engine airplane for me to buy and then I will buy a 40 year old Cessna or Piper Cub and then I will read the operating manual and then I will join a Yahoo Cessna forum and ask for help on how to get it started and keep it running without stalling and please dont respond using any of that airplane jargon like Yaw or Artificial Horizon or Attitude Director Indicator or Manifold temperature or .....!!!

Sounds silly doesnt it, but same thing you did and many new members do. Where would an experienced Cessna or Piper Cub "expert" on the forum begin to answer my question?

So dont be surprised if you get some admonishment in the future and dont feel offended or dissed. People mean no disrespect.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <airwolff@...> wrote:

Hello Everyone,

Since I am the new "Kid" here, I guess I needed to sort of introduce myself. I apologize for not doing so.
I sincerely hope that I am not stepping on anyone's toes. If you ever meet me you'll find that I speak my mind. I grew up in a time where you speak straight to the point and being "PC" was how a politician conduced business, usually right before you found out you should have voted for the other person. I still firmly believe that "NOTA" should be a valid vote on any ballot (None of the above-that party member now has 30 days to clean out their desk).

First, I want to thank everyone for replying to my query. To me, all of you are just a small yet valuable number of the "elmers" that some of you mention because the knowledge that you have far exceeds mine and it is that experience that I hope to reach out to from time to time. I hope that you will nurse me through my learning periods as someone almost certainly did the same for you.

Second, I am not afraid of a challenge. I purchased my radio because of reading reviews provided by folks like yourselves who have stated that the 820 was/is a great radio. I knew going in that It was old but still functional, just like many of you. And that maintaining the unit would be a cool way of learning about the older radios and the whole ham atmosphere. Kind of like why your wives decided to marry you despite knowing you. ;)

Third, Any and all actions I have taken with my radio was done AFTER I consulted with folks that actually have or had an 820. I downloaded (and consulted by the way) all the pertinent manuals that I could find because this unit did not come with any of any kind. I have further obtained books/manuals on getting my license, how to build antennas, how to have proper radio manners and etiquette and how to log contacts and on and on and on. I had already found my local ham club and am in contact with this group of VERY experienced operators. In fact, some of them look like Santa's Dad. I have, in the past, been one of those booger eating morons that has grabbed the wrong portion of the electronic device and reaped the benefits. I also pulled the plug wire off of my running car (a 1965 mustang that I sold) and found myself lying on the ground. Needless to say I no longer play with the electrical portions of my stuff, my radio nor my life.

Fourth, after taking my set to a certified Kenwood repair shop and letting the tech (who, by the way had an 820 as a young adult) has confirmed that it just plain ol' will not receive. He is troubleshooting and I am awaiting his findings. I have contacted the seller and we are communicating.

For those of you that specifically addressed my query and offered tips and suggestions on how to help, you are the folks I am most grateful to. From this interaction I believe that you will be willing to help anyone at any turn. I look forward to reaching out to you in the future.

Barry Brown
Lexington, KY
No, not the one in SC. He has been doing a SUPERB job at mentoring me.
My words are my own.

--- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
>
> Barry,
>
> I mean no disrespect by what I am about to say.
>
> If your knowledge of what you refer to as "ham jargon" which I assume is
> terms/phrases used in normal operation of your TS-820/ham equipment and
> electronic troubleshooting discussions, is non-existent, then you are
> going to have a very difficult time understanding and performing various
> tasks, even when stated in "Plain English", that will be asked of you.
>
> One of the biggest misconceptions hams or people who want to be hams
> have is, especially those people/hams who's level of knowledge/skills
> and experience is either very low or non-existent, they believe for some
> odd reason they can learn all they need to know to fix their complex
> Kenwood hybrid by simply asking some questions of those who know more
> than they do. That's ludicrous thinking Barry. You can't gain the
> knowledge, experience, and skills necessary to properly and "safely"
> troubleshooting and repair you Kenwood TS-820 transceiver, over night,
> over a weekend, or even in 6 months. It takes time, a lot of time
> studying. In short, you can't learn it all by asking a few questions.
>
> There are voltages inside the TS-820 that can easily kill you! You also
> must have experience using test equipment and skills using the test
> equipment when working around and measuring high voltage. Without those
> skills and experience, the chances of you damaging your TS-820, the test
> equipment, even yourself, is very high.
>
> You didn't say whether the operator's manual came with your TS-820? If
> it didn't, that should have been the first thing you obtained and
> thoroughly read AND understood what you read, BEFORE you plugged the 820
> into the wall outlet and powered it up! Too many people ignore this
> simple but very important and necessary step.
>
> 73
> Mike W5RKL
>
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>

>
>
>
> On 11/15/2013 11:03 AM, wagstw46@... wrote:
> >
> > Yes no PLL then no reason to check Maker signal strength.
> >
> >
> > No Display usually and most commonly means PLL is unlocked, but not
> > always. Can be a bad display.
> >
> >
> > I would call it more of a symptom or description of the current
> > operational condition than a "test", but an important piece of
> > information that would be readily apparent if rig was on the bench. .
> >
> >
> > I clearly failed to ask about this so good reason why I am not a
> > "certified" Kenwood guru!
> >
> >
> > If anyone knows how one attains that certification I would be
> > interested in the study guides and where and who administers the test.
> > I am not kidding.
> >
> >
> > Perhaps what we are really talking about is an "authorized dealer" or
> > "service center?
> >
> >
> > Terry K9TW
> >
> >
> >
> > ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
<w5rkl@> wrote:
> >
> > Airwolff,
> >
> > I'll assume that the rear remote VFO socket has either the factory 9
> > pin plug inserted or a wire connecting pins 8 and 9 together.
> >
> > You did not mentioned whether your TS-820 has the digital display or
> > not. If your TS-820 does, in fact, have the digital display and with
> > your TS-820 powered up, what is the digital display showing? If it's
> > "dark", nothing displayed, then that is a clear indication the
> > TS-820's PLL Unit has changed states from "Lock" to "Unlock". This is
> > a simple test you can perform without removing any covers and it is a
> > test your "certified Kenwood guru" should have asked you!
> >

> >
> > 73
> > Mike W5RKL
> >
> >
> >
> >
> >
> >
> > On 11/15/2013 6:28 AM, wagstw46@ <mailto:wagstw46@> wrote:
> >
> >> I forgot to mention that Butch also gave you good advice to
> >> confirm that Pins 8 and 9 jumper is installed in the External VFO
> >> socket on rear panel. Your manual shows this in Figure 4 around
> >> page 8. Your guru should have confirmed this.
> >>
> >>
> >> If the black plug is missing you can use a piece of hook-up wire
> >> but not the best and must be correct gauge to make reliable
> >> contact as it is inserted into the socket. This jumper provides
> >> 9vdc regulated supply to your internal VFO.
> >>
> >>
> >> Terry K9TW
> >>
> >>
> >>
> >> ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
> >> <mailto:TS-520_820_530_830@yahoogroups.com
mailto:TS-520_820_530_830@yahoogroups.com>, <wagstw46@>
> >> <mailto:wagstw46@> wrote:
> >>
> >> How did your "certified" Kenwood repair guru confirm that the
> >> radio does not receive?
> >>
> >>
> >> Did he have the radio in his possession or was his confirmation
> >> based on talking you thru some form of testing?
> >>
> >>
> >> You have been given good advice not to remove the covers and to
> >> obtain the operating and service manuals and start reading for
> >> starters..
> >>
> >>
> >> I would suggest that since you want to just listen at this time
> >> to make sure that the Send/Receive switch is placed in Receive
> >> and left there, the CAR level control is set full CCW, and that
> >> the Heater switch is left in the OFF position. This ensures that
> >> there is no way to have any unintentional transmit that could

> >> damage your final tubes.
> >>
> >>
> >> Read the operating manual and familiarize yourself with the
> >> controls. Then pre-set all the controls for Receive mode as
> >> listed under Section 4.2 Receiver Tuning Table 1.
> >>
> >>
> >> One test you can do that will tell you something about the Coil
> >> Pack and RF and IFT alignment is:
> >>
> >>
> >> 1. Set the VFO to approx 200 (Band switch at 14mhz)
> >>
> >> 2. Set the Drive Control to 1200
> >>
> >> 3. Set the RF Gain to Full CW or max open (AF gain to comfortable
> >> level)
> >>
> >> 4. Set the Function Switch to 25khz (Marker or Crystal
> >> calibrator on)
> >>
> >> 5. Tune the VFO around 200 until you hear the Marker signal
> >>
> >> 6. Peak the Marker signal using the Drive Control (peak = max
> >> deflection on S meter)
> >>
> >> 7. Should see approx S9 indication on the S-meter
> >>
> >> 8. Repeat this procedure on each band.
> >>
> >>
> >> If you can peak the Marker signal on each band to approx S9 you
> >> know that the receiver RF and IF stages are functioning and
> >> alignment is pretty good. The rig should be able to copy off air
> >> signals.
> >>
> >>
> >> Make sure you turn off Marker when done.
> >>
> >>
> >> As someone mentioned connect as much wire as you can to the
> >> SO-239 antenna connector on rear of rig (single lead inserted
> >> into the center will work). Wont work as well as resonant dipole,
> >> but should be able to copy off air signals. Probably listen on 40
> >> meters for starters.
> >>
> >>
> >> If that works then suggest you put up a 40 meter dipole or
> >> inverted Vee as high as you can for starters. Will receive much

> >> better than piece of wire strung around perimeter of your room.
> >>
> >>
> >> If you get no Maker signal or very low Marker signal, you need
> >> hands on help from a "certified" Kenwood guru. Not sure what that
> >> means, but can get the help here but will be slow and tedious to
> >> talk you thru tests and repairs. Local club may produce and Elmer?
> >>
> >>
> >>
> >> Terry K9TW
> >>
> >>
> >>
> >> ---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
> >> <mailto:TS-520_820_530_830@yahoogroups.com
mailto:TS-520_820_530_830@yahoogroups.com>, <airwolff@>
> >> <mailto:airwolff@> wrote:
> >>
> >> Hello to all,
> >> I have recently purchased one of these units. Unfortunately
> >> the seller did not disclose that it does not receive. My
> >> certified Kenwood repair guru confirmed this. The unit does
> >> get power, the internal speaker hisses but otherwise I cannot
> >> tell what works and what doesn't. I do not have a microphone
> >> yet (mainly because I have no license yet and wanted to
> >> figure out the workings of the radio and to listen to the
> >> world) so transmitting wasn't an issue but I'll want to try
> >> it sometime.
> >> So, I am wondering if anyone has had to address the issue of
> >> not receiving and what steps anyone took to resolve said issue.
> >> Now, please bear in mind that ham jargon is a foreign
> >> language to me. Plain English will be appreciated because I
> >> have no idea what any abbreviations mean.
> >> Thanks in advance
> >> Airwolff
> >> No License Yet
> >>
> >
> >
>

45928. TS-830S For Sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 11:57:44 UTC
From: Terry Aldridge
Topic: 10726 Message: 45928

Kenwood TS-830s for sale at current ebay prices...check examples on ebay and let me know if you are interested before I list it there...

--Charles Terry Aldridge KM9N ...847.309.3371...wireless...

45929. RE: RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 16:35:54 UTC
From: <geekorama@...>
Topic: 45897 Message: 45929

Hi Terry,

Thanks for the info. I'm feeling better that this radio can certainly be fixed without major headache. I have a ham friend with an RF Signal Generator so we will begin to trace this issue until found based on your suggestions and then going from there. Yes, there were actually 3 transistor/mosfets in sockets on the RF deck and I did the pull and re-seat without change.

I'll give update.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, wrote:

WWV uses different RF Amp and Mixer. The good thing is it tells you that everything from the BPF on was not damaged in the dropping/damage incident.

It also tells you that the TR relay contacts are good, the Rec Ant switch is good, the Xverter switch is good, and the RF Attenuator switch is good.

It tells you where to start signal injection for troubleshooting.

Do you have a RF Signal Generator of any kind? If so can find where attenuation is occurring in about 10 minutes by injecting test signal starting at ANT and RFG. For example if you inject at RFG and signal is weak and then inject at MD and signal is good you know problem is at Q3 RF amp stage. You then perform DC voltages (DSG) at Q3. I dont think Q3 is bad as dual gate mosfets typically dont get weak. Either good or bad and a dropping incident should not damage them.

Absent a signal generator it will be very hard to troubleshoot.

Only other thing I can think of is.....Are Q3 RF amp and Q2 Mixer mosfets on the RF Board in sockets? I cant remember if they are or not. If they are then you could try with power off un-plugginig and re-seating them.making sure not to rotate and cross the leads.

Any kind of RF Sig gen will work for troubleshooting. You dont need an accurate RF output level just a source of RF for injection.

Terry K9TW

45930. TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 18:42:42 UTC
From: <lonelyone_64109@...>
Topic: 45930 Message: 45930

I have a TS520S that the cathode and screen resistors were burned up due to being overdriven.(the owner turned up something when his friends on the air said he was really weak). I've replaced the resistors as well as the 470 ohm resistors in the 210 and 300 volt supplies. I also replaced the caps and RF choke in the final cage as per K4EAA. Prior to installing the tubes I checked the voltages and the HV was 933, the 210 read 256, and the 300 supply read 344 (all were no load values). I installed the tubes and the receive is very low. The S-meter reads S-2 in receive but does drop to zero in transmit. All bands are working as I can hear the phone stations running the sweepstakes this weekend. The crystal calibrator works fine and the signal lever from it is around S-5 to S-9 depending on the band.

I plugged in a microphone and the rig works in VOX as well as PTT and the ALC position on the meter reads fine. I am not showing any plate bias current on the meter when in transmit but but I do have the HV reading on the meter when I switch to transmit.

I am wondering if i missed something that may have gotten burnt or has opened up. With the exception of the receive and no output the radio is working just fine. Any help would be appreciated.

Paul WB0CJB

45931. Re: [TS-520_820_530_830] TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 19:13:37 UTC
From: Mike
Topic: 45930 Message: 45931

Paul,

You said the ALC meter position works fine. Are you saying that in TUNE mode with the meter switch set to ALC and the transmitter keyed with the SEND switch, adjusting the DRIVE control produces ALC meter indication? You also said there is no 60ma idling current with the transmitter keyed with PTT in LSB or USB, is that correct? If both answers are "yes" then you need to check the rear panel's "SG" switch to ensure it is in the "ON" Position. Quite often when handling the transceiver this switch gets slide, accidentally, into the "OFF" position. When that occurs there will be no 60ma idling current indicated on the meter (meter switch set to IP) when the transmitter is keyed in LSB or USB.

73
Mike W5RKL

On 11/17/2013 12:42 PM, lonelyone_64109@... wrote:
>
> I have a TS520S that the cathode and screen resistors were burned up
> due to being overdriven.(the owner turned up something when his
> friends on the air said he was really weak). I've replaced the
> resistors as well as the 470 ohm resistors in the 210 and 300 volt
> supplies. I also replaced the caps and RF choke in the final cage as
> per K4EAA. Prior to installing the tubes I checked the voltages and
> the HV was 933, the 210 read 256, and the 300 supply read 344 (all
> were no load values). I installed the tubes and the receive is very
> low. The S-meter reads S-2 in receive but does drop to zero in
> transmit. All bands are working as I can hear the phone stations
> running the sweepstakes this weekend. The crystal calibrator works
> fine and the signal lever from it is around S-5 to S-9 depending on
> the band.
>
> I plugged in a microphone and the rig works in VOX as well as PTT and
> the ALC position on the meter reads fine. I am not showing any plate
> bias current on the meter when in transmit but but I do have the HV
> reading on the meter when I switch to transmit.
>
> I am wondering if i missed something that may have gotten burnt or has
> opened up. With the exception of the receive and no output the radio
> is working just fine. Any help would be appreciated.
>
> Paul WB0CJB
>
>

45932. Re: [TS-520_820_530_830] TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 19:16:35 UTC
From: Mike
Topic: 45930 Message: 45932

Forgot to mentioned. If the SG switch is, in fact, in the "OFF" position
there will be no RF output, regardless of the mode.

73
Mike W5RKL

On 11/17/2013 1:13 PM, Mike wrote:
>
> Paul,
>
> You said the ALC meter position works fine. Are you saying that in
> TUNE mode with the meter switch set to ALC and the transmitter keyed
> with the SEND switch, adjusting the DRIVE control produces ALC meter
> indication? You also said there is no 60ma idling current with the
> transmitter keyed with PTT in LSB or USB, is that correct? If both
> answers are "yes" then you need to check the rear panel's "SG" switch
> to ensure it is in the "ON" Position. Quite often when handling the
> transceiver this switch gets slide, accidentally, into the "OFF"
> position. When that occurs there will be no 60ma idling current
> indicated on the meter (meter switch set to IP) when the transmitter
> is keyed in LSB or USB.
>
> 73
> Mike W5RKL
>
>
>
>
> On 11/17/2013 12:42 PM, lonelyone_64109@... wrote:
>>
>> I have a TS520S that the cathode and screen resistors were burned up
>> due to being overdriven.(the owner turned up something when his
>> friends on the air said he was really weak). I've replaced the
>> resistors as well as the 470 ohm resistors in the 210 and 300 volt
>> supplies. I also replaced the caps and RF choke in the final cage as
>> per K4EAA. Prior to installing the tubes I checked the voltages and
>> the HV was 933, the 210 read 256, and the 300 supply read 344 (all
>> were no load values). I installed the tubes and the receive is very
>> low. The S-meter reads S-2 in receive but does drop to zero in
>> transmit. All bands are working as I can hear the phone stations
>> running the sweepstakes this weekend. The crystal calibrator works
>> fine and the signal lever from it is around S-5 to S-9 depending on
>> the band.
>>

>> I plugged in a microphone and the rig works in VOX as well as PTT and
>> the ALC position on the meter reads fine. I am not showing any plate
>> bias current on the meter when in transmit but but I do have the HV
>> reading on the meter when I switch to transmit.
>>
>> I am wondering if i missed something that may have gotten burnt or
>> has opened up. With the exception of the receive and no output the
>> radio is working just fine. Any help would be appreciated.
>>
>> Paul WB0CJB
>>
>
>

45933. RE: RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-17 22:42:30 UTC
From: clifford wright
Topic: 45920 Message: 45933

I know that I am an "old timer", but I do get puzzled when members
appear to consider junking a Kenwood simply because a coil is no longer
available.
Some thing like the IF trap coil can be wound in a few seconds sealed
with Supaglue or nail varnish and installed. Often the size of wire and
number of turns can be seen by inspection.
But given a signal generator and VTVM or Oscilloscope, or even a good
old GDO it is a simple matter to make new RF coils.
Now I am retired I am a semi professional radio restorer admittedly, but
I have been winding my own coils for over 60 years.
It you want a REAL tough job, try rewinding the RF Chokes in a 1970's
Marconi signal generator (100mH) each about 550 turns of hair thin #44
wire on a tiny former. That really is hard to do!!!
Radios of the age of the Kenwood hybrids really need quite a lot of
knowledge and some test gear to keep going and to fix. They are NOT
appropriate for "appliance operators".
73 ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45934. RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 01:24:24 UTC
From: <lonelyone_64109@...>
Topic: 45930 Message: 45934

I checked the SG switch and it is on. When I have the radio in the USB or LSB position and speak into the microphone I get a normal ALC deflection with the meter in the ALC position. With the meter in the Ip or RF output position I do not see any movement. Also when I put the rig in the tune position and try to adjust the drive control through its range I do not get any ALC, Ip or RF output indication at all, . The same goes for the 60 mA plate idling current. Thinking it MIGHT be the metering circuit I even put a wattmeter in line with the dummy load but again no power output. I need to go through and check the voltages on the final board, the RF board, and possibly the IF board. I also have a service bulletin reprint saying to check the -6V source as it could also cause low receive and no TX output. But due to my work schedule it will be Thursday evening before I can get any time to further look into this problem. Since there were several resistors burned up i am thinking there is one that I have not found that is open and is causing the lack of RF output and meter indications.

Paul WB0CJB

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Forgot to mentioned. If the SG switch is, in fact, in the "OFF" position there will be no RF output, regardless of the mode.

73
Mike W5RKL

On 11/17/2013 1:13 PM, Mike wrote:

Paul,

You said the ALC meter position works fine. Are you saying that in TUNE mode with the meter switch set to ALC and the transmitter keyed with the SEND switch, adjusting the DRIVE control produces ALC meter indication? You also said there is no 60ma idling current with the transmitter keyed with PTT in LSB or USB, is that correct? If both answers are "yes" then you need to check the rear panel's "SG" switch to ensure it is in the "ON" Position. Quite often when handling the transceiver this switch gets slide, accidentally, into the "OFF" position. When that occurs there will be no 60ma idling current indicated on the meter (meter switch set to IP) when the transmitter is keyed in LSB or USB.

73
Mike W5RKL

On 11/17/2013 12:42 PM, lonelyone_64109@... mailto:lonelyone_64109@... wrote:

I have a TS520S that the cathode and screen resistors were burned up due to being overdriven.(the owner turned up something when his friends on the air said he was really weak). I've replaced the resistors as well as the 470 ohm resistors in the 210 and 300 volt supplies. I also replaced the caps and RF choke in the final cage as per K4EAA. Prior to installing the tubes I checked the voltages and the HV was 933, the 210 read 256, and the

300 supply read 344 (all were no load values). I installed the tubes and the receive is very low. The S-meter reads S-2 in receive but does drop to zero in transmit. All bands are working as I can hear the phone stations running the sweepstakes this weekend. The crystal calibrator works fine and the signal lever from it is around S-5 to S-9 depending on the band.

I plugged in a microphone and the rig works in VOX as well as PTT and the ALC position on the meter reads fine. I am not showing any plate bias current on the meter when in transmit but but I do have the HV reading on the meter when I switch to transmit.

I am wondering if i missed something that may have gotten burnt or has opened up. With the exception of the receive and no output the radio is working just fine. Any help would be appreciated.

Paul WB0CJB

45935. RE: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 02:38:42 UTC
From: Brad Allen
Topic: 45930 Message: 45935

You proved that there is audio, not ALC at that point. With the low receive AND the no transmit, I go along with a common voltage/signal missing. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of lonelyone_64109@...
Sent: Sunday, November 17, 2013 8:24 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

I checked the SG switch and it is on. When I have the radio in the USB or LSB position and speak into the microphone I get a normal ALC deflection with the meter in the ALC position. With the meter in the Ip or RF output position I do not see any movement. Also when I put the rig in the tune position and try to adjust the drive control through its range I do not get any ALC, Ip or RF output indication at all, . The same goes for the 60 mA plate idling current. Thinking it MIGHT be the metering circuit I even put a wattmeter in line with the dummy load but again no power output. I need to go through and check the voltages on the final board, the RF board, and possibly the IF board. I also have a service bulletin reprint saying to check the -6V source as it could also cause low receive and no TX output. But due to my work schedule it will be Thursday evening before I can get any time to further look into this problem. Since there were several resistors b urned up i am thinking there is one that I have not found that is open and is causing the lack of RF output and meter indications.

Paul WB0CJB

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Forgot to mentioned. If the SG switch is, in fact, in the "OFF" position there will be no RF output, regardless of the mode.

73
Mike W5RKL

On 11/17/2013 1:13 PM, Mike wrote:

Paul,

You said the ALC meter position works fine. Are you saying that in TUNE mode with the meter switch set to ALC and the transmitter keyed with the SEND

switch, adjusting the DRIVE control produces ALC meter indication? You also said there is no 60ma idling current with the transmitter keyed with PTT in LSB or USB, is that correct? If both answers are "yes" then you need to check the rear panel's "SG" switch to ensure it is in the "ON" Position. Quite often when handling the transceiver this switch gets slide, accidentally, into the "OFF" position. When that occurs there will be no 60ma idling current indicated on the meter (meter switch set to IP) when the transmitter is keyed in LSB or USB.

73
Mike W5RKL

On 11/17/2013 12:42 PM, lonelyone_64109@... wrote:

I have a TS520S that the cathode and screen resistors were burned up due to being overdriven.(the owner turned up something when his friends on the air said he was really weak). I've replaced the resistors as well as the 470 ohm resistors in the 210 and 300 volt supplies. I also replaced the caps and RF choke in the final cage as per K4EAA. Prior to installing the tubes I checked the voltages and the HV was 933, the 210 read 256, and the 300 supply read 344 (all were no load values). I installed the tubes and the receive is very low. The S-meter reads S-2 in receive but does drop to zero in transmit. All bands are working as I can hear the phone stations running the sweepstakes this weekend. The crystal calibrator works fine and the signal lever from it is around S-5 to S-9 depending on the band.

I plugged in a microphone and the rig works in VOX as well as PTT and the ALC position on the meter reads fine. I am not showing any plate bias current on the meter when in transmit but but I do have the HV reading on the meter when I switch to transmit.

I am wondering if i missed something that may have gotten burnt or has opened up. With the exception of the receive and no output the radio is working just fine. Any help would be appreciated.

Paul WB0CJB

45936. Kenwood Hybrid Net Update (November 17, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 04:20:10 UTC
From: Mark Gilger
Topic: 45936 Message: 45936

The Saturday net we had 15 check-in with good
band conditions. There were 2 new check ins,
KD8PFN, and W8NIC. We had the following number of radios checking in.

7 running TS-520(x)
1 running TS-530(x)
1 running TS-820(x)
2 running TS-830S

I was running my TS-940s.

The Sunday□s 20 meter net had 5 stations checking
in under poor band conditions. The SS SSB contest
was on, so I image a lot of regulars were pulled away for that.

Out of those, there was:

2 running TS-520(x)
1 running TS-530(x)
0 running TS-820(x)
1 running TS-830S

I was running my TS-940s.

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHo

mePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54
October 2013, Saturday☐s net total = 61, Sunday☐s total = 55
November 2013, Saturday☐s net total = 51, Sunday☐s total = 42 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHo
mePage.htm

73's,
Mark, WB0IQK

45937. Re: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 07:32:09 UTC
From: Wes Will
Topic: 45930 Message: 45937

On 11/17/2013 07:24 PM, lonelyone_64109@... wrote:
>
>
> I checked the SG switch and it is on. When I have the radio in the USB

Didn't we just have someone recently who had "the SG switch and it is on" but turns out that the SG switch was the thing that was BROKEN?

Can you check the actual switch itself? Power off, lift a wire, check continuity? Or take a voltage reading across the switch with power on, proper precautions? If there is voltage shown on a meter across the switch when it is in both positions, then it isn't actually working.

If the reading drops to zero when the switch is in the "On" position, and up to some value in the "Off" position, then it's good. FROM MY FAULTY MEMORY ONLY! This should be around 210 - 240 VDC...

(Please correct this value if it's wrong, someone. It's the middle of a pain-filled and sleepless night for me and I don't have a schematic or service manual handy on this little laptop I use for email and such.)

--
Wes Will
N9KDY

45938. RE: Re: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 11:13:24 UTC
From: <wagstw46@...>
Topic: 45930 Message: 45938

Will is exactly correct.

First thing I would check is SG voltage at the 6146 tube socket pin.

Think about what you are seeing.

If you get ALC indication in SSB mode when modulating the rig you have proved that:

1. There is Carrier at the Balanced Modulator
2. That you are producing a TIF output from IF board to RF board
3. That you have RF drive from the TX Mixer
4. That you have RF drive from the Driver tube
5. That you have RF drive level in excess of the operating bias on the 6146 finals
6. That the ALC transistor is being biased on with 6146 positive grid current flows on voice peaks.
7. That the ALC bus voltage is being pulled down
8. That the S-meter sees the ALC bus voltage going down and is driving the meter up scale.

OK with no RF output what are you missing? What do you need?

1. Screen grid voltage
2. Anode voltage
3. Plate current

6146 finals have to have filament voltage and emission as you have positive grid current. So tubes appear OK

You are missing is 6146 final tube plate current. Most likely cause is no Screen Grid voltage.

Start at the tube socket and work way back to HV rect board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 11/17/2013 07:24 PM, lonelyone_64109@... mailto:lonelyone_64109@... wrote:
>
>
> I checked the SG switch and it is on. When I have the radio in the USB

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Can you check the actual switch itself? Power off, lift a wire, check continuity? Or take a voltage reading across the switch with power on, proper precautions? If there is voltage shown on a meter across the

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(Please correct this value if it's wrong, someone. It's the middle of a pain-filled and sleepless night for me and I don't have a schematic or service manual handy on this little laptop I use for email and such.)

--
Wes Will
N9KDY

45939. Re: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 11:44:08 UTC
From: Mike
Topic: 45930 Message: 45939

Paul needs to watch my SG switch video. The following link will take you
to that video:

http://www.n6wk.com/w5rkl/SG%20Switch/Function%20of%20the%20520%20530%20and%20820%20SG%20Switch.wmv

73
Mike W5RKL

On 11/18/2013 5:13 AM, wagstw46@... wrote:
>
> Will is exactly correct.
>
>
> First thing I would check is SG voltage at the 6146 tube socket pin.
>
>
> Think about what you are seeing.
>
>
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> proved that:
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>
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>
> 2. That you are producing a TIF output from IF board to RF board
>
> 3. That you have RF drive from the TX Mixer
>
> 4. That you have RF drive from the Driver tube
>
> 5. That you have RF drive level in excess of the operating bias on the
> 6146 finals
>
> 6. That the ALC transistor is being biased on with 6146 positive grid
> current flows on voice peaks.
>
> 7. That the ALC bus voltage is being pulled down
>
> 8. That the S-meter sees the ALC bus voltage going down and is driving
> the meter up scale.
>
>

> OK with no RF output what are you missing? What do you need?
>
>
> 1. Screen grid voltage
>
> 2. Anode voltage
>
> 3. Plate current
>
>
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> positive grid current. So tubes appear OK
>
>
> You are missing is 6146 final tube plate current. Most likely cause is
> no Screen Grid voltage.
>
>
> Start at the tube socket and work way back to HV rect board.
>
>
> Terry K9TW
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:
>
> On 11/17/2013 07:24 PM, lonelyone_64109@...
> <mailto:lonelyone_64109@...> wrote:
>
> >
> >
> > I checked the SG switch and it is on. When I have the radio in
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>
> Didn't we just have someone recently who had "the SG switch and it is
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>
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> continuity? Or take a voltage reading across the switch with power on,
> proper precautions? If there is voltage shown on a meter across the
> switch when it is in both positions, then it isn't actually working.
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> and up to some value in the "Off" position, then it's good. FROM MY
> FAULTY MEMORY ONLY! This should be around 210 - 240 VDC...
>
> (Please correct this value if it's wrong, someone. It's the middle of a
> pain-filled and sleepless night for me and I don't have a schematic or
> service manual handy on this little laptop I use for email and such.)

>
> --
> Wes Will
> N9KDY
>

45940. Re: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 14:05:51 UTC
From: Mike
Topic: 45930 Message: 45940

Paul,

You also might want to watch my video on the 520/820 cathode circuit.
The video can be found at the following link:

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/TS520%20and%20TS-820%20Cathode%20circuit%20calculations.wmv

My video assumes the cathode resistors are 10 ohms each, not 9 or 11 ohms and the meter multiplier resistor is 3.3K. Actual cathode and meter multiplier resistor values will not be exactly 10 ohms and not be exactly 3.3K.

You can use different values of cathode current, such as 60ma for example, to determine what the cathode voltage will be then use the cathode voltage to determine what the voltage applied to the meter will be. Not all meters have the same exact internal resistance. I used the resistance values indicated in the video to keep the math simple, actual resistance values will be slightly different.

73
Mike W5RKL

On 11/17/2013 7:24 PM, lonelyone_64109@... wrote:
>
> I checked the SG switch and it is on. When I have the radio in the
> USB or LSB position and speak into the microphone I get a normal ALC
> deflection with the meter in the ALC position. With the meter in the
> Ip or RF output position I do not see any movement. Also when I put
> the rig in the tune position and try to adjust the drive control
> through its range I do not get any ALC, Ip or RF output indication at
> all, . The same goes for the 60 mA plate idling current. Thinking it
> MIGHT be the metering circuit I even put a wattmeter in line with the
> dummy load but again no power output. I need to go through and check
> the voltages on the final board, the RF board, and possibly the IF
> board. I also have a service bulletin reprint saying to check the -6V
> source as it could also cause low receive and no TX output. But due to
> my work schedule it will be Thursday evening before I can get any time
> to further look into this problem. Since there were several resistors
> burned up i am thinking there is one that Ihave not found that is open
> and is causing the lack of RF output and meter indications.
>
> Paul WB0CJB
>
>

>
> ---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:
>
> Forgot to mentioned. If the SG switch is, in fact, in the "OFF"
> position there will be no RF output, regardless of the mode.
>
> 73
> Mike W5RKL
>
> On 11/17/2013 1:13 PM, Mike wrote:
>>
>> Paul,
>>
>> You said the ALC meter position works fine. Are you saying that
>> in TUNE mode with the meter switch set to ALC and the transmitter
>> keyed with the SEND switch, adjusting the DRIVE control produces
>> ALC meter indication? You also said there is no 60ma idling
>> current with the transmitter keyed with PTT in LSB or USB, is
>> that correct? If both answers are "yes" then you need to check
>> the rear panel's "SG" switch to ensure it is in the "ON"
>> Position. Quite often when handling the transceiver this switch
>> gets slide, accidentally, into the "OFF" position. When that
>> occurs there will be no 60ma idling current indicated on the
>> meter (meter switch set to IP) when the transmitter is keyed in
>> LSB or USB.
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>>
>> On 11/17/2013 12:42 PM, lonelyone_64109@...
>> <mailto:lonelyone_64109@...> wrote:
>>>
>>> I have a TS520S that the cathode and screen resistors were
>>> burned up due to being overdriven.(the owner turned up something
>>> when his friends on the air said he was really weak). I've
>>> replaced the resistors as well as the 470 ohm resistors in the
>>> 210 and 300 volt supplies. I also replaced the caps and RF choke
>>> in the final cage as per K4EAA. Prior to installing the tubes I
>>> checked the voltages and the HV was 933, the 210 read 256, and
>>> the 300 supply read 344 (all were no load values). I installed
>>> the tubes and the receive is very low. The S-meter reads S-2 in
>>> receive but does drop to zero in transmit. All bands are working
>>> as I can hear the phone stations running the sweepstakes this
>>> weekend. The crystal calibrator works fine and the signal lever
>>> from it is around S-5 to S-9 depending on the band.
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>>> I plugged in a microphone and the rig works in VOX as well as

>>> PTT and the ALC position on the meter reads fine. I am not
>>> showing any plate bias current on the meter when in transmit but
>>> but I do have the HV reading on the meter when I switch to transmit.
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>>> I am wondering if i missed something that may have gotten burnt
>>> or has opened up. With the exception of the receive and no
>>> output the radio is working just fine. Any help would be
>>> appreciated.
>>>
>>> Paul WB0CJB
>>>
>>
>
>

45941. RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 14:38:50 UTC
From: <tjb813@...>
Topic: 45920 Message: 45941

I guess I didn't read where anyone was "junking" a Kenwood. Maybe I missed a post. I have been fixing tube and hybrid radios for 35+ years. None of my equipment is "new". My hobby is restoration of Hallicrafters, Drakes, Kenwood Hybrids and Heathkits. I have a complete home brewed (by me) 1kw am station. Hand wound coils and all. If that makes me an "appliance" operator, gee, I appologise. I find that when an "inexperienced" person wants to learn about their equipment by doing repairs, I encourage the effort. The level of repair (board replacement or component level) is based on their level of comfort in making the repair, money available, or time. Now, on to the TS-820 fixing.....

Further investigation showed that the 56 ohm resistor became a "sink" for the RF current. The input coil and Q2 are fine. I had a similar switch in my junque box where all I had to do was swap the mounting bracket. Fixed the switch, new resistors and the receive is full blast 9+ with calibrator. Transmitter works great 100+ watts on all bands. Worked a few station in the sweepstakes this weekend with it.

Now, the next problem: The display is somewhat flaky. When first turned on it displays perfectly. After 5 minutes the most significant digit starts to flicker, then go out. The radioworks fine and the rest of the digits work correctly. Turning the radio off, then back on corrects the problem for awhile. I disassembled the DG1 and using my ESR meter, I think that the filter caps for HV supply for the display tube MAY be questionable. I will replace them tonight and see if that helps. I have not checked the LV supply on the AVR board.

Another symptom is that when I transmit in CW, the display gets real flaky and jumps all over. It works fine in USB and LSB. SAme symptoms on all bands. I suspect the digital board may have some solder issues.

Any input or experiences in this matter are welcome. Thanks
Tim
KD8CN

---In ts-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

I know that I am an "old timer", but I do get puzzled when members
appear to consider junking a Kenwood simply because a coil is no longer
available.
Some thing like the IF trap coil can be wound in a few seconds sealed
with Supaglue or nail varnish and installed. Often the size of wire and
number of turns can be seen by inspection.
But given a signal generator and VTVM or Oscilloscope, or even a good
old GDO it is a simple matter to make new RF coils.
Now I am retired I am a semi professional radio restorer admittedly, but
I have been winding my own coils for over 60 years.
It you want a REAL tough job, try rewinding the RF Chokes in a 1970's
Marconi signal generator (100mH) each about 550 turns of hair thin #44
wire on a tiny former. That really is hard to do!!!
Radios of the age of the Kenwood hybrids really need quite a lot of

knowledge and some test gear to keep going and to fix. They are NOT
appropriate for "appliance operators".
73 ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com http://www.avast.com

45942. RE: AT-200 Tuner for sale

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 15:25:02 UTC
From: <bonnevilleblb@...>
Topic: 45890 Message: 45942

The tuner is sold. Thanks, everybody,

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bonnevilleblb@...> wrote:

I just emailed you, John.

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <pyrrus2003@...> wrote:

If Ron changes his mind, I'd like second consideration.

John Boardman
KD5ZGX

On Thursday, November 14, 2013 7:29 AM, "bonnevilleblb@..." <bonnevilleblb@...> wrote:

Good deal, Ron. With this new Yahoo layout I'm having a little trouble finding your email address to email you off the board, so if you don't mind, send me an email at bonnevilleblb@.... I'll give you details. Thanks!

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

Barry I am interested in ur tuner. Thanks Ron kl4pwf

Ron KK4PWF

On Nov 13, 2013, at 1:59 PM, <bonnevilleblb@... mailto:bonnevilleblb@...> wrote:

All the talk about tuners reminded me - I've got a Kenwood AT-200 tuner in great shape that I am thinking about selling. At least an 8 out of 10 for looks and performance. Christmas is coming and I need to sell some stuff! $195 plus $20 shipping in the continental US. If nobody's interested it might go up on ebay sometime soon. There's one way over $200 selling right now.

I've got a Washburn Idol Pro like brand new with box and tags (played very little) that I need to sell since I just bought a new guitar, too...

Barry
KK4RXN
Jeremiah 29:11-13 / John 3:16

45943. RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 16:12:25 UTC
From: <wagstw46@...>
Topic: 45920 Message: 45943

I am not familiar with any HV filter caps for the VFD in the Hybrids? There are no high voltages involved. VFD voltages are approx:

Filament = 4.0 to 5.0 vdc
Grids = -17.0 vdc to -19.0 vdc
Anode = +11 vdc to + 14 vdc

I think max voltage will be in the +22 vdc range from the DC to DC converter.

The VFD is seldom a problem. VFD power supply is seldom the problem.

Common problem is with the "vias" and plenty of folks here who have implemented the published fix for that. I think Mark Gilger would be good one to answer this.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <tjb813@...> wrote:

I guess I didn't read where anyone was "junking" a Kenwood. Maybe I missed a post. I have been fixing tube and hybrid radios for 35+ years. None of my equipment is "new". My hobby is restoration of Hallicrafters, Drakes, Kenwood Hybrids and Heathkits. I have a complete home brewed (by me) 1kw am station. Hand wound coils and all. If that makes me an "appliance" operator, gee, I appologise. I find that when an "inexperienced" person wants to learn about their equipment by doing repairs, I encourage the effort. The level of repair (board replacement or component level) is based on their level of comfort in making the repair, money available, or time. Now, on to the TS-820 fixing.....

Further investigation showed that the 56 ohm resistor became a "sink" for the RF current. The input coil and Q2 are fine. I had a similar switch in my junque box where all I had to do was swap the mounting bracket. Fixed the switch, new resistors and the receive is full blast 9+ with calibrator. Transmitter works great 100+ watts on all bands. Worked a few station in the sweepstakes this weekend with it.

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KD8CN

---In ts-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

I know that I am an "old timer", but I do get puzzled when members
appear to consider junking a Kenwood simply because a coil is no longer
available.
Some thing like the IF trap coil can be wound in a few seconds sealed
with Supaglue or nail varnish and installed. Often the size of wire and
number of turns can be seen by inspection.
But given a signal generator and VTVM or Oscilloscope, or even a good
old GDO it is a simple matter to make new RF coils.
Now I am retired I am a semi professional radio restorer admittedly, but
I have been winding my own coils for over 60 years.
It you want a REAL tough job, try rewinding the RF Chokes in a 1970's
Marconi signal generator (100mH) each about 550 turns of hair thin #44
wire on a tiny former. That really is hard to do!!!
Radios of the age of the Kenwood hybrids really need quite a lot of
knowledge and some test gear to keep going and to fix. They are NOT
appropriate for "appliance operators".
73 ZL1BDA

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45944. RE: RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 16:17:53 UTC
From: <wagstw46@...>
Topic: 45920 Message: 45944

Oops a typo. The VFD filament voltage is VAC and not VDC.

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

I am not familiar with any HV filter caps for the VFD in the Hybrids? There are no high voltages involved. VFD voltages are approx:

Filament = 4.0 to 5.0 vdc
Grids = -17.0 vdc to -19.0 vdc
Anode = +11 vdc to + 14 vdc

I think max voltage will be in the +22 vdc range from the DC to DC converter.

The VFD is seldom a problem. VFD power supply is seldom the problem.

Common problem is with the "vias" and plenty of folks here who have implemented the published fix for that. I think Mark Gilger would be good one to answer this.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <tjb813@...> wrote:

I guess I didn't read where anyone was "junking" a Kenwood. Maybe I missed a post. I have been fixing tube and hybrid radios for 35+ years. None of my equipment is "new". My hobby is restoration of Hallicrafters, Drakes, Kenwood Hybrids and Heathkits. I have a complete home brewed (by me) 1kw am station. Hand wound coils and all. If that makes me an "appliance" operator, gee, I appologise. I find that when an "inexperienced" person wants to learn about their equipment by doing repairs, I encourage the effort. The level of repair (board replacement or component level) is based on their level of comfort in making the repair, money available, or time. Now, on to the TS-820 fixing.......

Further investigation showed that the 56 ohm resistor became a "sink" for the RF current. The input coil and Q2 are fine. I had a similar switch in my junque box where all I had to do was swap the mounting bracket. Fixed the switch, new resistors and the receive is full blast 9+ with calibrator. Transmitter works great 100+ watts on all bands. Worked a few station in the sweepstakes this weekend with it.

Now, the next problem: The display is somewhat flaky. When first turned on it displays perfectly. After 5 minutes the most significant digit starts to flicker, then go out. The radioworks fine and the rest of the digits work correctly. Turning the radio off, then back on corrects the problem for awhile. I disassembled the DG1 and using my ESR meter, I think that the filter caps for HV supply for the display tube MAY be questionable. I will replace them tonight and see if that helps. I have not checked the LV supply on the AVR board.

Another symptom is that when I transmit in CW, the display gets real flaky and jumps all over. It works fine in USB and LSB. SAme symptoms on all bands. I suspect the digital board may have some solder issues.

Any input or experiences in this matter are welcome. Thanks
Tim
KD8CN

---In ts-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

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appear to consider junking a Kenwood simply because a coil is no longer
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73 ZL1BDA

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45945. RE: RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 16:57:09 UTC
From: <wagstw46@...>
Topic: 45930 Message: 45945

I forgot to ask

With rig in Tune mode and trying to peak the ALC indication did you try with the CAR Level pot full CW and in all bands? If not do so.

Did you try in CW mode? If not do so but observe next sentence.

If you do this test do it quickly as the Tank circuit (Pi-network) will not likely be adjusted to resonance so will have high Plate current. Close the plates of the Plate Loading cap before you try to peak the ALC indication in CW mode.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <lonelyone_64109@...> wrote:

I checked the SG switch and it is on. When I have the radio in the USB or LSB position and speak into the microphone I get a normal ALC deflection with the meter in the ALC position. With the meter in the Ip or RF output position I do not see any movement. Also when I put the rig in the tune position and try to adjust the drive control through its range I do not get any ALC, Ip or RF output indication at all, . The same goes for the 60 mA plate idling current. Thinking it MIGHT be the metering circuit I even put a wattmeter in line with the dummy load but again no power output. I need to go through and check the voltages on the final board, the RF board, and possibly the IF board. I also have a service bulletin reprint saying to check the -6V source as it could also cause low receive and no TX output. But due to my work schedule it will be Thursday evening before I can get any time to further look into this problem. Since there were several resistors burned up i am thinking there is one that I have not found that is open and is causing the lack of RF output and meter indications.

Paul WB0CJB

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Forgot to mentioned. If the SG switch is, in fact, in the "OFF" position there will be no RF output, regardless of the mode.

73
Mike W5RKL

On 11/17/2013 1:13 PM, Mike wrote:

Paul,

You said the ALC meter position works fine. Are you saying that in TUNE mode with the meter switch set to ALC and the transmitter keyed with the SEND switch, adjusting the DRIVE control produces ALC meter indication? You also said there is no 60ma idling current with the transmitter keyed with PTT in LSB or USB, is that correct? If both answers are "yes" then you need to check the rear panel's "SG" switch to ensure it is in the "ON" Position.

Quite often when handling the transceiver this switch gets slide, accidentally, into the "OFF" position. When that occurs there will be no 60ma idling current indicated on the meter (meter switch set to IP) when the transmitter is keyed in LSB or USB.

73
Mike W5RKL

On 11/17/2013 12:42 PM, lonelyone_64109@... mailto:lonelyone_64109@... wrote:

I have a TS520S that the cathode and screen resistors were burned up due to being overdriven.(the owner turned up something when his friends on the air said he was really weak). I've replaced the resistors as well as the 470 ohm resistors in the 210 and 300 volt supplies. I also replaced the caps and RF choke in the final cage as per K4EAA. Prior to installing the tubes I checked the voltages and the HV was 933, the 210 read 256, and the 300 supply read 344 (all were no load values). I installed the tubes and the receive is very low. The S-meter reads S-2 in receive but does drop to zero in transmit. All bands are working as I can hear the phone stations running the sweepstakes this weekend. The crystal calibrator works fine and the signal lever from it is around S-5 to S-9 depending on the band.

I plugged in a microphone and the rig works in VOX as well as PTT and the ALC position on the meter reads fine. I am not showing any plate bias current on the meter when in transmit but but I do have the HV reading on the meter when I switch to transmit.

I am wondering if i missed something that may have gotten burnt or has opened up. With the exception of the receive and no output the radio is working just fine. Any help would be appreciated.

Paul WB0CJB

45946. RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 20:41:15 UTC
From: <roberteleazer@...>
Topic: 45897 Message: 45946

VERY STRONG ON WWV!!!

BINGO!

I have a TS-520 with the EXACT same problem!

It occurred right after I switched to WWV and back.

Problem was that the WWV switch was not switching back!

Cycling the WWV switch fixed it - but I can get it to repeat if I try.

I need to clean the WWV switch with some electronic contact cleaner and then lube it with a little LPS-1. Suggest you do likewise.

Good Luck!

Robert
WB5WSV

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Have checked all pots, connectors, untightened and retightened all boards, checked relays...still the same. There is one thing concerning the marker signal. It is very strong on WWV/JJY and in fact that band is quite sensitive. The rest of the bands peaked out with the drive are low on sensitivity. The radio is indeed receiving stations but a signal that would be S20 is more like an S5. Not sure if that points to a direction.
Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

TS520 do not have connectors they use wire wrap terminal posts. Molex connectors were introduced with the TS-820

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <ykpwr45@...> wrote:

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.

73 Jim, N7JS

45947. TS-830S Filter Combinations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 19:03:32 UTC
From: morsemad
Topic: 45947 Message: 45947

Hello there.
Would it be true to say that a TS-830s fitted with both the YK-88C filter and the YG-455CN filter would not work ?
The reason I ask is that my TS-830S has these fitted and I have had to bypass the YG-455CN due to it blocking all but high pitch sigs.
John / GØRDO

45948. RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 21:17:29 UTC
From: clifford wright
Topic: 45920 Message: 45948

Perhaps I didn't make myself clear. I have owned a TS820S for several years and am pretty familiar with the unit by now. A poster appeared to imply that a Kenwood could only be repaired if the IF trap coil was available ex stock. Now this coil is a simple series tuned circuit at 8.3 odd MHz in the input. The sort of thing that could be wound in a minute or two.
It was the apparent inability to make such a simple component that struck me as an example of the need for good technical knowledge and access to test equipment as a
prerequisite for the maintenance and repair of older Ham gear.
There can be little hope of getting specialised parts for 40 year old equipment and it can only get worse over time.
I guess the fact that we have always had a "fix it" mentality in NZ due to our isolation makes
me even more inclined that way.

But the thought of someone who cannot even use a digital voltmeter (there have been some on this group) getting into a Kenwood hybrid is downright scary.

However from your post tjb813 you could never be called an "appliance operator", it is good to hear how much you have achieved. I got WAC back in 1974 with an
ALL home brew station running 100 watts to a TT21 final. That included TX, RX and antennas.
These days I do use some older commercial gear, but it is heavily modified and upgraded where possible.

The troubling thing to me though is that there seems to be a group of would be Kenwood Hybrid users whose knowledge is too incomplete to safely work on these sets.
"Board level" repairs can be quite tricky (a TS820 is NOT like a desktop computer) and access to working boards is often difficult or impossible.
Hope this clarifies things.
73 ZL1BDA

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45949. RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 22:43:32 UTC
From: clifford wright
Topic: 45920 Message: 45949

Blimey Mike!
You must have run into a lot of 'em over there.
It does seem though that the way exams are "organised" in the US makes
it far too
easy to memorise your way through.
Reminds me of a phenomenon we noticed in my many years at Auckland
university.
Asian students (especially those fluent in written Chinese) did VERY
well up to Bachelor
degree level. But had a very high failure rate when doing any post Grad
work.
It appears that being fluent in thousands of characters trains one to
have a photographic
memory. Works fine, until you have to work "outside the box".
One Chinese friend of mine was considered only an average student in
Malaysia, but got a PhD
and he reckoned it was because he didn't have a good one!!

Still, with the internet, I wonder what the attraction of Ham radio is
to someone with no
personal interest in electronics?
After all, hybrids may be cheap (mine cost me $40 (NZ), not working, 10
years ago) but there are kits available
which can get you on the air for only a hundred dollars or so.
If they can't build one of those then perhaps they are in the wrong
hobby I guess.

Perhaps we have to accept that we are becoming a bit of a relic?
After all, I was licensed as G3NIA when I was 17, I'm now 73, and I'm
still quite a "young" Ham.
73 ZL1BDA

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45950. RIT/XIT expansion for the TS-530

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-18 23:26:39 UTC
From: Brian Roberts
Topic: 45950 Message: 45950

Hello Gents--
I know there is a modification for the TS-830 to expand the RIT/XIT from 1.8 KHz to 8 KHz. Does anyone know of a mod to expand the RIT/XIT in the TS-530? Thanks. Brian K9VKY

45951. RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 00:33:41 UTC
From: <wagstw46@...>
Topic: 45920 Message: 45951

I am the one that advised the Op that his rig may have experienced a burned up L8 Ant Step Up transformer and perhaps damage to the two IF wave traps. I advised that he should contact Bob Mansker to see if he had a replacement L8 and if not to ask on the Forum if someone had a parts board that they could harvest from.

I stand by that counsel and totally disagree with you. For the average new licensee and new KW hybrid owner winding a Ant step-up and/or IF wave traps is not an easy undertaking.

To your sir I ask when is the last time you had a TS820 with a bad L8 on your bench? Have you ever removed L8 from a TS820 and removed the shield can and observed what it looks like after seeing 100 watts? I doubt it. I submit sir you would be hard pressed to rewind L8 without help from this Forum.

Perhaps if you were lucky you could get a remnant from it and mike it to determine the wire gauge. What is the turns ratio? What is the primary and secondary inductance? Does polarity matter? What direction do you wind? Can it be scramble wound? What winding goes on first? Can they overlap?

After rewinding what testing will you do to ensure it is correct before putting it on the board and re-installing the board? What frequency RF signal would you use? What signal levels would you use? What acceptance criteria?

More than one of our members have rewound L8 and L41 only to find they do not work after repeated attempts to get a good one. Have been plenty who also experienced glowing 6146 plates after incorrectly re-installing the RF board. I have a customers TS830 here now on bench with a bad L41 that an attempted rewind performed. The owner is a talented ham and experimenter who is doing Arduino and Picaxe work and automating antenna tuners etc, but soon realized rewinding Ant step ups was not his specialty.

If it was so damn easy most of the members would be routinely winding them. Is it possible? You bet it is. Gordon N6WK is our resident expert at it and he didnt get a good one first time out of the gate.

As to the parallel and series IF wave traps a little easier as you would at least be able to go to the schematic and see the capacitance values. What would a new person do with those values? How would they determine the needed inductance and number of turns required on an iron core?

You seem to forget that we are talking about new licensees who have just bought a KW Hybrid. At this stage of their development they lack the knowledge, experience, and the basic test gear needed to wind Ant step up xfmrs and IF wave traps. They likely dont even have soldering and de-soldering equipment or soldering experience at this point.

Looking at a burned up L8 or IF wave trap in their hand they would be faced with numerous challenges including:

They cannot measure the resistance (which is of little value to them). They cannot use an LCR bridge and measure winding inductance even if they had a bridge. They cannot disassemble and count turns. They cannot excite with RF Sig Gen and observe on RF millivolt meter or O-scope to determine resonant frequency, How would they configure the test set up? Would they use resistors or capacitors for coupling isolation and if so what values? Would it be a peak or a null they should look for? They cannot Grid Dip it and very likely never heard of a GDO!

To these newbies what LC ratio would you suggest they use? What wire gauge? How many turns on an iron core? To your way of thinking should be childs play for these new folks.

Of course you and I after 50 years in the hobby should be quite capable of winding parallel and series resonant wavetraps for 8.830mhz from scratch. I wont bore you with how I would do it.

So for the fellow with 35 years boat anchor repair experience if he needs and wants to rewind L8 Ant step-up transformer and/or his IF wave traps for his Fort Wayne Hamfest treasure I say have a ball. I will be glad to give him any assistance that he may need.

For the newbies who may be lucky if you own a DMM there is absolutely no shame in asking Bob Mansker or other forum members if they have a L8 or L41 of related wave traps. It makes you no less a ham as our friend here.

What it does do for you is you will have the factory correct parts in hand quickly and then just be faced with the challenge of board removal and installation and unsolder and resolder operation to restore you KW Hybrid to operation.

Terry K9TW

. l

---In TS-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

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years and am pretty familiar with the unit by now. A poster appeared to
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access to test equipment as a
prerequisite for the maintenance and repair of older Ham gear.
There can be little hope of getting specialised parts for 40 year old
equipment and it can only get worse over time.
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me even more inclined that way.

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73 ZL1BDA

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45952. RE: TS-830S Filter Combinations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 00:47:21 UTC
From: <wagstw46@...>
Topic: 45947 Message: 45952

John:

Look at your Instruction Manual at Fig 5.2. Kenwood recommends that you select the filter combination that allows you to maximize full range of the VBT function. That is accomplished with the Yk-88C and Yg-455C filters (the 1st CW4 position).

I have never understood using the narrow filters when you can get virtually same band width with the VBT control. Perhaps flipping mode switch is easier than varying a pot?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <john@...> wrote:

Hello there.
Would it be true to say that a TS-830s fitted with both the YK-88C filter and the YG-455CN filter would not work ?
The reason I ask is that my TS-830S has these fitted and I have had to bypass the YG-455CN due to it blocking all but high pitch sigs.
John / GØRDO

45953. KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 04:07:34 UTC
From: <jimlamanteer@...>
Topic: 45953 Message: 45953

HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT LITE UP AT ALL D-18 HAS BEEN REPLACED AND I HAVE GOOD POWER TO THE UNIT THE CABLES ARE CLEAN. CAN ANYBODY POINT ME IN THE RIGHT DIRECTION AS TO WHAT TO LOOK FOR NEXT OR WHAT TO CHECK?? ANY HELP IS VERY WELCOME. THANKS JIMMY WB2KNR

45954. Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 04:12:37 UTC
From: Mark Gilger
Topic: 45953 Message: 45954

Sorry, but I've never had one, or for that matter even seen one.
Mark

At 11:07 PM 11/18/2013, you wrote:
>
>
>HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT
>LITE UP AT ALL D-18 HAS BEEN REPLACED AND I HAVE
>GOOD POWER TO THE UNIT THE CABLES ARE
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>DIRECTION AS TO WHAT TO LOOK FOR NEXT OR WHAT TO
>CHECK?? ANY HELP IS VERY WELCOME. THANKS JIMMY WB2KNR
>

45955. Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 05:13:22 UTC
From: Jim Lamanteer
Topic: 45953 Message: 45955

OK THANKS ANYWAY MARK. JIMMY

On Mon, 11/18/13, Mark Gilger <mgilger@...> wrote:

Subject: Re: [TS-520_820_530_830] KENWOOD DG-5
To: TS-520_820_530_830@yahoogroups.com
Date: Monday, November 18, 2013, 8:12 PM

Sorry, but I've never had one, or for that matter even
seen one.

Mark

At 11:07 PM 11/18/2013, you wrote:

HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT LITE UP AT ALL
D-18 HAS BEEN
REPLACED AND I HAVE GOOD POWER TO THE UNIT THE CABLES ARE
CLEAN.
CAN ANYBODY POINT ME IN THE RIGHT DIRECTION AS TO WHAT TO
LOOK FOR NEXT
OR WHAT TO CHECK?? ANY HELP IS VERY WELCOME. THANKS JIMMY
WB2KNR

45956. Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 05:15:16 UTC
From: Wes Will
Topic: 45953 Message: 45956

On 11/18/2013 10:12 PM, Mark Gilger wrote:
>
>
> Sorry, but I've never had one, or for that matter even seen one.
> Mark
>
> At 11:07 PM 11/18/2013, you wrote:
>
>>
>>
>> HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT LITE UP AT ALL D-18 HAS

Welp, as usual these days, the reply was the first I (personally) saw of this request. Are there any other bits of this thread? Has anyone asked him if he has downloaded the DG-5 schematics and docs yet?

This thread is completely new to me, though. Is there more of it, as I sort of guess from Mark's response? I'd send him a link to the DG-5 docs, if no-one else already has. It's a starting place, anyway. But I don't want to duplicate someone else's posting and double up on information. Sometimes redundancy is just wasted electrons.

Welcome to the new Yahooligan "service."

I got, very early Saturday morning, a boat-load of week-, two-week-, and even a few three-week- old posts, all coming in out of order, will he or nil he; some came middle posts first, then the beginning of the thread, maybe even the end of the whole thing. Some of them I am pretty sure I didn't ever (yet, but there's always NEXT week, huh?) get all of the thread.

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Can anyone claim DG-5 expertise? I've got one I'd like to get working, too... (Seems to work powered on the bench supply and not the radio, as a freq. counter. Plug it into the 520SE and the diodes in the low-voltage supply BURN, in seconds. Done it twice so far and NO the cables are pristine. (I have NOT plugged it into the radio for a third time!!) I'm hoping to open it up and start checking things out this week, if time and troubles permit.

--
Wes Will
N9KDY

45957. Re: [TS-520_820_530_830] RIT/XIT expansion for the TS-530

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 08:13:23 UTC
From: Gordon JC Pearce
Topic: 45950 Message: 45957

On Mon, Nov 18, 2013 at 06:26:39PM -0500, Brian Roberts wrote:
> Hello Gents--
> I know there is a modification for the TS-830 to expand the RIT/XIT from 1.8 KHz to 8 KHz. Does anyone know of a mod to expand the RIT/XIT in the TS-530? Thanks. Brian K9VKY

At a guess, you'd alter the value of some resistor around the RIT control that feeds the RIT voltage in. I don't have a 530 manual around but on the 520 it appears to come from the FIX CH board - the diagram I have isn't very clear - and consists of a 5k pot and a voltage divider.

I can't help but think that an 8kHz spread on the RIT would be awfully twitchy though.

--
Gordonjcp MM0YEQ

45958. Re: TS-830S Filter Combinations

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 09:08:59 UTC
From: morsemad
Topic: 45947 Message: 45958

Terry - hello.
It was looking at the Instruction Manual at Fig 5.2. where various combinations of filter are listed, that I saw that my TS-830S had a combination of two filters that are not on the Manual's list ! ("Kenwood recommends that you select the filter combination that allows you to maximize full range of the VBT function. That is accomplished with the Yk-88C and Yg-455C filters (the 1st CW4 position").
So I am assuming a previous owner fitted a wrong filter in the YG-455CN. (My TS-830S has a YK-88C & YG-455CN combination that doesn't work).
Anyway - the YK-88C 500Hz filter on its own [CW2 position] works fine HI
Mind you - I would be interested to hear from anyone who has this combination of filters that DOES work. That would suggest I may have a faulty YG-455CN filter.
John / GØRDO

--- In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>
> John:
>
>
> Look at your Instruction Manual at Fig 5.2. Kenwood recommends that you select the filter combination that allows you to maximize full range of the VBT function.

45959. TEST

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 09:47:30 UTC
From: <sw20plus@...>
Topic: 11672 Message: 45959

Why are my messages not shown on the forum ?

TEST
Sorry for inconvenience caused

Wally/PA3BTT

45960. Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 08:43:10 UTC
From: <sw20plus@...>
Topic: 45960 Message: 45960

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE.
here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

45961. RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 04:03:48 UTC
From: clifford wright
Topic: 45920 Message: 45961

Sorry to say, I still cannot agree at all.
They are simple solenoid wound coils of only a few turns. To potentially
"junk"
a hybrid simply because they have been damaged would be a crying shame!
I have to "stand to my guns" on this debate, if you have so little
knowledge of
electronics that you can't wind a coil (something I have been doing
since the age of 9!)
then you literally have no business inside a Kenwood hybrid.
If you want to repair one anyway, then you will need expert practical
help, paid or
unpaid. That might easily defeat the "hybrid as a cheap option", case.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

45962. RE: RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 13:33:15 UTC
From: <tjb813@...>
Topic: 45920 Message: 45962

You may be replying to the wrong post, sir!

I didn't notice anyone "junking" anything. But, if winding coils makes you an electronics "expert" then I bow to your superior intellect. LOL

It's the "self proclaimed" experts like you that discourage people from learning and from posting novice, learning questions. You obviously have lost sight of what this list is truly about. Helping and sharing with those with common interests.

---In TS-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

Sorry to say, I still cannot agree at all.
They are simple solenoid wound coils of only a few turns. To potentially
"junk"
a hybrid simply because they have been damaged would be a crying shame!
I have to "stand to my guns" on this debate, if you have so little
knowledge of
electronics that you can't wind a coil (something I have been doing
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45963. RE: Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 13:38:42 UTC
From: <tjb813@...>
Topic: 45953 Message: 45963

I have worked on a dozen or more. "Expert" is not what I would call myself, but I have some experience. I have brought several "back from the dead"

What can I help you with?
Tim
KD8CN

---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 11/18/2013 10:12 PM, Mark Gilger wrote:
>
>
> Sorry, but I've never had one, or for that matter even seen one.
> Mark
>
> At 11:07 PM 11/18/2013, you wrote:
>
>>
>>
>> HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT LITE UP AT ALL D-18 HAS

Welp, as usual these days, the reply was the first I (personally) saw of this request. Are there any other bits of this thread? Has anyone asked him if he has downloaded the DG-5 schematics and docs yet?

This thread is completely new to me, though. Is there more of it, as I sort of guess from Mark's response? I'd send him a link to the DG-5 docs, if no-one else already has. It's a starting place, anyway. But I don't want to duplicate someone else's posting and double up on information. Sometimes redundancy is just wasted electrons.

Welcome to the new Yahooligan "service."

I got, very early Saturday morning, a boat-load of week-, two-week-, and even a few three-week- old posts, all coming in out of order, will he or nil he; some came middle posts first, then the beginning of the thread, maybe even the end of the whole thing. Some of them I am pretty sure I didn't ever (yet, but there's always NEXT week, huh?) get all of the thread.

To make sense of it, I did a re-sort by-subject instead of the usual by-time that I use for everything else, and was able to follow most of them.

Can anyone claim DG-5 expertise? I've got one I'd like to get working, too... (Seems to work powered on the bench supply and not the radio, as a freq. counter. Plug it into the 520SE and the diodes in the low-voltage supply BURN, in seconds. Done it twice so far and NO the cables are pristine. (I have NOT plugged it into the radio for a third

time!!) I'm hoping to open it up and start checking things out this week, if time and troubles permit.

--
Wes Will
N9KDY

45964. RE: RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 14:13:56 UTC
From: <wagstw46@...>
Topic: 45920 Message: 45964

Lets see a FEW turns?

L25 uses a 100 pf cap. That means to resonate that at 8.830mhz you need approx 3,25 uhy choke coil. Assuming a bobbin of 0.125 inch diameter and 0.250 inch high then 50 turns is approx 3.25 uhy. So if 50 turns on an air wound core how many turns would that be on a ferrite core? The answer would escape many KW hybrid owners new and old alike.

I once read on QRZ a fellow like you telling people it was easy to wind plate chokes for 1KW linears. He had been doing it his way for years. Just wind a bunch of turns and if it burns up wind another. Not to worry about the fireworks. He posted this after a new member was asking how to determine the parallel resonance and series resonance holes and what test gear would he need. He had a GDO but was having trouble finding the series resonant holes. He did not understand he needed to place short jumper across the choke windings and why he needed to do that. The old timer obviously had no clue as well. Your advice reminds me of that old timer. Just throw a few turns on it.

Your problem is you apparently cant or do not read and you cant get past the fact that people enter the hobby in very different way today than they did 60 years ago. They were not winding coils since age 9. Through no fault of their own they enter under todays process and it is very easy to see why they would buy a KW hybrid as their first rig....reputation, economics, and availability.

I dont know why you got fixated on wave traps and overlooked ant step up xfmr L8. Maybe pining for those days when you were 9 years old? It doesnt matter.

I will waste the key strokes one last time:

I DID NOT TELL ANYONE TO JUNK A HYBRID. THE OP DID NOT SAY HE WAS GOING TO JUNK A HYBRID.

IT IS FAR SIMPLER FOR THE AVERAGE KW HYBRID OWNER TO INSTALL A COIL PACK L8 OR L24 OR L25 FROM A PULLED BOARD THAN TO ATTEMPT TO REWIND THEM. AFTER YOU REWIND YOUR FIRST L8 OR L41 YOU WILL UNDERSTAND.

YES REWINDING CAN BE DONE IF NO ORIGINALS CAN BE HAD.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

Sorry to say, I still cannot agree at all.
They are simple solenoid wound coils of only a few turns. To potentially
"junk"
a hybrid simply because they have been damaged would be a crying shame!
I have to "stand to my guns" on this debate, if you have so little
knowledge of
electronics that you can't wind a coil (something I have been doing
since the age of 9!)
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If you want to repair one anyway, then you will need expert practical
help, paid or
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45965. RE: Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 14:19:00 UTC
From: <wagstw46@...>
Topic: 45953 Message: 45965

Mark

I was recommending you to the fellow that bought the TS820 at Ft Wayne that had classic intermittent display and I thought you had some experience with the wires in the vias?

Terry

---In TS-520_820_530_830@yahoogroups.com, <mgilger@...> wrote:

Sorry, but I've never had one, or for that matter even seen one.
Mark

At 11:07 PM 11/18/2013, you wrote:

HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT LITE UP AT ALL D-18 HAS BEEN REPLACED AND I HAVE GOOD POWER TO THE UNIT THE CABLES ARE CLEAN. CAN ANYBODY POINT ME IN THE RIGHT DIRECTION AS TO WHAT TO LOOK FOR NEXT OR WHAT TO CHECK?? ANY HELP IS VERY WELCOME. THANKS JIMMY WB2KNR

45966. Identification names

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 14:24:50 UTC
From: Mike
Topic: 45966 Message: 45966

For those members who do not know, each message a member post should have their "name" or "call sign" as a signature. Abbreviated names such as "gigawatt900" or "willynilly900" are not acceptable signature names. Abbreviated names are only acceptable as part of your email address, not as a signature to your messages posted on the group server.

While there are a lot of members who do not have the technical knowledge, experience, and skills to properly and safely troubleshoot their KW hybrids, if there are members who deem it necessary to discuss these subject(s) with other members, please conduct your discussions about these subjects off group, through private email. If a member has a disagreement about a technical troubleshooting process such as what component in the final amplifier is causing loss of IP current, those discussions are acceptable on the group but in a respectful manner.

Thanks and 73
Mike W5RKL

45967. RE: Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 14:58:47 UTC
From: Mark Gilger
Topic: 45953 Message: 45967

I've been real lucky and brought 3 of them back
by sticking wires through all of the plated
through holes on the one board that has all of
the logic chips on it, and resoldering. At the
same time making sure all of the grounds are
cleaned on the corner of each pcb. I had to do
this on two TS-820's and my R820. So far, still
working. Knock on wood.....

Mark

At 09:19 AM 11/19/2013, you wrote:
>
>
>Mark
>
>
>I was recommending you to the fellow that bought
>the TS820 at Ft Wayne that had classic
>intermittent display and I thought you had some
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>
>

45968. RE: Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 15:58:11 UTC
From: Jim Lamanteer
Topic: 45953 Message: 45968

On Tue, 11/19/13, tjb813@gmail.com <tjb813@...> wrote:

Subject: RE: Re: [TS-520_820_530_830] KENWOOD DG-5
To: TS-520_820_530_830@yahoogroups.com
Date: Tuesday, November 19, 2013, 5:38 AM

HI TIM THANKS FOR GETTING BACK TO ME I GAVE U A CALL BUT MISSED U CAN I CALL U AT A TIME WHEN ITS GOOD FOR U TO TALK FOR A COUPLE OF MINUTES ITS A LOT EASIER FOR ME TO EXPLAIN BY PHONE THAN TO TYPE E-MAIL IAM NOT A GOOD TYPER. PLEASE LET ME KNOW WHEN ITS GOOD TIME TO CALL U. MUCH APPERICATED THANKS JIMMY.

I have worked on a dozen or more.
"Expert" is not what I would call myself, but I
have some experience. I have brought several
"back from the dead" What can
I help you with? TimKD8CN

---In TS-520_820_530_830@yahoogroups.com, <wwill@...>
wrote:

On 11/18/2013 10:12
PM, Mark Gilger wrote:

>

>

> Sorry, but I've never had one, or for that matter
even seen one.

> Mark

>

> At 11:07 PM 11/18/2013, you wrote:

>

>>

>>

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time!!) I'm hoping to open it up and start checking
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Wes Will

N9KDY

45969. RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 17:17:48 UTC
From: <tjb813@...>
Topic: 45920 Message: 45969

Agreed. Well, getting past the QRN........

as I said in a previous post, the input coils were not damaged and the receive is right on. So I went on to figure out why the most significant digit of the display was fading in and out.

I did some research on the DG-1. Figured the problem with the fading digit was the grid driver for the MSD or the decimal decoder 3442 chip. Then a quick check with scope indicated lack of base drive on the driver transistor. THe 3442 became the prime suspect. So I re-soldered the chip and Voila, it works perfect. So not to be foolish, I re-soldered ALL of the plated through holes for ALL the chips and pass thru holes. So that problem is now fixed. I am liking this 820 more and more.

Now the last known problem is tricky. On receive the display works perfect on all bands and modes. In transmit it works perfect in USB and LSB modes, but, in CW and FSK, it jumps up approximately 5 MHz and is fluttering around. I am searching the manual and schematics to determine how the display compensates for CW offset as the actual receive displayed frequency would be different from the transmit display frequency by the cw tone (approx 600Hz or so). The DG-5 for the 520 does not compensate for that and can be an annoyance.

I read in the service manual about testing and adjusting the input signal levels for the counter. Looks like a good place to start with the scope to see if I am getting the correct levels in transmit. I will assume at first that the DG-1 is not at fault, and look at the carrier boards. So, more fun tonight digging in.
Tim
KD8CN

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Lets see a FEW turns?

L25 uses a 100 pf cap. That means to resonate that at 8.830mhz you need approx 3,25 uhy choke coil. Assuming a bobbin of 0.125 inch diameter and 0.250 inch high then 50 turns is approx 3.25 uhy. So if 50 turns on an air wound core how many turns would that be on a ferrite core? The answer would escape many KW hybrid owners new and old alike.

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Your problem is you apparently cant or do not read and you cant get past the fact that people enter the hobby in very different way today than they did 60 years ago. They were

not winding coils since age 9. Through no fault of their own they enter under todays process and it is very easy to see why they would buy a KW hybrid as their first rig....reputation, economics, and availability.

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YES REWINDING CAN BE DONE IF NO ORIGINALS CAN BE HAD.

Terry K9TW

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They are simple solenoid wound coils of only a few turns. To potentially
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a hybrid simply because they have been damaged would be a crying shame!
I have to "stand to my guns" on this debate, if you have so little
knowledge of
electronics that you can't wind a coil (something I have been doing
since the age of 9!)
then you literally have no business inside a Kenwood hybrid.
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ZL1BDA

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http://www.avast.com http://www.avast.com

45970. RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 17:50:27 UTC
From: <wagstw46@...>
Topic: 45960 Message: 45970

Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

Low receive on couple of bands:

Very briefly you say you can hear the Marker on 160 and 80. A more informative report would be what S-meter indication do you get with the Marker signal?

A fully functional and well aligned 520S should be close to S9 with Drive control peaked at approx 1200 if you have VFO set at 1.9mhz. Will be less at 28.8mhz. perhaps S6 to S7.

If Marker signal levels are down follow the Coil Pack alignment steps in the Instruction Manual Section 6 as a first step to resolve.

Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE.
here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

45971. Re: [TS-520_820_530_830] TEST

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 17:50:40 UTC
From: Joseph Stiles
Topic: 11672 Message: 45971

Wally,

  Your messages are showing up...just more slowly than you may like.

   Remember that...Yahoo's servers at times, are very slow...I have had messages take up to 48 hours to appear. Also, new members posts are "moderated" for a period of time. This time frame varies. If you are very active in the group, for example, you make numerous posts, and
"play by the rules/policies" of the group...your "moderation" time will be short, versus someone who makes ...say less than one post a week...then that "moderation" time will be longer.

I do see that joined recently, but I do not know your posting history

Currently, Mike-w5rkl, Gordon-n6wk, and me, Joe-wb7uqu, must read and approve each "moderated" post" prior to it getting to the groups main message area.

73 Joe
WB7UQU
Group Co-owner

On Tuesday, November 19, 2013 3:08 AM, "sw20plus@..." <sw20plus@...> wrote:

>Why are my messages not shown on the forum ?
>
>TEST
>Sorry for inconvenience caused
>
>Wally/PA3BTT
>
>
>

45972. group owners/moderators

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 18:15:18 UTC
From: Joseph Stiles
Topic: 45972 Message: 45972

Greeting Group!

I wish to update info regarding "co-owners & moderators" of this group:

Joe - wb7uqu/co-owner

Walt - n9wb/co-owner

The following are your moderators:

Mike - w5rkl

Gordon - n6wk

Ellen - af9j

Jon - kd5sfa

You will see some here frequently,
others less so but, don't think they are not watching....hihi

73 Joe
WB7UQU
Group Co-owner

45973. Re: [TS-520_820_530_830] RIT/XIT expansion for the TS-530

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 17:25:33 UTC
From: Brian Roberts
Topic: 45950 Message: 45973

Hello Gordon, and thanks for your reply. That would be my guess, too, on widening the RIT/XIT, but I'd like to have some numbers to work with from someone who's been down that road before. I'd expect the control to be twitchy, too, but, in my case, I'd probably just leave the XIT set in one place and take what I could get. Cheers. Brian K9VKY

----- Original Message -----
From: Gordon JC Pearce
To: TS-520_820_530_830@...m
Sent: Tuesday, November 19, 2013 3:13 AM
Subject: Re: [TS-520_820_530_830] RIT/XIT expansion for the TS-530

On Mon, Nov 18, 2013 at 06:26:39PM -0500, Brian Roberts wrote:
> Hello Gents--
> I know there is a modification for the TS-830 to expand the RIT/XIT from 1.8 KHz to 8 KHz. Does anyone know of a mod to expand the RIT/XIT in the TS-530? Thanks. Brian K9VKY

At a guess, you'd alter the value of some resistor around the RIT control that feeds the RIT voltage in. I don't have a 530 manual around but on the 520 it appears to come from the FIX CH board - the diagram I have isn't very clear - and consists of a 5k pot and a voltage divider.

I can't help but think that an 8kHz spread on the RIT would be awfully twitchy though.

--
Gordonjcp MM0YEQ

45974. RE: RE: RE: RE: TS-820S ATTenuator question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 18:58:54 UTC
From: <kmx888@...>
Topic: 45920 Message: 45974

I might be a typical new ham. I am 61 and have been licensed for about 5 years. I was trained to be a "shop" teacher and had a good background in electronics up to 1976. I also have generally good "hands on" skills for most things.

My first radio was a KW Hybrid. I had problems with it. I followed this forum closely and found that I could do some of the easier tasks like changing power supply caps, finals cage rebuild, alignment (W/O a scope) and mechanical repair. I read everything I could get my hands on and realized that I was over my head in terms of diagnosis and repair of this radio. My electronics training was really related to design and understanding and not repair. I sent my radio out to experts and can now enjoy it with no fear of making it worse than it was when I started it.

I am now restoring some Tube type Heathkits and have found that they have been a great learning tool and I do not worry about screwing them up and find diagnosis and repair to be within my capability. With every step I am learning more and more and perhaps. It also gives me a great deal of satisfaction.

I can relate to those in more isolated or smaller countries as far as being resourceful goes. I am also licensed in Vietnam (there are less than 30 of us and only 10 or less are active), but have found that they are very resourceful when it comes to equipment and repair. Much more so than I am or probably ever will be. Equipment is hard to come by as are qualified repairmen and it is very expensive to repair. It can also be a big hassle to get transceivers into the country. (You can count of being "jacked up" by customs until you show a license and agree on the proper bribe for them to do their job) It makes a lot of sense for them to repair.

In short I am no expert in repairing radio at all, but the people in the hobby have really helped me to learn which is what I think it is all about.
Best,
Kevin
KD0ILM/XV2KM

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Lets see a FEW turns?

L25 uses a 100 pf cap. That means to resonate that at 8.830mhz you need approx 3,25 uhy choke coil. Assuming a bobbin of 0.125 inch diameter and 0.250 inch high then 50 turns is approx 3.25 uhy. So if 50 turns on an air wound core how many turns would that be on a ferrite core? The answer would escape many KW hybrid owners new and old alike.

I once read on QRZ a fellow like you telling people it was easy to wind plate chokes for 1KW linears. He had been doing it his way for years. Just wind a bunch of turns and if it burns up wind another. Not to worry about the fireworks. He posted this after a new member was asking how to determine the parallel resonance and series resonance holes and what test gear would he need. He had a GDO but was having trouble finding the series resonant holes. He did not understand he needed to place short jumper across the choke windings and why he

needed to do that. The old timer obviously had no clue as well. Your advice reminds me of that old timer. Just throw a few turns on it.

Your problem is you apparently cant or do not read and you cant get past the fact that people enter the hobby in very different way today than they did 60 years ago. They were not winding coils since age 9. Through no fault of their own they enter under todays process and it is very easy to see why they would buy a KW hybrid as their first rig....reputation, economics, and availability.

I dont know why you got fixated on wave traps and overlooked ant step up xfmr L8. Maybe pining for those days when you were 9 years old? It doesnt matter.

I will waste the key strokes one last time:

I DID NOT TELL ANYONE TO JUNK A HYBRID. THE OP DID NOT SAY HE WAS GOING TO JUNK A HYBRID.

IT IS FAR SIMPLER FOR THE AVERAGE KW HYBRID OWNER TO INSTALL A COIL PACK L8 OR L24 OR L25 FROM A PULLED BOARD THAN TO ATTEMPT TO REWIND THEM. AFTER YOU REWIND YOUR FIRST L8 OR L41 YOU WILL UNDERSTAND.

YES REWINDING CAN BE DONE IF NO ORIGINALS CAN BE HAD.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <c.c.wright@...> wrote:

Sorry to say, I still cannot agree at all.
They are simple solenoid wound coils of only a few turns. To potentially
"junk"
a hybrid simply because they have been damaged would be a crying shame!
I have to "stand to my guns" on this debate, if you have so little
knowledge of
electronics that you can't wind a coil (something I have been doing
since the age of 9!)
then you literally have no business inside a Kenwood hybrid.
If you want to repair one anyway, then you will need expert practical
help, paid or
unpaid. That might easily defeat the "hybrid as a cheap option", case.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com http://www.avast.com

45975. RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 19:39:08 UTC
From: <geekorama@...>
Topic: 45897 Message: 45975

The WWV is part of the band switch on the 520S. I did give that a good cleaning and checked contacts. I suspect as Terry pointed out this is only due to WWV having a different RF amp/mixer section in my case. I plan on getting with a ham this weekend or next who has a sig generator and hopefully getting the bottom of this. Hopefully something simple on the RF board.

Best,

73
Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <roberteleazer@...> wrote:

VERY STRONG ON WWV!!!

BINGO!

I have a TS-520 with the EXACT same problem!

It occurred right after I switched to WWV and back.

Problem was that the WWV switch was not switching back!

Cycling the WWV switch fixed it - but I can get it to repeat if I try.

I need to clean the WWV switch with some electronic contact cleaner and then lube it with a little LPS-1. Suggest you do likewise.

Good Luck!

Robert
WB5WSV

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Have checked all pots, connectors, untightened and retightened all boards, checked relays...still the same. There is one thing concerning the marker signal. It is very strong on WWV/JJY and in fact that band is quite sensitive. The rest of the bands peaked out with the drive are low on sensitivity. The radio is indeed receiving stations but a signal that would be S20 is more like an S5. Not sure if that points to a direction.
Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

TS520 do not have connectors they use wire wrap terminal posts. Molex connectors were introduced with the TS-820

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <ykpwr45@...> wrote:

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

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Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45976. Ebay Shipping Tips WAS: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 21:21:51 UTC
From: Chris Maness
Topic: 45976 Message: 45976

It sucks when folks don't pack a rig well and/or the carrier drops a rig on the ground. I had that happen to a FT-107M. The seller was such a tight wad he did not spend an extra $4 to insure the package. He also skimped on the packing, so was bent on the heat sync. The thing didn't even transmit for longer than three seconds before the finals popped. He refused to make any concession so ebay forced a refund. His refund bounced, but ebay covered it. I still ended up getting screwed because UPS paid him $100, so he got the rig and got to keep his $375+$100. I on the other hand, had to pay $120 for professional packing (the way it should be done), and shipping. What a nightmare. I would suggest everyone here require there sellers to insure for the value plus return shipping, and require their seller to double box with a 4"-6" gap filled with packing peanuts. The 6" would be for radios over 10lbs like our hybrids. Then absorb the extra shipping cost. You pay more, but save yourself the hassle. Tell the seller if it is not packed well, you will give them a negative feedback.

Good Luck,
Chris Maness KQ6UP

On Tue, Nov 19, 2013 at 11:39 AM, <geekorama@...> wrote:

>
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> The WWV is part of the band switch on the 520S. I did give that a good
> cleaning and checked contacts. I suspect as Terry pointed out this is only
> due to WWV having a different RF amp/mixer section in my case. I plan on
> getting with a ham this weekend or next who has a sig generator and
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> board.
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> Best,
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> 73
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> Cycling the WWV switch fixed it - but I can get it to repeat if I try.
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> I need to clean the WWV switch with some electronic contact cleaner and
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> ------------------------------
> *From:* "geekorama@..." <geekorama@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, November 15, 2013 8:23 AM
> *Subject:* [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All
> Bands
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45977. RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 22:02:46 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45977

Jim:

Bob might have a point. We do know that the WWV amp and mixer are being powered by the bandswitch but we dont know if the signal path switching diodes are being completely turned off when going to the other band positions.

It wont hurt to measure the voltage at the JAS wire wrap terminal post on the IF board. Should see -6vdc there when in other band positions.

This -6vdc voltage is used to back bias switching diode that shunts the off air signals to the WWV amp and Mixer.

If that bias isnt there then diode may not be turned fully off in the other bandswitch positions shunting some of the off air signal from the normal receive path.

If the -6vdc isnt there go to AVR board and see if it is there. It is produced by a transistor dc to dc converter. Seldom fails but it could

Terry. K9TW.

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45978. Re: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 22:21:19 UTC
From: Mark Gilger
Topic: 45897 Message: 45978

Jim,
What cleaner did you use on the bandwidth.
Mark

At 02:39 PM 11/19/2013, geekorama@... wrote:
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>Terry K9TW.

45979. RE: Re: [TS-520_820_530_830] KENWOOD DG-5

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 22:22:16 UTC
From: Mark Gilger
Topic: 45953 Message: 45979

Did you make it to Ft. Wayne? The group over
hear decided it was not worth the trip this
year. It's now been 2 years since we have gone.

Mark

At 09:19 AM 11/19/2013, you wrote:
>
>
>Mark
>
>
>I was recommending you to the fellow that bought
>the TS820 at Ft Wayne that had classic
>intermittent display and I thought you had some
>experience with the wires in the vias?
>
>
>Terry
>
>
>---In TS-520_820_530_830@yahoogroups.com, <mgilger@...> wrote:
>
>Sorry, but I've never had one, or for that matter even seen one.
>Mark
>
>At 11:07 PM 11/18/2013, you wrote:
>>
>>
>>HI GROUP IAM WORKING ON A DG-5 THAT DOES NOT
>>LITE UP AT ALL D-18 HAS BEEN REPLACED AND I
>>HAVE GOOD POWER TO THE UNIT THE CABLES ARE
>>CLEAN. CAN ANYBODY POINT ME IN THE RIGHT
>>DIRECTION AS TO WHAT TO LOOK FOR NEXT OR WHAT
>>TO CHECK?? ANY HELP IS VERY WELCOME. THANKS JIMMY WB2KNR
>
>

45980. ts820 fs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 22:41:43 UTC
From: <wa1zid@...>
Topic: 45980 Message: 45980

have ts820 fs, got from sk about 5 years ago, have used it on/off ,worked good, this summer the band switch got hard to turn, took unit apart, cleaned coilpack switches and others. pulled hv cage to check out switch in cage, lubed and cleaned. changed hv caps and resistors from k4eaa, also tank caps and inductor kit. .works ok on 1860-80-40, low rec on10-15-20-low rec on wwv,. call at 7818424292 or emailwa1zinatjunodotcom tks. ps the vox/mox bat handle missing.

45981. RE: Re: [TS-520_820_530_830] TEST

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 01:15:38 UTC
From: <asoto66@...>
Topic: 11672 Message: 45981

test message. please disregard.

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Wally,

Your messages are showing up...just more slowly than you may like.

Remember that...Yahoo's servers at times, are very slow...I have had messages take up to 48 hours to appear. Also, new members posts are "moderated" for a period of time. This time frame varies. If you are very active in the group, for example, you make numerous posts, and
"play by the rules/policies" of the group...your "moderation" time will be short, versus someone who makes ...say less than one post a week...then that "moderation" time will be longer.

I do see that joined recently, but I do not know your posting history

Currently, Mike-w5rkl, Gordon-n6wk, and me, Joe-wb7uqu, must read and approve each "moderated" post" prior to it getting to the groups main message area.

73 Joe
WB7UQU
Group Co-owner

On Tuesday, November 19, 2013 3:08 AM, "sw20plus@..." <sw20plus@...> wrote:

Why are my messages not shown on the forum ?

TEST
Sorry for inconvenience caused

Wally/PA3BTT

45982. ATTenuator question thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-19 20:54:44 UTC
From: Joseph Stiles
Topic: 45982 Message: 45982

Greetings Group,

I think that the "ATTenuator question" thread has ran it's course. As always, there will be a "difference of opinion" no matter what subject is talked about.

So, if the parties involved wish to "discuss" this topic further, please do so "off list."

Tnx fer ur cooperation.

We now return you to our regular programming.....

73 Joe
WB7UQU
Group Co-owner

45983. RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 04:43:42 UTC
From: <geekorama@...>
Topic: 45897 Message: 45983

Terry maybe I'm blind but I'm having a hell of a time finding the JAS wire wrap on the IF board. Can you point me to the direction. Thanks

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

Bob might have a point. We do know that the WWV amp and mixer are being powered by the bandswitch but we dont know if the signal path switching diodes are being completely turned off when going to the other band positions.

It wont hurt to measure the voltage at the JAS wire wrap terminal post on the IF board. Should see -6vdc there when in other band positions.

This -6vdc voltage is used to back bias switching diode that shunts the off air signals to the WWV amp and Mixer.

If that bias isnt there then diode may not be turned fully off in the other bandswitch positions shunting some of the off air signal from the normal receive path.

If the -6vdc isnt there go to AVR board and see if it is there. It is produced by a transistor dc to dc converter. Seldom fails but it could

Terry. K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

The WWV is part of the band switch on the 520S. I did give that a good cleaning and checked contacts. I suspect as Terry pointed out this is only due to WWV having a different RF amp/mixer section in my case. I plan on getting with a ham this weekend or next who has a sig generator and hopefully getting the bottom of this. Hopefully something simple on the RF board.

Best,

73
Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <roberteleazer@...> wrote:

VERY STRONG ON WWV!!!

BINGO!

I have a TS-520 with the EXACT same problem!

It occurred right after I switched to WWV and back.

Problem was that the WWV switch was not switching back!

Cycling the WWV switch fixed it - but I can get it to repeat if I try.

I need to clean the WWV switch with some electronic contact cleaner and then lube it with a little LPS-1. Suggest you do likewise.

Good Luck!

Robert
WB5WSV

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Have checked all pots, connectors, untightened and retightened all boards, checked relays...still the same. There is one thing concerning the marker signal. It is very strong on WWV/JJY and in fact that band is quite sensitive. The rest of the bands peaked out with the drive are low on sensitivity. The radio is indeed receiving stations but a signal that would be S20 is more like an S5. Not sure if that points to a direction.
Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

TS520 do not have connectors they use wire wrap terminal posts. Molex connectors were introduced with the TS-820

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <rrmvargo@...> wrote:

I would also check every connector. My 830S was pretty deaf. I found one connector on the IF board that began working after I R&R'd it. After I found that, I cleaned the pins on the board & the connector. 73 - Bob

---In ts-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

That's one I haven't tried! Thank's I'll try that. And YES with the radio off. I've learned vicariously that 2 things happen when you don't respect high voltage in a hybrid (or any tube radio)...on a good day it will throw you across the room, spit dirt in your face and make you say things you've never said before. On a bad day you will be shortly taking what I like to call a "permanent dirt nap".
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <ykpwr45@...> wrote:

Hi,
I suggest that you unscrew every screws holding the printed circuit board and retighten it securely. I mean all PCB's inside the radio and see what happens. Of course, you need to turn the radio off while you are doing the screw tightening.
Young
K6hm

From: "geekorama@..." <geekorama@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 15, 2013 8:23 AM

Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Hi Terry,

Here's what I am getting: On all the bands (except 3.5 where I get 1 S unit) I'm getting no S-meter indications...just hearing the marker every 25khz. In fact on 21 and 28...the marker is barely audible when peaked. The marker signal sounds very sick...not a steady tone but more like a gurgling tone (that could be a whole different issue however with the marker board). I will try uplugging and re-plugging the relays....on inspection they are firmly in place. Any other ideas are appreciated.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Jim:

With the Marker on and the Drive control peaked and RF gain full CW what S-meter indications do you get on each band?

Marker signal does not pass thru TR relay contacts but suggest you un-plug and re-plug the Aux relay and the Ant TR relay as both may have been jostled around in their respective sockets.

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45984. RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 10:19:24 UTC
From: <sw20plus@...>
Topic: 45960 Message: 45984

Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.
The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
We have also tried a monitor rx on the local clubstation. but altough there is no RF indication on the VTVM/rf-probe. And also on the monitor RX there wasn't any indication when adjusting the neut cap.

On the low receive thing.....when RF gain fully open (fully CW)noise is peaking at S9+ 10dB.
The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

Altough I am restricted to work on 10/20 meters. the set is working FB. Do receive good reports. 5-9/599
on USB and CW.
As mentioned earlier I do get the idea that someone has been poking around in the PA section. turning the neut cap SHOULD give some kind of indication I guess....
But thanks again for the replay.....

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

Low receive on couple of bands:

Very briefly you say you can hear the Marker on 160 and 80. A more informative report would be what S-meter indication do you get with the Marker signal?

A fully functional and well aligned 520S should be close to S9 with Drive control peaked at approx 1200 if you have VFO set at 1.9mhz. Will be less at 28.8mhz. perhaps S6 to S7.

If Marker signal levels are down follow the Coil Pack alignment steps in the Instruction Manual Section 6 as a first step to resolve.

Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE. here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

45985. RE: Re: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 04:46:03 UTC
From: <geekorama@...>
Topic: 45897 Message: 45985

Using a product called CorrosionX...seems to be pretty good stuff.
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <mgilger@...> wrote:

Jim,
What cleaner did you use on the bandwidth.
Mark

At 02:39 PM 11/19/2013, geekorama@... mailto:geekorama@... wrote:
>
>
>The WWV is part of the band switch on the 520S. I did give that a
>good cleaning and checked contacts. I suspect as Terry pointed out
>this is only due to WWV having a different RF amp/mixer section in
>my case. I plan on getting with a ham this weekend or next who has
>a sig generator and hopefully getting the bottom of this. Hopefully
>something simple on the RF board.
>
>
>Best,
>
>
>73
>
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>
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>BINGO!
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>Cycling the WWV switch fixed it - but I can get it to repeat if I try.
>
>
>I need to clean the WW
>Hi Terry,
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> Here's what I am getting: On all the bands (except 3.5 where I
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> marker every 25khz. In fact on 21 and 28...the marker is barely
> audible when peaked. The marker signal sounds very sick...not a
> steady tone but more like a gurgling tone (that could be a whole
> different issue however with the marker board). I will try
> uplugging and re-plugging the relays....on inspection they are
> firmly in place. Any other ideas are appreciated.
>
>73 Jim, N7JS
>
>
>---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com,
<wagstw46@...> wrote:
>
>Jim:
>
>With the Marker on and the Drive control peaked and RF gain full CW
>what S-meter indications do you get on each band?
>
>Marker signal does not pass thru TR relay contacts but suggest you
>un-plug and re-plug the Aux relay and the Ant TR relay as both may
>have been jostled around in their respective sockets.
>
>Terry K9TW.

45986. RE: Re: [TS-520_820_530_830] TEST

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 10:22:17 UTC
From: <sw20plus@...>
Topic: 11672 Message: 45986

Joe,
My apologies for this....
I thought my message would pop up instantly..... but I must be patient I understand. and you are correct to moderate it first..

again sorry for the inconvenience caused

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Wally,

Your messages are showing up...just more slowly than you may like.

Remember that...Yahoo's servers at times, are very slow...I have had messages take up to 48 hours to appear. Also, new members posts are "moderated" for a period of time. This time frame varies. If you are very active in the group, for example, you make numerous posts, and
"play by the rules/policies" of the group...your "moderation" time will be short, versus someone who makes ...say less than one post a week...then that "moderation" time will be longer.

I do see that joined recently, but I do not know your posting history

Currently, Mike-w5rkl, Gordon-n6wk, and me, Joe-wb7uqu, must read and approve each "moderated" post" prior to it getting to the groups main message area.

73 Joe
WB7UQU
Group Co-owner

On Tuesday, November 19, 2013 3:08 AM, "sw20plus@..." <sw20plus@...> wrote:

Why are my messages not shown on the forum ?

TEST
Sorry for inconvenience caused

Wally/PA3BTT

45987. RE: Re: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 13:56:35 UTC
From: Mark Gilger
Topic: 45897 Message: 45987

Jim,
Never heard of this cleaner before now.

I looked it up on the Web. It indicates this is a
Corrosion Inhibitor and Penetrant Lubricant. I
would be concerned as the lubricant can cause the
phenolic wafers to break down. It does not indicate that it's a cleaner.

My suggestion is to get you some DeOxit D5 as it
seems to be the standard that's used by most
people trying to refurbish their radio's. It does
do a good job in cleaning switch contacts.

You can pick it up at most electronic shops or
just go to Amazon and receive it in 2-3 days.

Mark

At 11:46 PM 11/19/2013, geekorama@yahoo.com wrote:
>
>
>Using a product called CorrosionX...seems to be pretty good stuff.
>
>73 Jim, N7JS
>
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> >my case. I plan on getting with a ham this weekend or next who has
> >a sig generator and hopefully getting the bottom of this. Hopefully
> >something simple on the RF board.
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> >Best,
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> <mailto:TS-520_820_530_830@yahoogroups.com>TS-520_820_530_830@yahoogroups.com,
> <wagstw46@...> wrote:
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> >un-plug and re-plug the Aux relay and the Ant TR relay as both may
> >have been jostled around in their respective sockets.
> >
> >Terry K9TW.
>
>

45988. RE: RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 15:53:52 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45988

I am sorry it is on the RF board and not IF board. Close to Q5 between T4 and T6. Look at x-ray view of the RF board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Terry maybe I'm blind but I'm having a hell of a time finding the JAS wire wrap on the IF board. Can you point me to the direction. Thanks

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Jim:

Bob might have a point. We do know that the WWV amp and mixer are being powered by the bandswitch but we dont know if the signal path switching diodes are being completely turned off when going to the other band positions.

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Good Luck!

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Sent: Friday, November 15, 2013 8:23 AM
Subject: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

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Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <geekorama@...> wrote:

Just purchased a "working" 520S on Ebay....here we go! This radio did take one hell of a beating...arrived with the cooling fan smashed in as well as 2 corners. I worked out the difference with the seller. In the mean time, it actually does turn on, transmits, receives normal volume static out of speaker, all switches and knobs act normal, BUT the sensitivity is low on all bands. I can hear stations but they are way below what they should be.
I've done the obvious, RF Gain check, alignment, Voltages. Then I've looked for loose wires especially on the Fix Channel board and Function switch...nothing I can find. In addition: the calibrator signal is very sick...sounds like a Walrus in the distance every 25 Khz. You still do need to adjust the drive to hear it as well as other stations. Could someone point me in a direction. Is a diode or transistor the next culprit? I'm just still thinking something got knocked loose. Any help would be appreciated.
73 Jim, N7JS

45989. RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 16:06:34 UTC
From: <wagstw46@...>
Topic: 45960 Message: 45989

After loading to full RF output in CW mode do you just unkey rig and turn off the SG switch and connect RF probe and re-key the rig?

Must be in CW mode and Car Pot Level where it was when you loaded the rig.

You also can try adjusting the Drive control for max ALC indication with SG off.

If you are leaving Car Level Pot where it was to attain full output then it would be very unusual to have no RF voltage at the SO-239 connector unless the neutralizing cap was spot on and then typically will not be able to get a complete voltage null.

To test receive sensitivity with the Marker put the rig on dummy load. You dont want any off air signals at this time for this test

I dont know how you will work with a S9 +10 noise level? Sure hope that is not the norm for your QTH?.

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Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.
The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
We have also tried a monitor rx on the local clubstation. but altough there is no RF indication on the VTVM/rf-probe. And also on the monitor RX there wasn't any indication when adjusting the neut cap.

On the low receive thing.....when RF gain fully open (fully CW)noise is peaking at S9+ 10dB.
The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

Altough I am restricted to work on 10/20 meters. the set is working FB. Do receive good reports. 5-9/599
on USB and CW.
As mentioned earlier I do get the idea that someone has been poking around in the PA section. turning the neut cap SHOULD give some kind of indication I guess....
But thanks again for the replay.....

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

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Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

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deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

45990. RE: RE: Re: [TS-520_820_530_830] RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 15:47:04 UTC
From: <geekorama@...>
Topic: 45897 Message: 45990

Hi Mark,
I've heard of DeOxit as well. The CorrosionX was a product that had good reviews from an online hybrid parts seller. I'll get some DeOxit to have on hand from Amazon. You can't go wrong having it. I've also got a can of CRC QD Contact Cleaner...don't know if you have heard of it. Big can I've had sitting around for at least a decade or so. I like it for the fact it is quick drying, no residue, plastic safe...but doesn't seem to last but a year or two whereas the CorrosionX is supposed to be working a decade or more. We'll probably open up a whole discussion on this stuff...hihi.
73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <mgilger@...> wrote:

Jim,
Never heard of this cleaner before now.

I looked it up on the Web. It indicates this is a Corrosion Inhibitor and Penetrant Lubricant. I would be concerned as the lubricant can cause the phenolic wafers to break down. It does not indicate that it's a cleaner.

My suggestion is to get you some DeOxit D5 as it seems to be the standard that's used by most people trying to refurbish their radio's. It does do a good job in cleaning switch contacts.

You can pick it up at most electronic shops or just go to Amazon and receive it in 2-3 days.

Mark

At 11:46 PM 11/19/2013, geekorama@... wrote:

Using a product called CorrosionX...seems to be pretty good stuff.

73 Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, <mgilger@...> wrote:

Jim,
What cleaner did you use on the bandwidth.
Mark

At 02:39 PM 11/19/2013, geekorama@... mailto:geekorama@... wrote:
>
>
>The WWV is part of the band switch on the 520S. I did give that a
>good cleaning and checked contacts. I suspect as Terry pointed out
>this is only due to WWV having a different RF amp/mixer section in

>my case. I plan on getting with a ham this weekend or next who has
>a sig generator and hopefully getting the bottom of this. Hopefully
>something simple on the RF board.
>
>
>Best,
>
>
>73
>
>Jim, N7JS
>
>
>---In TS-520_820_530_830@yahoogroups.com, <roberteleazer@...> wrote:
>
>VERY STRONG ON WWV!!!
>
>
>BINGO!
>
>
>I have a TS-520 with the EXACT same problem!
>
>
>It occurred right after I switched to WWV and back.
>
>
>Problem was that the WWV switch was not switching back!
>
>
>Cycling the WWV switch fixed it - but I can get it to repeat if I try.
>
>
>I need to clean the WW
>Hi Terry,
>
> Here's what I am getting: On all the bands (except 3.5 where I
> get 1 S unit) I'm getting no S-meter indications...just hearing the
> marker every 25khz. In fact on 21 and 28...the marker is barely
> audible when peaked. The marker signal sounds very sick...not a
> steady tone but more like a gurgling tone (that could be a whole
> different issue however with the marker board). I will try
> uplugging and re-plugging the relays....on inspection they are
> firmly in place. Any other ideas are appreciated.
>
>73 Jim, N7JS
>
>
>---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:
>

>Jim:
>
>With the Marker on and the Drive control peaked and RF gain full CW
>what S-meter indications do you get on each band?
>
>Marker signal does not pass thru TR relay contacts but suggest you
>un-plug and re-plug the Aux relay and the Ant TR relay as both may
>have been jostled around in their respective sockets.
>
>Terry K9TW.

45991. RE: RE: RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 17:46:43 UTC
From: <geekorama@...>
Topic: 45897 Message: 45991

Ahhh got it! Getting +12V when on WWV and -6V on other bands.

Jim, N7JS

---In TS-520_820_530_830@yahoogroups.com, wrote:

I am sorry it is on the RF board and not IF board. Close to Q5 between T4 and T6. Look at x-ray view of the RF board.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, wrote:

Terry maybe I'm blind but I'm having a hell of a time finding the JAS wire wrap on the IF board. Can you point me to the direction. Thanks

73 Jim, N7JS

45992. RE: RE: RE: RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-20 22:45:34 UTC
From: <wagstw46@...>
Topic: 45897 Message: 45992

OK that is good. So now need to do some signal injection.

Hopefully not a bad L1 Ant Step Up transformer. Start by injecting 14.2 mhz at ANT at around 50uv or -73dBm. That level should give you apporx S9 indication.

If the Sig Gen doesnt have calibrated output inject a low level and slowly bring up until you see some S meter indication.

If receive is low injecting at ANT (primary of L1) then move to RFG which is secondary of L1. If normal receive at RFG you know that L1 is bad. Check with Bob Mansker to see if he has a RF board. It would be good to have a spare if you plan on keeping the radio. Even a board that you could harvest from would be good to have. If still low injecting at RFG then inject at TP-1 or MD. Just follow the signal path on the schematic. If low at L1 and Q2 then your radio may have been victim of nearby lightning (ESD) or accidental TX. Usually receive will be dead or very weak from either event.

Remember if you get to the Drain of Q2 you are now no longer looking at your 14.2 mhz signal. It will have been mixed with Het Osc to produce the 8.830mhz RIF signal so at this point have to change sig gen frequency to 8.830mhz. You already know that the IF amp chain is good as you get good WWV signal so problem has to be on RF board. So if no good at MD or TP-1 you need to take DC voltages at Q2 (DSGG).

There is one other thing you can check and that is Het Osc signal level. You can check the level at TP-3 with RF probe and VTVM or DMM. Should be close to 1.0 rms RF volts on all bands except WWV which has its own Het Osc. .

I would use a .01 blocking/coupling cap in the RF sig gen hot lead. Value is not critical. Just dont want any vdc back to your sig gen.

That is enough to keep you busy. .

Terry K9TW

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45993. RE: RE: RE: RE: RE: RE: RE: RE: TS-520S Low Sensitivity On All Bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 01:13:13 UTC
From: <geekorama@...>
Topic: 45897 Message: 45993

Keep me busy indeed! There is no doubt this radio is over my head but I'm learning bits and snippets...so all good. Printing this off for the visit with the ham in the local club who is up on this snuff (and has all the test equip). Thanks for your guide here Terry...we'll see what we stumble on. Changing out the RF board...looks tedious but certainly doable!

73 Jim, N7JS

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OK that is good. So now need to do some signal injection.

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45994. Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 03:43:34 UTC
From: <kg6svf@...>
Topic: 45994 Message: 45994

I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter......I only guessing that I might have flat tubes as they were weak the last time I used the radio
Any help would be great before I buy new tubes
Thanks Dave

45995. RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 11:53:19 UTC
From: fpath fpath
Topic: 45994 Message: 45995

Dave,

Try switching the SG switch on and off a couple of times, also try rotating the carrier pot through it's range as it could have a build up of crap on the wipers. Report back and we can then start to trouble shot. Start with the basics and we can always go really technical.

73s

Dave

VK5PDL

From: kg6svf@...
To: TS-520_820_530_830@yahoogroups.com
Date: Wed, 20 Nov 2013 19:43:34 -0800
Subject: [TS-520_820_530_830] Bringing a TS-530s back to life

I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter.....I only guessing that I might have flat tubes as they were weak the last time I used the radio
Any help would be great before I buy new tubes
Thanks Dave

45996. RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 12:23:09 UTC
From: Michael George
Topic: 45994 Message: 45996

Good advice, start with the basics and be carreful of the plate voltage.

73,

Mike/K3MG

45997. Re: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 12:25:42 UTC
From: Mike
Topic: 45994 Message: 45997

Dave VK5PDL,

If the SG switch were the source of the problem, he would not be able to adjust the bias pot to achieve 60ma of idling current in the final tubes.

If he suspects the tubes are at fault then he can simply swap them for know good tubes.

The question I have is his statement that says;

"so far everything checks out but I'm NOT getting any out put power.."

What are you saying? If you are not seeing any output on your watt meter, then how can "everything check out"?

If he believes the tubes are the source of your problem, I wonder if he has tried substituting the suspected bad tubes with known good tubes?

73
Mike W5RKL

On 11/21/2013 5:53 AM, fpath fpath wrote:
>
> Dave,
>
> Try switching the SG switch on and off a couple of times, also
> try rotating the carrier pot through it's range as it could have a
> build up of crap on the wipers. Report back and we can then start to
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>
> 73s
> Dave
> VK5PDL
>
>
>
>
> ---
> From: kg6svf@...
> To: TS-520_820_530_830@yahoogroups.com
> Date: Wed, 20 Nov 2013 19:43:34 -0800
> Subject: [TS-520_820_530_830] Bringing a TS-530s back to life
>
> I have a 530s that I want to get back on the air...so far everything
> checks out but I'm NOT getting any out put power,,,,I have adjusted my
> bias to 60ma...but when I attempt to tune I get zero movement on the

> needle and nothing on my watt meter......I only guessing that I might
> have flat tubes as they were weak the last time I used the radio
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>

45998. Re: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 12:32:32 UTC
From: Mike
Topic: 45994 Message: 45998

Mike,

I disagree Mike. How can the SG Switch, if it's bad, be the source of
his loss of RF output when he clearly stated in his post that he was
able to adjust the bias pot for 60ma of idling current in the final tubes?

73
Mike W5RKL

On 11/21/2013 6:23 AM, Michael George wrote:
> Good advice, start with the basics and be carreful of the plate voltage.
>
> 73,
>
> Mike/K3MG
>

45999. RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 11:11:31 UTC
From: <sw20plus@...>
Topic: 45960 Message: 45999

Terry,
You are right I is very unusual to have no output reading at all.
Yes I do all the steps you are mentioning. So the only way to find out is to open the rig and check if the neut cap is actually hooked up to something..... more and more I get the idea that is has a cold solderjoint or something like that.
As I have mentioned earlier, I can rotate the cap 360 degrees, but there is no point that gives some meter deflection.......

Only on 80 and 160 meter the is a S9 noise level... I have contacted Ken K4EAA, he mentioned a faulty bandswitch. So I am going to check and clean the switch first, so I can eliminatie that option.....

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

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Tks

Wally/PA3BTT

46000. RE: RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 15:08:47 UTC
From: <wagstw46@...>
Topic: 45960 Message: 46000

Well you can cut the Neutralizing capacitor out and toss over your shoulder and rig should have some RF voltage at the SO-239 in this test configuration (typically a max of 1.0 rms rf volts with Drive control peaked and Plate tank cap adjusted to resonance). .

What you are looking at is the feed thru power from the 6146 control grid to the 6146 anode. This power is the result of the RF drive voltage swing at the control grid causing a small RF current to flow from the 6146 tubes control grid to the anode thru the tubes inter-electrode capacitance or Cgp. Approx 0.22pf capacitor.

It sounds to me like you have no RF drive voltage at the control grid Pin 5?

If you have rig configured as you say and you can peak the Drive control to get full scale ALC meter deflection then should see something on the order of approx 45 rf volts at Pin 5. I would measure this to confirm finals are seeing Drive.

Best to measure this with O-scope or RF Millivolt meter or a multi-diode RF probe.

If you have to use a single diode RF probe need to back down the CAR Level so you dont burn out the diode in the probe. Connect RF probe to Pin 5 at 6146 tube socket and key rig and slowly bring up the CAR level from zero. Do not exceed approx 30 rms rf volts.

If you have RF drive voltage at Pin 5 you have to have RF voltage at the SO-239 unless bad TR relay contacts or bad SO-239 solder connection or bad Plate blocking/coupling cap or bad plate choke. This should not be as you have normal RF output when you load the rig.

After confirming that you have approx 45 rf volts drive at the 6146 control grids move scope or millivolt meter to the SO-239. Key the rig and adjust the Plate capacitor (tune or tank) thru its range for maximum RF voltage. You should then be able to run the NC cap thru its range and see something on the order of a high of 900mv and a low of 10mv to 15mv at the null.

Make sure using a well insulated tool as you are a fraction of an inch from 900vdc anode lead.

If you have 45 volts at Pin 5 and no voltage at SO-239 then you have to have a high resistance connection in the path from the anode to the SO-239 or something shunting this low level signal. I have never seen a bad L7 safety choke. .

I am basing all of this on fact that you report normal full load output and just have plate current dip not occurring at max RF output. A common problem on low bands and of no concern. As long as can get plate current dip and max rf output to occur close to same at 28mhz that is all you need to prevent tubes from taking off on 10 meters. Tube interelectrode capacitive reactance as you move lower in frequency makes it very unlikely tubes will oscillate. Use to neutralize at 21 mhz in attempt to gt it to work across all bands and was not necessary and designers changed procedure to do it on 10 meters where Xc is lowest.

One last thing I may have asked does the main plate choke winding look good with no signs of overheating? I suppose another place that could be shunting low level RF back to HV supply?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Terry,
You are right I is very unusual to have no output reading at all.
Yes I do all the steps you are mentioning. So the only way to find out is to open the rig and check if the neut cap is actually hooked up to something..... more and more I get the idea that is has a cold solderjoint or something like that.
As I have mentioned earlier, I can rotate the cap 360 degrees, but there is no point that gives some meter deflection.......

Only on 80 and 160 meter the is a S9 noise level... I have contacted Ken K4EAA, he mentioned a faulty bandswitch. So I am going to check and clean the switch first, so I can eliminatie that option.....

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

After loading to full RF output in CW mode do you just unkey rig and turn off the SG switch and connect RF probe and re-key the rig?

Must be in CW mode and Car Pot Level where it was when you loaded the rig.

You also can try adjusting the Drive control for max ALC indication with SG off.

If you are leaving Car Level Pot where it was to attain full output then it would be very unusual to have no RF voltage at the SO-239 connector unless the neutralizing cap was spot on and then typically will not be able to get a complete voltage null.

To test receive sensitivity with the Marker put the rig on dummy load. You dont want any off air signals at this time for this test

I dont know how you will work with a S9 +10 noise level? Sure hope that is not the norm for your QTH?.

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Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.
The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
We have also tried a monitor rx on the local clubstation. but altough there is no RF

indication on the VTVM/rf-probe. And also on the monitor RX there wasn't any indication when adjusting the neut cap.

On the low receive thing.....when RF gain fully open (fully CW)noise is peaking at S9+ 10dB.
The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

Altough I am restricted to work on 10/20 meters. the set is working FB. Do receive good reports. 5-9/599
on USB and CW.
As mentioned earlier I do get the idea that someone has been poking around in the PA section. turning the neut cap SHOULD give some kind of indication I guess....
But thanks again for the replay.....

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Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

Low receive on couple of bands:

Very briefly you say you can hear the Marker on 160 and 80. A more informative report would be what S-meter indication do you get with the Marker signal?

A fully functional and well aligned 520S should be close to S9 with Drive control peaked at approx 1200 if you have VFO set at 1.9mhz. Will be less at 28.8mhz. perhaps S6 to S7.

If Marker signal levels are down follow the Coil Pack alignment steps in the Instruction Manual Section 6 as a first step to resolve.

Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE. here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

46001. TS-180S Transverter Use

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 16:02:08 UTC
From: Byron Tatum
Topic: 46001 Message: 46001

Hello-

Sorry for the off-topic post but I thought someone here would know.

I picked up a fairly nice TS-180S and am considering using it as an IF for my transverters. I have studied the operating and service manuals but cannot find any specifics regarding the use of the transverter connector. I have used a TS-830S as an IF for my transverters in the past, and I have the proper DIN connector for doing such.

My questions are:

1. Will the transverter DIN cable for my TS-830S work for the TS-180S DIN socket (pin-out and function)?

2. Are the low-level transverter transmit output levels of each radio similar?

3. I recall that when using transverter with TS-830S I turned the Screen Grid switch off, however is there anything I need to do to the TS-180S in this regard?

Thanks everyone for the time and help.

Byron WA5THJ

46002. RE: RE: RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 17:39:59 UTC
From: <sw20plus@...>
Topic: 45960 Message: 46002

Ok Terry,
All understood.
Will check it tomorrow.... but what I still don't understand is, that the rig is working FB on 7 mhz and higher,
So it must have drive on pin 5 otherwise it wouldn't work at all.... right?

but will check it and let you know the outcome..

Many thanks for spending your time to answer me... very much appreciated

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Well you can cut the Neutralizing capacitor out and toss over your shoulder and rig should have some RF voltage at the SO-239 in this test configuration (typically a max of 1.0 rms rf volts with Drive control peaked and Plate tank cap adjusted to resonance). .

What you are looking at is the feed thru power from the 6146 control grid to the 6146 anode. This power is the result of the RF drive voltage swing at the control grid causing a small RF current to flow from the 6146 tubes control grid to the anode thru the tubes inter-electrode capacitance or Cgp. Approx 0.22pf capacitor.

It sounds to me like you have no RF drive voltage at the control grid Pin 5?

If you have rig configured as you say and you can peak the Drive control to get full scale ALC meter deflection then should see something on the order of approx 45 rf volts at Pin 5. I would measure this to confirm finals are seeing Drive.

Best to measure this with O-scope or RF Millivolt meter or a multi-diode RF probe.

If you have to use a single diode RF probe need to back down the CAR Level so you dont burn out the diode in the probe. Connect RF probe to Pin 5 at 6146 tube socket and key rig and slowly bring up the CAR level from zero. Do not exceed approx 30 rms rf volts.

If you have RF drive voltage at Pin 5 you have to have RF voltage at the SO-239 unless bad TR relay contacts or bad SO-239 solder connection or bad Plate blocking/coupling cap or bad plate choke. This should not be as you have normal RF output when you load the rig.

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Make sure using a well insulated tool as you are a fraction of an inch from 900vdc anode lead.

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Wally/PA3BTT

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I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

46003. Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 21:36:51 UTC
From: <paw_paw44036@...>
Topic: 46003 Message: 46003

This is a question for anyone who may have used one of these.
I obtained a Heath Kit SB-620 Scanalyzer. What I need to know is if anyone has used this item on a Kenwood TS-830S? I have to clean it up and free up some controls as it has set in storage for a log time. The last time it was use was on a HW-101 transceiver.
The ham I got it from said he has some other coils for it. If memory serves me the HW-101 used close to the IF frequency's that the TS-830S uses. I could be wrong on that as it has been 20 years since I built and used my HW-101. I gave it away 12 years ago. Any ideas out there?????
Bill WD8OSJ

46004. Re: [TS-520_820_530_830] Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 21:44:21 UTC
From: Joe - W7RKN
Topic: 46003 Message: 46004

And...for the TS-2000 as well...Good question Bill..look forward to the answer!
----- Original Message -----
From: paw_paw44036@...
Subject: [TS-520_820_530_830] Heath Kit SB-620 hook up to Kenwood TS-830S

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Bill WD8OSJ

46005. RE: RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 21:58:08 UTC
From: <kg6svf@...>
Topic: 45994 Message: 46005

OK.....I SHOULD HAVE WAITED TO POST EARLIER ....AFTER MESSING WITH KNOBS AND SWITCHES,,,,,I AM GETTING JUST UNDER 30 WATTS ON THE LOAD BUT WHEN I SWITCH TO SSB I'M GETTING ZERO MOVEMENT ON MY NEEDLES
I DID TO WHAT YOU SAID TO DO DAVE......WHEN IT COMES TO ELECTRONICS YOU MIGHT AS WELL BE SPEAKING ZULU TO ME SO PLEASE BE PATIENT.
LET ME THANK YOU IN ADVANCE FOR WHAT HELP I'M GETTING
73's
DAVE
KG6SVF

---In TS-520_820_530_830@yahoogroups.com, <fpath@...> wrote:

Dave,

Try switching the SG switch on and off a couple of times, also try rotating the carrier pot through it's range as it could have a build up of crap on the wipers. Report back and we can then start to trouble shot. Start with the basics and we can always go really technical.

73s
Dave
VK5PDL

From: kg6svf@...
To: TS-520_820_530_830@yahoogroups.com
Date: Wed, 20 Nov 2013 19:43:34 -0800
Subject: [TS-520_820_530_830] Bringing a TS-530s back to life

I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter......I only guessing that I might have flat tubes as they were weak the last time I used the radio
Any help would be great before I buy new tubes
Thanks Dave

46006. Re: RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 22:16:39 UTC
From: Joseph Stiles
Topic: 45994 Message: 46006

Dave,

You will NOT get any "movement of your needles" is SSB unless you either speak into the microphone(if any) or inject a tone in to the radio via the microphone connection or a couple of other places. Even then ,if it is a modulated signal, you will not show "full output" as the "meters" you seem to have available will not read correctly an SSB output signal. With out going into much detail here, I will suggest you go to Ken Kenski's web site: k4eaa.com and look for how to figure out if your "driver tube" or "finals" or, some other components may be at fault for your low output. Possibly a "basic alignment" outlined in the "operators manual" is a good place to start.

73 Joe
WB7UQU

On Thursday, November 21, 2013 2:07 PM, "kg6svf@..." <kg6svf@...> wrote:

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>_____
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>To: TS-520_820_530_830@yahoogroups.com
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46007. Re: RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 22:21:06 UTC
From: Joseph Stiles
Topic: 45994 Message: 46007

Adenum:

IF you have a mic..your rig is properly "tuned up" for operation...meter switch to ALC....key(put into send) your rig..speak into the mic...and advance the "mic" control until the needle just flicks off the resting position...you can also put the meter into "RF" after this and check for RF output.
NOTE: you will not see anymore than about 20-30 watts indicated on the meter> This is normal

73 Joe
WB7UQU

On , Joseph Stiles <stilesjoseph@...> wrote:

Dave,
>
>You will NOT get any "movement of your needles" is SSB unless you either speak into the microphone(if any) or inject a tone in to the radio via the microphone connection or a couple of other places. Even then ,if it is a modulated signal, you will not show "full output" as the "meters" you seem to have available will not read correctly an SSB output signal. With out going into much detail here, I will suggest you go to Ken Kenski's web site: k4eaa.com and look for how to figure out if your "driver tube" or "finals" or, some other components may be at fault for your low output. Possibly a "basic alignment" outlined in the "operators manual" is a good place to start.
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46008. RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 22:42:41 UTC
From: <pmarkavage@...>
Topic: 46003 Message: 46008

The SB-620 panadapter/spectrum analyzer, as is, has only enough gain to take it 3400 or 3500 KHz and probably not much higher. Modifying it to work with a 3395 KHz IF (TS-520 or similar) can be done. It's in the SB-620 manual. But the panadapter is only effective when connected to the input to the 1st IF. The TS-830S 1st IF is 8830 KHz. You would have to a add a mixer to the SB-620 to bring the 8830 KHz signal down to something the SB-620 can use. In the end, it probably is not worth the time, effort, and expense.

Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

---In TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

This is a question for anyone who may have used one of these.
I obtained a Heath Kit SB-620 Scanalyzer. What I need to know is if anyone has used this item on a Kenwood TS-830S? I have to clean it up and free up some controls as it has set in storage for a log time. The last time it was use was on a HW-101 transceiver.
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Bill WD8OSJ

46009. Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 22:58:54 UTC
From: K5MYJ
Topic: 46003 Message: 46009

The SB-620 came with coils for 3395 and 455. You will have to find out which you have.

For any other IF frequency you will have to make your own coils if you know how.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, November 21, 2013 2:42 PM
Subject: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

The SB-620 panadapter/spectrum analyzer, as is, has only enough gain to take it 3400 or 3500 KHz and probably not much higher. Modifying it to work with a 3395 KHz IF (TS-520 or similar) can be done. It's in the SB-620 manual. But the panadapter is only effective when connected to the input to the 1st IF. The TS-830S 1st IF is 8830 KHz. You would have to a add a mixer to the SB-620 to bring the 8830 KHz signal down to something the SB-620 can use. In the end, it probably is not worth the time, effort, and expense.

Pete, wa2cwa

http://www.manualman.com

---In TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

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Bill WD8OSJ

46010. RE: Re: RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-21 23:37:43 UTC
From: <kg6svf@...>
Topic: 45994 Message: 46010

THANKS JOE......WILL LOOK INTO IT

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Dave,

You will NOT get any "movement of your needles" is SSB unless you either speak into the microphone(if any) or inject a tone in to the radio via the microphone connection or a couple of other places. Even then ,if it is a modulated signal, you will not show "full output" as the "meters" you seem to have available will not read correctly an SSB output signal. With out going into much detail here, I will suggest you go to Ken Kenski's web site: k4eaa.com and look for how to figure out if your "driver tube" or "finals" or, some other components may be at fault for your low output. Possibly a "basic alignment" outlined in the "operators manual" is a good place to start.

73 Joe
WB7UQU

On Thursday, November 21, 2013 2:07 PM, "kg6svf@..." <kg6svf@...> wrote:

OK.....I SHOULD HAVE WAITED TO POST EARLIER ....AFTER MESSING WITH KNOBS AND SWITCHES,,,,,I AM GETTING JUST UNDER 30 WATTS ON THE LOAD BUT WHEN I SWITCH TO SSB I'M GETTING ZERO MOVEMENT ON MY NEEDLES
I DID TO WHAT YOU SAID TO DO DAVE......WHEN IT COMES TO ELECTRONICS YOU MIGHT AS WELL BE SPEAKING ZULU TO ME SO PLEASE BE PATIENT.
LET ME THANK YOU IN ADVANCE FOR WHAT HELP I'M GETTING
73's
DAVE
KG6SVF

---In TS-520_820_530_830@yahoogroups.com, <fpath@...> wrote:

Dave,

Try switching the SG switch on and off a couple of times, also try rotating the carrier pot through it's range as it could have a build up of crap on the wipers. Report back and we can then start to trouble shot. Start with the basics and we can always go really technical.

73s
Dave
VK5PDL

From: kg6svf@...
To: TS-520_820_530_830@yahoogroups.com
Date: Wed, 20 Nov 2013 19:43:34 -0800
Subject: [TS-520_820_530_830] Bringing a TS-530s back to life

I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter......I only guessing that I might have flat tubes as they were weak the last time I used the radio
Any help would be great before I buy new tubes
Thanks Dave

46011. RE: RE: RE: RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 00:55:35 UTC
From: <wagstw46@...>
Topic: 45960 Message: 46011

Wally:

Yes for any band that you are getting RF output power as seen on RF position of the panel meter or on an external wattmeter then you have to have RF drive at the control grids of your 6146 finals. If you have RF drive then you have to have feed thru power from the control grids to the plate circuit thru that 0.22pf Cgp.

If you try neutralizing on 40 meters will see feed thru power, but will be lower than what I gave you for 10 meters. Probably a high of approx 270mv and low of approx 20mv. If using a single germanium diode probe then might just see slight meter indication as the diode barrier will be approx 250mv.

What kind of RF probe are you using?

Terry

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Ok Terry,
All understood.
Will check it tomorrow.... but what I still don't understand is, that the rig is working FB on 7 mhz and higher,
So it must have drive on pin 5 otherwise it wouldn't work at all.... right?

but will check it and let you know the outcome..

Many thanks for spending your time to answer me... very much appreciated

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Well you can cut the Neutralizing capacitor out and toss over your shoulder and rig should have some RF voltage at the SO-239 in this test configuration (typically a max of 1.0 rms rf volts with Drive control peaked and Plate tank cap adjusted to resonance). .

What you are looking at is the feed thru power from the 6146 control grid to the 6146 anode. This power is the result of the RF drive voltage swing at the control grid causing a small RF current to flow from the 6146 tubes control grid to the anode thru the tubes inter-electrode capacitance or Cgp. Approx 0.22pf capacitor.

It sounds to me like you have no RF drive voltage at the control grid Pin 5?

If you have rig configured as you say and you can peak the Drive control to get full scale ALC meter deflection then should see something on the order of approx 45 rf volts at Pin 5. I would measure this to confirm finals are seeing Drive.

Best to measure this with O-scope or RF Millivolt meter or a multi-diode RF probe.

If you have to use a single diode RF probe need to back down the CAR Level so you dont burn out the diode in the probe. Connect RF probe to Pin 5 at 6146 tube socket and key rig and slowly bring up the CAR level from zero. Do not exceed approx 30 rms rf volts.

If you have RF drive voltage at Pin 5 you have to have RF voltage at the SO-239 unless bad TR relay contacts or bad SO-239 solder connection or bad Plate blocking/coupling cap or bad plate choke. This should not be as you have normal RF output when you load the rig.

After confirming that you have approx 45 rf volts drive at the 6146 control grids move scope or millivolt meter to the SO-239. Key the rig and adjust the Plate capacitor (tune or tank) thru its range for maximum RF voltage. You should then be able to run the NC cap thru its range and see something on the order of a high of 900mv and a low of 10mv to 15mv at the null.

Make sure using a well insulated tool as you are a fraction of an inch from 900vdc anode lead.

If you have 45 volts at Pin 5 and no voltage at SO-239 then you have to have a high resistance connection in the path from the anode to the SO-239 or something shunting this low level signal. I have never seen a bad L7 safety choke. .

I am basing all of this on fact that you report normal full load output and just have plate current dip not occurring at max RF output. A common problem on low bands and of no concern. As long as can get plate current dip and max rf output to occur close to same at 28mhz that is all you need to prevent tubes from taking off on 10 meters. Tube interelectrode capacitive reactance as you move lower in frequency makes it very unlikely tubes will oscillate. Use to neutralize at 21 mhz in attempt to gt it to work across all bands and was not necessary and designers changed procedure to do it on 10 meters where Xc is lowest.

One last thing I may have asked does the main plate choke winding look good with no signs of overheating? I suppose another place that could be shunting low level RF back to HV supply?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Terry,
You are right I is very unusual to have no output reading at all.
Yes I do all the steps you are mentioning. So the only way to find out is to open the rig and check if the neut cap is actually hooked up to something..... more and more I get the idea that is has a cold solderjoint or something like that.
As I have mentioned earlier, I can rotate the cap 360 degrees, but there is no point that gives some meter deflection.......

Only on 80 and 160 meter the is a S9 noise level... I have contacted Ken K4EAA, he mentioned a faulty bandswitch. So I am going to check and clean the switch first, so I can eliminatie that option.....

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

After loading to full RF output in CW mode do you just unkey rig and turn off the SG switch and connect RF probe and re-key the rig?

Must be in CW mode and Car Pot Level where it was when you loaded the rig.

You also can try adjusting the Drive control for max ALC indication with SG off.

If you are leaving Car Level Pot where it was to attain full output then it would be very unusual to have no RF voltage at the SO-239 connector unless the neutralizing cap was spot on and then typically will not be able to get a complete voltage null.

To test receive sensitivity with the Marker put the rig on dummy load. You dont want any off air signals at this time for this test

I dont know how you will work with a S9 +10 noise level? Sure hope that is not the norm for your QTH?.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.
The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
We have also tried a monitor rx on the local clubstation. but altough there is no RF indication on the VTVM/rf-probe. And also on the monitor RX there wasn't any indication when adjusting the neut cap.

On the low receive thing.....when RF gain fully open (fully CW)noise is peaking at S9+ 10dB.
The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

Altough I am restricted to work on 10/20 meters. the set is working FB. Do receive good reports. 5-9/599
on USB and CW.
As mentioned earlier I do get the idea that someone has been poking around in the PA section. turning the neut cap SHOULD give some kind of indication I guess....
But thanks again for the replay.....

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

Low receive on couple of bands:

Very briefly you say you can hear the Marker on 160 and 80. A more informative report would be what S-meter indication do you get with the Marker signal?

A fully functional and well aligned 520S should be close to S9 with Drive control peaked at approx 1200 if you have VFO set at 1.9mhz. Will be less at 28.8mhz. perhaps S6 to S7.

If Marker signal levels are down follow the Coil Pack alignment steps in the Instruction Manual Section 6 as a first step to resolve.

Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE. here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

46012. Misc. FS

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 01:10:09 UTC
From: k7mks@...
Topic: 46012 Message: 46012

AC P:ower Cord for Kenwood -520 and -820 series. $19.50 shipped USPS. Little used and shiny YG-3395 CW filter for TS-520 and -820 series. $74.50 shipped USPS.. Can send photos

Thank you joe k7mks.

46013. Re: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 03:39:23 UTC
From: W5RKL
Topic: 45994 Message: 46013

Dave,

I recommend you take the time and read the TS-530's Circuit Description section. I also invite you to view my videos which can be found at the following link:

www.n6wk.com/w5rkl/

73
Mike W5RKL

On 11/21/2013 3:58 PM, kg6svf@... wrote:
>
> OK.....I SHOULD HAVE WAITED TO POST EARLIER ....AFTER MESSING WITH
> KNOBS AND SWITCHES,,,,,I AM GETTING JUST UNDER 30 WATTS ON THE LOAD
> BUT WHEN I SWITCH TO SSB I'M GETTING ZERO MOVEMENT ON MY NEEDLES
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> I DID TO WHAT YOU SAID TO DO DAVE......WHEN IT COMES TO ELECTRONICS
> YOU MIGHT AS WELL BE SPEAKING ZULU TO ME SO PLEASE BE PATIENT.
>
> LET ME THANK YOU IN ADVANCE FOR WHAT HELP I'M GETTING
>
> 73's
>
> DAVE
>
> KG6SVF
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com, <fpath@...> wrote:
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> Try switching the SG switch on and off a couple of times, also
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> Dave
> VK5PDL
>
>
>

>
> ---
> From: kg6svf@...
> To: TS-520_820_530_830@yahoogroups.com
> Date: Wed, 20 Nov 2013 19:43:34 -0800
> Subject: [TS-520_820_530_830] Bringing a TS-530s back to life
>
> I have a 530s that I want to get back on the air...so far everything
> checks out but I'm NOT getting any out put power,,,,I have adjusted my
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46014. Re: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 12:29:18 UTC
From: Mike
Topic: 45994 Message: 46014

Dave,

Do you have the TS-530 operator's manual and if so have you taken the time to thoroughly read and understand the information presented in the TS-530's operator's manual before you attempted to operate your TS-530? Quite often people fail to perform this simple but necessary step and end up experiencing problems similar to what you have described.

Also, based on your statement about your level of electronic knowledge,

"When it comes to electronics you might as well be speaking zulu to me..."

I'm sorry to say Dave but you do not have the necessary skills and knowledge to properly and "safely" service/repair your TS-530. Therefore, if your TS-530 requires any service/repair to fix any problems it may have, I highly recommend you find a local ham or person who has the experience, knowledge, and skills to assist you in servicing your TS-530. There are voltages inside the TS-530 that can easily kill you.

73
Mike W5RKL

On 11/21/2013 3:58 PM, kg6svf@... wrote:
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> From: kg6svf@...
> To: TS-520_820_530_830@yahoogroups.com
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> Subject: [TS-520_820_530_830] Bringing a TS-530s back to life
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46015. RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 13:11:18 UTC
From: <paw_paw44036@...>
Topic: 46003 Message: 46015

Ok, thanks for all the answers. I see a new challenge looking ahead. I need to find the manual and see what will happen and should I get it to work I will post my trials of the challenge. Back 20 years ago I have rewound IF coils in old tube radios for the AM broadcast band. Where there is a will there is a way.
Bill WD8OSJ

---In ts-520_820_530_830@yahoogroups.com, <macklinbob@...> wrote:

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For any other IF frequency you will have to make your own coils if you know how.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@... mailto:pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Sent: Thursday, November 21, 2013 2:42 PM
Subject: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

The SB-620 panadapter/spectrum analyzer, as is, has only enough gain to take it 3400 or 3500 KHz and probably not much higher. Modifying it to work with a 3395 KHz IF (TS-520 or similar) can be done. It's in the SB-620 manual. But the panadapter is only effective when connected to the input to the 1st IF. The TS-830S 1st IF is 8830 KHz. You would have to a add a mixer to the SB-620 to bring the 8830 KHz signal down to something the SB-620 can use. In the end, it probably is not worth the time, effort, and expense.

Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

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Bill WD8OSJ

46016. Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 13:27:38 UTC
From: Mike
Topic: 46003 Message: 46016

Bill,

I have the earlier version of the SB-620, the HO-13. There isn't that much difference between the SB-620 and the HO-13, some circuit improvements in the SB-620 and a new cabinet but basically they are the same "Scanalyzer" producing very similar spectrum displays.

I can tell you from experience using the HO-13, it's not going to give you the display you may be looking for that a dedicated Spectrum Analyzer will give you. The HO-13 and the SB-620 lack the sophistication that a dedicated Spectrum Analyzer is designed to produce. I could be wrong but I think you may be disappointed by the SB-620s spectrum display.

73
Mike W5RKL

On 11/22/2013 7:11 AM, paw_paw44036@... wrote:
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> ---In ts-520_820_530_830@yahoogroups.com, <macklinbob@...> wrote:
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> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
>
> ----- Original Message -----
> *From:* pmarkavage@... <mailto:pmarkavage@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>

> *Sent:* Thursday, November 21, 2013 2:42 PM
> *Subject:* [TS-520_820_530_830] RE: Heath Kit SB-620 hook up
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> Pete, wa2cwa
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> http://www.manualman.com
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46017. Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 14:00:04 UTC
From: Bob Lazarow
Topic: 46003 Message: 46017

Mike, Bill: I also want to achieve the same objective with my '830, but with a totally different methodology:

I have been looking at those inexpensive SDR (software defined radios) that can be had for about $25 or so plus a frequency converter made for the SDR for about $50. The combo allows coverage to BOTH IF frequencies in the 830, and the available software appears to offer a whole host of applications.

It seems to me that it should be practical with this setup to get all or most of the features of the 620 (or more). Right now all I have done is some research, but if anyone else in the group has experience along these lines, I would surely like to hear it.

For the record, I've been licensed for over 50 years, still own many tube rigs, tube testers, and sever thousand new, boxed, tubes... and a lot of experience repairing, modifying, etc. Always been too clumsy to wind coils with #40 wire..LOL

Bob / WA2JAJ

On 11/22/2013 8:27 AM, Mike wrote:
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> Bill,
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> Mike W5RKL
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> On 11/22/2013 7:11 AM, paw_paw44036@... wrote:
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>> K5MYJ
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>> ----- Original Message -----
>> *From:* pmarkavage@... <mailto:pmarkavage@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Thursday, November 21, 2013 2:42 PM
>> *Subject:* [TS-520_820_530_830] RE: Heath Kit SB-620 hook up
>> to Kenwood TS-830S
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46018. RE: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 14:18:31 UTC
From: <wagstw46@...>
Topic: 46003 Message: 46018

I agree with Mike.

Nice to have the Heath units to complete your Heath station layout, but compared to todays technology more of a novelty item. You could never give any off air reports to anyone. The resolution just isnt there.

Suggest you take a look at the modern SDR units like the L-pan and recommended sound cards for your lap top.

Take a look at Jan N8CBX QRZ page. He is a member of this forum if you want to contact him and discuss SDR panadapters married to KW hybrids 8.830 IF.

Of course you get what you pay for so wont be cheap and wont get one for price of old Heath monitor!

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Bill,

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Pete, wa2cwa
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46019. Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 14:35:00 UTC
From: Bob Lazarow
Topic: 46003 Message: 46019

Terry: Thanks, as always !!

Bob / WA2JAJ

On 11/22/2013 9:18 AM, wagstw46@... wrote:
>
> I agree with Mike.
>
>
> Nice to have the Heath units to complete your Heath station layout,
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46020. RE: ATTenuator question thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 14:37:42 UTC
From: <tjb813@...>
Topic: 45982 Message: 46020

I was just trying to solicit help and share my experiences with bringing an 820s back to life. So, I guess I will move on and find another list.

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Greetings Group,

I think that the "ATTenuator question" thread has ran it's course. As always, there will be a "difference of opinion" no matter what subject is talked about.

So, if the parties involved wish to "discuss" this topic further, please do so "off list."

Tnx fer ur cooperation.

We now return you to our regular programming.............

73 Joe
WB7UQU
Group Co-owner

46021. Re: [TS-520_820_530_830] RE: ATTenuator question thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 14:52:36 UTC
From: Mike
Topic: 45982 Message: 46021

Joe was not stating you can't solicit help with your 820. I think you
may have misunderstood what Joe is saying. Quite often threads tend to
become more of a "chit chat" about issues that are not part of the
original problem. Those types of discussions tend to get out of hand and
that appears to be what Joe is saying.

73
Mike W5RKL

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46022. Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 14:52:48 UTC
From: K5MYJ
Topic: 46003 Message: 46022

To use a SB-620 or HO-13 with a receiver requires tapping into the one of the mixers.

There is a program called "Spectran". It works on the audio and gives a spectrum of what is in your audio bandpass.

The problem comes from the narrow filters in typical SSB receivers.

If one were to make an adapter that taps into the IF somewhere ahead of the filter with a wider bandpass you could get your spectrum display.

http://www.sdradio.eu/weaksignals/spectran.html

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: Bob Lazarow
To: TS-520_820_530_830@yahoogroups.com
Cc: Mike
Sent: Friday, November 22, 2013 6:00 AM
Subject: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

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Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, November 21, 2013 2:42 PM
Subject: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

The SB-620 panadapter/spectrum analyzer, as is, has only enough gain to take it 3400 or 3500 KHz and probably not much higher. Modifying it to work with a 3395 KHz IF (TS-520 or similar) can be done. It's in the SB-620 manual. But the panadapter is only effective when connected to the input to the 1st IF. The TS-830S 1st IF is 8830 KHz. You would have to a add a mixer to the SB-620 to bring the 8830 KHz signal down to something the SB-620 can use. In the end, it probably is not worth the time, effort, and expense.

Pete, wa2cwa

http://www.manualman.com

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Bill WD8OSJ

46023. RE: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 18:13:57 UTC
From: <pmarkavage@...>
Topic: 46003 Message: 46023

I believe we all did a similar discussion back a year or so ago.
These old spectrum displays are more eye candy then useful instruments unlike some of the spectrum displays you see with today's rigs. I married a SB-620 to my Kenwood Twins some years ago. Even with the proper IF front end in the SB-620, I still have to build a voltage amplifier to bring the pickup signal high enough so that I could see a decent display on the screen. In the end, it was no more useful then using a SM-220 and BS-# adapter. I find that main use for the SB-620 is just a pretty eye candy accessory for other Heathkit SB-type transceivers. The SDR approach is a much better avenue to pursue with a display result that can provide some good and accurate viewing and useful data.

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---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

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46024. Re: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 18:34:15 UTC
From: K5MYJ
Topic: 46003 Message: 46024

To add to what Pete has said.

The SB-620 and Kenwood BS-# were designed to connect to the low IF in the receivers. Their bandwidth is limited by the bandwidth at the point of connection.

The better place to connect is at the output of the 1st mixer.

Using a SDR with a computer gives you a better display than you get from a 3" CRT

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@juno.com
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 22, 2013 10:13 AM
Subject: RE: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

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---In ts-520_820_530_830@yahoogroups.com, <macklinbob@...> wrote:

ï»¿
The SB-620 came with coils for 3395 and 455. You will have to find out which you have.

For any other IF frequency you will have to make your own coils if you know how.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, November 21, 2013 2:42 PM
Subject: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

The SB-620 panadapter/spectrum analyzer, as is, has only enough gain to take it 3400 or 3500 KHz and probably not much higher. Modifying it to work with a 3395 KHz IF (TS-520 or similar) can be done. It's in the SB-620 manual. But the panadapter is only effective when connected to the input to the 1st IF. The TS-830S 1st IF is 8830 KHz. You would have to a add a mixer to the SB-620 to bring the 8830 KHz signal down to something the SB-620 can use. In the end, it probably is not worth the time, effort, and expense.

Pete, wa2cwa

http://www.manualman.com

---In TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

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Bill WD8OSJ

46025. RE: Re: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 19:57:25 UTC
From: <pmarkavage@...>
Topic: 46003 Message: 46025

Actually Bob, what I said was to connect the panadapter/spectrum analyzer to the input of the 1st IF which is the output of the 1st mixer. In the case of the TS-830S which has a double conversion receiver with 1st IF stage/mixer 8830 KHz and 2nd IF stage/mixer 455 KHz, you don't want to connect the equipment to the "low IF of the receiver". The seeable spectrum on the screen will be greatly diluted by the actions of the 1st IF amplifier if you connect it to the lower IF/mixer.
Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

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☐ To add to what Pete has said.

The SB-620 and Kenwood BS-# were designed to connect to the low IF in the receivers. Their bandwidth is limited by the bandwidth at the point of connection.

The better place to connect is at the output of the 1st mixer.

Using a SDR with a computer gives you a better display than you get from a 3" CRT

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From: pmarkavage@... mailto:pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 22, 2013 10:13 AM
Subject: RE: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

I believe we all did a similar discussion back a year or so ago.
These old spectrum displays are more eye candy then useful instruments unlike some of the spectrum displays you see with today's rigs. I married a SB-620 to my Kenwood Twins some years ago. Even with the proper IF front end in the SB-620, I still have to build a voltage amplifier to bring the pickup signal high enough so that I could see a decent display on the screen. In the end, it was no more useful then using a SM-220 and BS-# adapter. I find that main use for the SB-620 is just a pretty eye candy accessory for other Heathkit SB-type transceivers. The SDR approach is a much better avenue to pursue with a display result that can provide some good and accurate viewing and useful data.

Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

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I can tell you from experience using the HO-13, it's not going to give you the display you may be looking for that a dedicated Spectrum Analyzer will give you. The HO-13 and the SB-620 lack the sophistication that a dedicated Spectrum Analyzer is designed to produce. I could be wrong but I think you may be disappointed by the SB-620s spectrum display.

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46026. Re: Re: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-22 20:15:50 UTC
From: K5MYJ
Topic: 46003 Message: 46026

Pete,

That's the point I was trying to make.

It also needs to be LOOSELY coupled to avoid de tuning the 1st IF transformer.

In the case of a Kenwood hybrid I would install an emitter follower near the 1st mixer as a buffer then in my case I would use RG-174 to get the signal to the rear panel.

I assume a SoftRock 40 would be just fine for this application.

Bob Macklin
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----- Original Message -----
From: pmarkavage@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, November 22, 2013 11:57 AM
Subject: RE: Re: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

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Bill WD8OSJ

46027. ATTenuator question thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 00:01:19 UTC
From: Joseph Stiles
Topic: 45982 Message: 46027

Greetings Group,

  Seems my wording regarding this topic was less than clear and, word poorly

  It was NOT my intent to stop the entire "discussion" regarding this topic/problem.

   My intent was to stop the "cross traffic."

   So that being said, I apologize for not being clear and my poor wording. The topic may resume if
the original poster desires.............

73 Joe
WB7UQU
Group Co-owner

46028. RE: Re: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 00:02:21 UTC
From: <kg6svf@...>
Topic: 45994 Message: 46028

MIKE
Thanks for the warning on whats inside the radio.....I do know better that to put a screw driver into it before I know what I"m doing,,,,I do have the OP. MANUAL for it and I am reading it.
I changed out the driver 12by7a and getting a bit more power and have made a few contacts with it, I'm gonna keep checking the manual and replace the tubes

---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Dave,

Do you have the TS-530 operator's manual and if so have you taken the time to thoroughly read and understand the information presented in the TS-530's operator's manual before you attempted to operate your TS-530? Quite often people fail to perform this simple but necessary step and end up experiencing problems similar to what you have described.

Also, based on your statement about your level of electronic knowledge,

"When it comes to electronics you might as well be speaking zulu to me..."

I'm sorry to say Dave but you do not have the necessary skills and knowledge to properly and "safely" service/repair your TS-530. Therefore, if your TS-530 requires any service/repair to fix any problems it may have, I highly recommend you find a local ham or person who has the experience, knowledge, and skills to assist you in servicing your TS-530. There are voltages inside the TS-530 that can easily kill you.

73
Mike W5RKL

On 11/21/2013 3:58 PM, kg6svf@... mailto:kg6svf@... wrote:

OK.....I SHOULD HAVE WAITED TO POST EARLIER ....AFTER MESSING WITH KNOBS AND SWITCHES,,,,,I AM GETTING JUST UNDER 30 WATTS ON THE LOAD BUT WHEN I SWITCH TO SSB I'M GETTING ZERO MOVEMENT ON MY NEEDLES
I DID TO WHAT YOU SAID TO DO DAVE......WHEN IT COMES TO ELECTRONICS YOU MIGHT AS WELL BE SPEAKING ZULU TO ME SO PLEASE BE PATIENT.
LET ME THANK YOU IN ADVANCE FOR WHAT HELP I'M GETTING
73's
DAVE
KG6SVF

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <fpath@...> mailto:fpath@... wrote:

Dave,

Try switching the SG switch on and off a couple of times, also try rotating the carrier pot through it's range as it could have a build up of crap on the wipers. Report back and we

can then start to trouble shot. Start with the basics and we can always go really technical.

73s
Dave
VK5PDL

From: kg6svf@...
To: TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com
Date: Wed, 20 Nov 2013 19:43:34 -0800
Subject: [TS-520_820_530_830] Bringing a TS-530s back to life

I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter......I only guessing that I might have flat tubes as they were weak the last time I used the radio
Any help would be great before I buy new tubes
Thanks Dave

46029. Re: Re: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 00:33:34 UTC
From: John Davidson
Topic: 45994 Message: 46029

SSB has zero power with zero audio input from mic. Thats how it works!

On Friday, November 22, 2013 7:08 PM, "kg6svf@..." <kg6svf@...> wrote:

MIKE
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I changed out the driver 12by7a and getting a bit more power and have made a few contacts with it, I'm gonna keep checking the manual and replace the tubes

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the time to thoroughly read and understand the information
presented in the TS-530's operator's manual before you attempted
to operate your TS-530? Quite often people fail to perform this
simple but necessary step and end up experiencing problems similar
to what you have described.

Also, based on your statement about your level of electronic
knowledge,

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to me..."

I'm sorry to say Dave but you do not have the necessary skills and
knowledge to properly and "safely" service/repair your TS-530.
Therefore, if your TS-530 requires any service/repair to fix any
problems it may have, I highly recommend you find a local ham or
person who has the experience, knowledge, and skills to assist you
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46030. Re: ATTenuator question thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 03:59:26 UTC
From: clifford wright
Topic: 45982 Message: 46030

Got you loud and clear Joe! Have been posting direct to others in
discussion.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46031. RE: Re: Re: Re: [TS-520_820_530_830] RE: Heath Kit SB-620 hook up to Kenwood TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 18:48:23 UTC
From: <paw_paw44036@...>
Topic: 46003 Message: 46031

Ok Gents, I get the picture. We will scratch this off the list and check into one of the software versions. I do want to thank you all for your input as it is as always is a great help. Thank you.
Bill WD8OSJ.
PS> Yes Bob, Real radios do glow in the dark.

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☐ Pete,

That's the point I was trying to make.

It also needs to be LOOSELY coupled to avoid de tuning the 1st IF transformer.

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Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

---In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, <paw_paw44036@...> mailto:paw_paw44036@... wrote:

This is a question for anyone who may have used one of these.
I obtained a Heath Kit SB-620 Scanalyzer. What I need to know is if anyone has used this item on a Kenwood TS-830S? I have to clean it up and free up some controls as it has set in storage for a log time. The last time it was use was on a HW-101 transceiver.
The ham I got it from said he has some other coils for it. If memory serves me the HW-101 used close to the IF frequency's that the TS-830S uses. I could be wrong on that as it has been 20 years since I built and used my HW-101. I gave it away 12 years ago. Any ideas out there?????
Bill WD8OSJ

46032. TS-820S Final Cage Repair

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 20:54:49 UTC
From: kk6ezq
Topic: 46032 Message: 46032

Dear Group,

My rig was arcing in the final cage area when I tuned to frequencies higher than the 40 meter band. It seemed to be coming from the wafer switches in the final cage. I disassembled the final cage enough that I can access the wafer switches for inspection. There has been extensive arcing and carbon trails, some of the phenolic is missing.

I am not sure what my options are for repair going forward. I love the radio, its great sound quality, and the fact it is my first HF tranceiver. I have invested time in replacing all tubes, new final caps, drive resistors and brass bandswitch couplers.

I am sure those of you with experience with these parts appreciates the workmanship and alignment challenges that the assemblers had. Any suggestions on what to do about replacing the wafers, or other options would be appreciated.

Steve
KK6EZQ

46033. Re: [TS-520_820_530_830] RE:

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 21:19:42 UTC
From: Mike
Topic: 45058 Message: 46033

Yioutta

The HEATER switch has nothing to do with the loss of the ALC/IP/HV/RF meter switch functions. All of the meter switch settings are "disabled" in receive and are only "enabled" when the 820 switches to transmit (relays energize). As long as the relays do not energize when attempting to switch the 820 from receive to transmit, the meter will not display any of the meter switch setting values.

Yioutta, if "Yioutta" is not your name and since you did not indicate you have a call sign when you applied for membership to the group, please include your "name" at the end of all your future messages/responses/posts. Your first name is fine. "Yioutta_99" is not an acceptable identification/name for you in this group. Yioutta_99 can only be used as part of your email address.

73
Mike W5RKL

On 10/4/2013 11:38 PM, yioutta_99@... wrote:
>
> heater switch not on? I had that same sounding problem last week with
> my 520s. the heater switch wasnt on long enough.
>
>
>
> ---In TS-520_820_530_830@yahoogroups.com,
> <ts-520_820_530_830@yahoogroups.com> wrote:
>
> new to me ---a ts 820s recieve works, ok but no send recieve ,no
> hv on meter ,no ip on meter, no alc ,i've checked the voltages they
> are ok , relay is not working when switch is flipped , hv board
> checked out good any ideas anyone or where to start
> ? thanks Ron KK4PWF
>

46034. Re: RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 20:02:26 UTC
From: DAVE MARSON
Topic: 45994 Message: 46034

PUT A NEW 12BY7A IN AND NOW EVERYTHING YOU DESCRIBE IS HAPPENING
THANKS JOE

On Thursday, November 21, 2013 2:21 PM, Joseph Stiles <stilesjoseph@yahoo.com> wrote:

Adenum:

   IF you have a mic..your rig is properly "tuned up" for operation...meter switch to ALC....key(put into send) your rig..speak into the mic...and advance the "mic" control until the needle just flicks off the resting position...you can also put the meter into "RF" after this and check for RF output.
NOTE: you will not see anymore than about 20-30 watts indicated on the meter> This is normal

73 Joe
WB7UQU

On , Joseph Stiles <stilesjoseph@...> wrote:

Dave,
>
>You will NOT get any "movement of your needles" is SSB unless you either speak into the microphone(if any) or inject a tone in to the radio via the microphone connection or a couple of other places. Even then ,if it is a modulated signal, you will not show "full output" as the "meters" you seem to have available will not read correctly an SSB output signal. With out going into much detail here, I will suggest you go to Ken Kenski's web site: k4eaa.com
and look for how to figure out if your "driver tube" or "finals" or, some other components may be at fault for your low output. Possibly a "basic alignment" outlined in the "operators manual" is a good place to start.
>
>
>
>
>73 Joe
>WB7UQU
>
>
>
>On Thursday, November 21, 2013 2:07 PM, "kg6svf@..." <kg6svf@...> wrote:
>
>
>>OK.....I SHOULD HAVE WAITED TO POST EARLIER ....AFTER MESSING WITH KNOBS AND SWITCHES,,,,,I AM GETTING JUST UNDER 30 WATTS ON THE LOAD BUT WHEN I SWITCH TO SSB I'M GETTING ZERO MOVEMENT ON MY NEEDLES
>>I DID TO WHAT YOU SAID TO DO DAVE......WHEN IT COMES TO ELECTRONICS YOU MIGHT AS WELL BE

SPEAKING ZULU TO ME SO PLEASE BE PATIENT.
>>LET ME THANK YOU IN ADVANCE FOR WHAT HELP I'M GETTING
>>73's
>>DAVE
>>KG6SVF
>>
>>
>>
>>---In TS-520_820_530_830@yahoogroups.com, <fpath@...> wrote:
>>
>>
>>Dave,
>>
>>Try switching the SG switch on and off a couple of times, also try rotating the carrier pot through it's range as it could have a build up of crap on the wipers. Report back and we can then start to trouble shot. Start with the basics and we can always go really technical.
>>
>>73s
>>Dave
>>VK5PDL
>>
>>
>>
>>
>>
>>
>>_________________________________
>> From: kg6svf@...
>>To: TS-520_820_530_830@yahoogroups.com
>>Date: Wed, 20 Nov 2013 19:43:34 -0800
>>Subject: [TS-520_820_530_830] Bringing a TS-530s back to life
>>
>>
>>I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter......I only guessing that I might have flat tubes as they were weak the last time I used the radio
>>Any help would be great before I buy new tubes
>>Thanks Dave
>>
>>
>>
>
>

46035. SM 220 BS8 wont pan.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 22:39:00 UTC
From: <ne2i@...>
Topic: 46035 Message: 46035

Hi folks I have a sm 220 that when I tried to use as a pan adapter and it seems like the signal moves through the horizontal on the scope. I cant see the 20 or 100 slice of the band. The signal seems to bring the trace vertical all the way across the screen. I should do a video to show this action.
This is occurring on my 820 and my 930....

George NE2I

46036. RE: SM 220 BS8 wont pan.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-23 23:56:57 UTC
From: <ne2i@...>
Topic: 46035 Message: 46036

you tube video explaining the action here....
http://youtu.be/LnjmrY1tFP8 http://youtu.be/LnjmrY1tFP8

George NE2I

---In TS-520_820_530_830@yahoogroups.com, <ne2i@...> wrote:

Hi folks I have a sm 220 that when I tried to use as a pan adapter and it seems like the signal moves through the horizontal on the scope. I cant see the 20 or 100 slice of the band. The signal seems to bring the trace vertical all the way across the screen. I should do a video to show this action.
This is occurring on my 820 and my 930....

George NE2I

46037. Re: RE: [TS-520_820_530_830] Bringing a TS-530s back to life

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 02:15:53 UTC
From: Joseph Stiles
Topic: 45994 Message: 46037

Dave,

U R welcome. glad 2 help

73 Joe
WB7UQU

On Saturday, November 23, 2013 12:02 PM, DAVE MARSON <kg6svf@...> wrote:

>PUT A NEW 12BY7A IN AND NOW EVERYTHING YOU DESCRIBE IS HAPPENING
>THANKS JOE
>
>
>
>
>
>
>On Thursday, November 21, 2013 2:21 PM, Joseph Stiles <stilesjoseph@...> wrote:
>
>
>Adenum:
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> IF you have a mic..your rig is properly "tuned up" for operation...meter switch to ALC....key(put into send) your rig..speak into the mic...and advance the "mic" control until the needle just flicks off the resting position...you can also put the meter into "RF" after this and check for RF output.
>NOTE: you will not see anymore than about 20-30 watts indicated on the meter> This is normal
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>73 Joe
>WB7UQU
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>
>On , Joseph Stiles <stilesjoseph@...> wrote:
>
>Dave,
>>
>>You will NOT get any "movement of your needles" is SSB unless you either speak into the microphone(if any) or inject a tone in to the radio via the microphone connection or a couple of other places. Even then ,if it is a modulated signal, you will not show "full output" as the "meters" you seem to have available will not read
correctly an SSB output signal. With out going into much detail here, I will suggest you go

to Ken Kenski's web site: k4eaa.com
and look for how to figure out if your "driver tube" or "finals" or, some other components may be at fault for your low output. Possibly a "basic alignment" outlined in the "operators manual" is a good place to start.
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>>73 Joe
>>WB7UQU
>>
>>
>>
>>On Thursday, November 21, 2013 2:07 PM, "kg6svf@..." <kg6svf@...> wrote:
>>
>>
>>>OK.....I SHOULD HAVE WAITED TO POST EARLIER ....AFTER MESSING WITH KNOBS AND SWITCHES,,,,,I AM GETTING JUST UNDER 30 WATTS ON THE LOAD BUT WHEN I SWITCH TO SSB I'M GETTING ZERO MOVEMENT ON MY NEEDLES
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>>>LET ME THANK YOU IN ADVANCE FOR WHAT HELP I'M GETTING
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>>>DAVE
>>>KG6SVF
>>>
>>>
>>>
>>>---In TS-520_820_530_830@yahoogroups.com, <fpath@...> wrote:
>>>
>>>
>>>Dave,
>>>
>>>Try switching the SG switch on and off a couple of times, also try rotating the carrier pot through it's range as it could have a build up of crap on the wipers. Report back and we can then start to trouble shot. Start with the basics and we can always go really technical.
>>>
>>>73s
>>>Dave
>>>VK5PDL
>>>
>>>
>>>
>>>
>>>
>>>
>>>_____
>>> From: kg6svf@...
>>>To: TS-520_820_530_830@yahoogroups.com
>>>Date: Wed, 20 Nov 2013 19:43:34 -0800

>>>Subject: [TS-520_820_530_830] Bringing a TS-530s back to life
>>>
>>>
>>>I have a 530s that I want to get back on the air...so far everything checks out but I'm NOT getting any out put power,,,,I have adjusted my bias to 60ma...but when I attempt to tune I get zero movement on the needle and nothing on my watt meter......I only guessing that I might have flat tubes as they were weak the last time I used the radio
>>>Any help would be great before I buy new tubes
>>>Thanks Dave
>>>
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46038. Re: [TS-520_820_530_830] TS-820S Final Cage Repair

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 03:25:55 UTC
From: Joseph Stiles
Topic: 46032 Message: 46038

Steve,

I do not want to be a "buzz kill" but, if the switch wafers in the final cage area have suffered
significant damage...ie., "missing phenolic," carbon arcs & trails," it most likely beyond possible repair without replacing the entire assembly. I have recently seen some "final cages" for sale on "ebay"...also Bob Mansker.... ke5ftf "at" mail dot com may have what you need...email him.

   If it comes down to it...you now have a top notch receiver.

   Sorry.............

73 Joe
WB7UQU

On Saturday, November 23, 2013 12:54 PM, kk6ezq <kk6ezq@...> wrote:

>Dear Group,
>
>My rig was arcing in the final cage area when I tuned to frequencies higher than the 40 meter band. It seemed to be coming from the wafer switches in the final cage. I disassembled the final cage enough that I can access the wafer switches for inspection. There has been extensive arcing and carbon trails, some of the phenolic is missing.
>
>I am not sure what my options are for repair going forward. I love the radio, its great sound quality, and the fact it is my first HF tranceiver. I have invested time in replacing all tubes, new final caps, drive resistors and brass bandswitch couplers.
>
>I am sure those of you with experience with these parts appreciates the workmanship and alignment challenges that the assemblers had. Any suggestions on what to do about replacing the wafers, or other options would be appreciated.
>
>Steve
>KK6EZQ
>
>
>
>
>

46039. RE: SM 220 BS8 wont pan.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 08:42:15 UTC
From: <pmarkavage@...>
Topic: 46035 Message: 46039

The IF output on the back of the TS930 is not there for a BS-8 panadapter connection. That IF output is after the IF amplifiers and is used to view the audio spectrum of the signals. That IF output of the TS-930 is designed to connect to the front panel vertical input of the SM-220. Page 28 of the TS-930 operating manual. states that the SM-220 cannot be used as a band scope. Panadapters are connected after the 1st mixer and before the 1st IF. The 1st mixer/1st IF of the TS-930 is roughly 44 MHz. The BS-8 was designed for a 8.83 MHz input. The 2nd conversion stage of the TS-930 is 8.83 MHz and you can try to make a connection there but I'm not sure how accurate it would be then as a band scope. Worse case, it just makes pretty eye candy when you're receiving.

Pete, wa2cwa
http://www.manualman.com http://www.manualman.com

---In TS-520_820_530_830@yahoogroups.com, <ne2i@...> wrote:

Hi folks I have a sm 220 that when I tried to use as a pan adapter and it seems like the signal moves through the horizontal on the scope. I cant see the 20 or 100 slice of the band. The signal seems to bring the trace vertical all the way across the screen. I should do a video to show this action.
This is occurring on my 820 and my 930....

George NE2I

46040. Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 12:10:34 UTC
From: <adrian@...>
Topic: 46040 Message: 46040

My TS520SE is aligned nicely on all the amateur bands, showing around S8 on the internal calibrator signal.

Even when conditions allow, I can't hear any WWV time signal! If I turn on marker signal for that position on bandswitch I can hear the marker (much quieter than on other bands) but the S-meter doesn't shift!

Today I put on bench to investigate, using proper signal generator. With a 300uV input on 15.000 MHz I saw S4.5 on meter, having peaked T4/T5 then T3 on the RF board.

If I put same strength signal in at 14MHz I see S9+10dB! I'm losing a lot of gain somewhere on WWV.

Looking at circuit/block diagram Q4 on RF board is WWV RF amp. I suppose this is a suspect but problem is it's soldered into board, whereas some other transistors are in convenient sockets. It looks like a nightmare to remove RF board given the drive variable capacitors are attached to it and the plate and load shafts run above it. Also many wire wrap connections to board which I'm reluctant to risk stressing by moving the board.

Please can anyone help with suggestions for troubleshooting the WWV problem, and also with any guidance on removing the RF board if that becomes necessary? Though to be honest I would happily live without WWV rather than risk damaging connections to RF board, but it's just that everything else on the 520SE is working beautifully so would be nice to restore to complete working condition.

Thanks for advice.

Adrian G4IQW

46041. RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 12:31:23 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46041

Go to JAS terminal and measure the votage there and make sure you have 14vdc in WWV position. Should be -6vdc on other bands. This voltage is used to bias on and off switching diodes to switch the signal path from Ant input.

Also make sure you have 14vdc at J14 terminal as it supplies the Drain and Collector voltages for the WWV Amp, Mixer, and Het Osc.

If voltages missing or low try cleaning bandswitch decks S5-6 and S5-7.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

My TS520SE is aligned nicely on all the amateur bands, showing around S8 on the internal calibrator signal.

Even when conditions allow, I can't hear any WWV time signal! If I turn on marker signal for that position on bandswitch I can hear the marker (much quieter than on other bands) but the S-meter doesn't shift!

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Thanks for advice.

Adrian G4IQW

46042. RE: TS-820S Final Cage Repair

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 14:38:09 UTC
From: <ke5ftf@...>
Topic: 46032 Message: 46042

I should have a 820 final PA switch in good condition, sell them for $22.00 plus $3.00 to mail in USA...
Also the complete PA cage unit with the Switch & Final Choke for $50.00 plus $12.00 to mail Flat Rate...
I cut the grounding lugs on the bottom of PA so you can slide the old out & new one in with not much effort...
You can PM me off the group at ... keFIVEftf "at" mail.com
Bob

---In TS-520_820_530_830@yahoogroups.com, <kk6ezq@...> wrote:

Dear Group,

My rig was arcing in the final cage area when I tuned to frequencies higher than the 40 meter band. It seemed to be coming from the wafer switches in the final cage. I disassembled the final cage enough that I can access the wafer switches for inspection. There has been extensive arcing and carbon trails, some of the phenolic is missing.

I am not sure what my options are for repair going forward. I love the radio, its great sound quality, and the fact it is my first HF tranceiver. I have invested time in replacing all tubes, new final caps, drive resistors and brass bandswitch couplers.

I am sure those of you with experience with these parts appreciates the workmanship and alignment challenges that the assemblers had. Any suggestions on what to do about replacing the wafers, or other options would be appreciated.

Steve
KK6EZQ

46043. RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 15:01:48 UTC
From: <adrian@...>
Topic: 46040 Message: 46043

Thanks very much Terry the voltages do check out low. In WWV position voltage at JAS and J14 measured +12.3V but then dropped after a couple of minutes to 11.7V At JAS all other bands stable supply -5.9V Will try cleaning those wafers as I'm sure I had WWV copying time sigs in the past. 73 Adrian G4IQW

46044. RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 16:08:48 UTC
From: <adrian@...>
Topic: 46040 Message: 46044

Have just tried cleaning switch decks with shots of Servisol Super 10 (I'm assuming decks S5-6 and S5-7 live at end of shaft under metal cover?) Still getting low volts JAS. was 12.3V initially but now reading 11.9 after declining slowly for about 2 mins after powering up. Does the decline from initial value give any clue to problem? On other bands it's steady -5.95V

46045. RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 16:31:11 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46045

Adrian

I dont have a TS520S or SE here at the moment to take any vdc measurements so can only go by values noted on schematic. I would think that if you have approx 12vdc on J14 and JAS with band switch at 15mhz then should have good WWV copy.

Curious what is the 14vdc level at the AVR board? If you have good 14vdc there then jumper it to J14 wire wrap terminal post and see if gain comes up.

In my experience seldom have failures of active devices. It can happen but I would not reach for replacing mosfets or transistors at this point. .

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

Have just tried cleaning switch decks with shots of Servisol Super 10 (I'm assuming decks S5-6 and S5-7 live at end of shaft under metal cover?) Still getting low volts JAS. was 12.3V initially but now reading 11.9 after declining slowly for about 2 mins after powering up. Does the decline from initial value give any clue to problem? On other bands it's steady -5.95V

46046. RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 17:28:42 UTC
From: <adrian@...>
Topic: 46040 Message: 46046

Good plan thanks Terry. I will see what is voltage at AVR and patch it to JAS if necessary to test. Clearly all is fine with rest of IF amp fed by band signals or WWV, so if there is a problem I can only think it's with the WWV rf amp ior the WWV mixer. But my experience like yours that active devices rarely fail unless talking final stages or psu regulators. Will keep investigating and thanks very much for your help. 73 Adrian G4IQW

46047. RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 17:47:13 UTC
From: <adrian@...>
Topic: 46040 Message: 46047

Hi Terry I'm getting that lowish voltage at the 14 pin on AVR board too. Reading 11.25V as I type, but 11.75V at the JAS pin. Seems strange! 73 Adrian G4IQW

46048. RE: RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 19:15:21 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46048

Go see what you have for input and output voltages at the 14vdc Pi filter (C-L-C).

At input C22 would expect it to be in excess of 15vdc and perhaps around 14.5vdc at the output C21. Could have tired filter caps.

However you report normal receiver performance on all bands other than WWV.

What do you have at AVR board for regulated 9vdc level?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

Hi Terry I'm getting that lowish voltage at the 14 pin on AVR board too. Reading 11.25V as I type, but 11.75V at the JAS pin. Seems strange! 73 Adrian G4IQW

46049. Kenwood Net Update (November 24, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 19:15:20 UTC
From: Mark Gilger
Topic: 46049 Message: 46049

Jimmy, WB2KNR ran the Saturday net. He had 25 check-in with poorband conditions. There were 2 new check ins, KD8PFN, and W8NIC. We had the following number of radios checking in.

6 running TS-520(x)
2 running TS-530(x)
4 running TS-820(x)
4 running TS-830S

Jimmy was running my TS-520.

The Sunday□s 20 meter net had 16 stations checking in under good band conditions. We had 6 stations checking in from California. There were 5 new stations checking in, N6PMG, AE2U/6, W6WTJ, K6PPP, and N6VIA.

Out of those, there was:

2 running TS-520(x)
0 running TS-530(x)
1 running TS-820(x)
2 running TS-830S

The rest were running non hybrid equipment. I was running my TS-820s/R820.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940□s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54
October 2013, Saturday☐s net total = 61, Sunday☐s total = 55
November 2013, Saturday☐s net total = 76, Sunday☐s total = 68 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

46050. I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 20:25:13 UTC
From: <jweigh@...>
Topic: 46050 Message: 46050

I have a TS830S and was reading different tuning procedures. I think I'm good with tuning up okay but found this statement for checking the 12BY7A. I don't understand what is meant by "the driver tuning control" (what's this??) as compared to " the drive level control (potentiometer)" <---((this one I'm okay with)).
Any light you could shed would be greatly appreciated.

When in TUNE, you peak the driver tuning control (which is grid tuning on xmit, and receiver preselect peaking on receive) for a peak in ALC reading, and then you can adjust the drive up and down with the drive level control (potentiometer), which only works on TUNE and CW and does nothing in the SSB mode. When in TUNE and after the driver stage tuning is peaked, see if you can turn the drive level control up so high that the ALC meter "pegs" (goes offscale to the right). If so, the 12BY7 is probably okay.
Thanks, Jerry K4GEW

46051. Re: [TS-520_820_530_830] I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 21:31:25 UTC
From: Mike
Topic: 46050 Message: 46051

The "Driver tuning control" is the same as the "DRIVE" control in the upper right corner of the front panel.

The "drive level control" you are referring to is the "CAR" control.

After completing peaking the ALC meter indication in TUNE mode with the DRIVE control, wait a few extra seconds before unkeying the transmitter. Watch the ALC meter and if the ALC meter indication starts to fall back towards zero, that indicates a weak driver tube. This is assuming there are no other problems with your KW hybrid.

The above simple driver tube test should be conducted after the KW hybrid has warmed up for 10 minutes and the test should be conducted on 10 meters which is the band a weak driver tube will show up quicker than on the lower bands. Also, I recommend the test be conducted with a 50 ohm dummy load connected to the KW hybrid. I recommend all hams tune their transmitters into a 50 ohm dummy load before switching to their antenna. If you don't have a 50 ohm dummy load, I highly recommend you buy one. MFJ sells a couple of 50 ohm dry dummy load:

MFJ-260C - $39.95 - 300 watts
MFJ-264 - $74.95 - 1.5KW

What ever dummy load you purchase or use, ensure you adhere to all the maximum ratings. Failure to do this can result in damaging your dummy load.

73
Mike W5RKL

On 11/24/2013 2:25 PM, jweigh@... wrote:
>
> I have a TS830S and was reading different tuning procedures. I think
> I'm good with tuning up okay but found this statement for checking the
> 12BY7A. I don't understand what is meant by "the driver tuning
> control" (what's this??) as compared to " the drive level control
> (potentiometer)" <---((this one I'm okay with)).
> Any light you could shed would be greatly appreciated.
>
> When in TUNE, you peak the driver tuning control (which is grid tuning
> on xmit, and receiver preselect peaking on receive) for a peak in ALC
> reading, and then you can adjust the drive up and down with the drive
> level control (potentiometer), which only works on TUNE and CW and
> does nothing in the SSB mode. When in TUNE and after the driver stage
> tuning is peaked, see if you can turn the drive level control up so
> high that the ALC meter "pegs" (goes offscale to the right). If so,
> the 12BY7 is probably okay.
> Thanks, Jerry K4GEW

>
>

46052. Kenwood TS-520 to Ameritron 811h connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 21:15:11 UTC
From: <texasjammer_1967@...>
Topic: 46052 Message: 46052

I am getting the 811H amplifier shortly and I am looking to use it with my 520. This is going to be my first amplifier. Looking at the manual it appears I can hook this amplifier directly to the radio using the remote plug on the rear of the rig using pins 3 or 5 to ground, depending on NC or NO contacts connected to the amplifier with an RCA plug, and a coax jumper. Am I correct in this or am I missing something. Thanks

John
WL7OU

46053. Re: [TS-520_820_530_830] Kenwood TS-520 to Ameritron 811h connections

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:01:12 UTC
From: Mike
Topic: 46052 Message: 46053

John,

You can use simple stereo interconnecting cables (RCA plugs on both ends). I divide the cable in half. Each section will have an RCA plug. The RELAY cable's cut end, strip the outer covering exposing the shield and center wire. The amp's RELAY cable's center conductor connects to the 520's REMOTE socket pin 5 (N.O.) and the shield to pin 1 or 4 (ground). The amp's ALC cable center wire connects to the 520's REMOTE socket pin 6 and shield to pin 1 or 4. Other than a short length of coax cable between the 520 and the amp, there's no other connections required.

Also, read the AL-811H operator's manual THOROUGHLY, paying close attention to the discussion concerning setting the LOAD control and GRID current meter indications.

73
Mike W5RKL

On 11/24/2013 3:15 PM, texasjammer_1967@... wrote:
>
> I am getting the 811H amplifier shortly and I am looking to use it
> with my 520. This is going to be my first amplifier. Looking at the
> manual it appears I can hook this amplifier directly to the radio
> using the remote plug on the rear of the rig using pins 3 or 5 to
> ground, depending on NC or NO contacts connected to the amplifier with
> an RCA plug, and a coax jumper. Am I correct in this or am I missing
> something. Thanks
>
> John
> WL7OU
>
>

46054. RE: RE: RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:10:46 UTC
From: <adrian@...>
Topic: 46040 Message: 46054

Terry I forgot to add that back on the AVR board I get 8.98V on the regulated 9V pin 73
Adrian G4IQW

46055. RE: RE: RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:15:31 UTC
From: <adrian@...>
Topic: 46040 Message: 46055

Hi Terry, Is this the filter connected to the +13.8V supply on the rear panel on TS520 (power for DG5 display if fitted)? I get 13.80V at C22, and 11.80V at C21 on the other side of the big choke. As TS520SE has rear panel connector for 13.8V the voltage seems correct on one side of choke at least. Do these measurements get any closer to diagnosing problem? 73 de Adrian G4IQW I can see C21, C22 on circuit diagram of rectifier unit, and the values match the big electrolytics which on TS520SE are right in the corner of chassis. The

46056. Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:25:23 UTC
From: Tom Bryan
Topic: 46056 Message: 46056

Good afternoon fellow hybrid lovers:

I have a TS-820 that is deaf with the exception of a low amplitude hiss from the speaker. Years ago, in other radios,

I remember that in order to receive, one had to have a microphone connected to complete a electrical path. I don't

have a mic for it yet

Before I dive in any further, I am wondering if this is the case for this radio. Does a microphone need to be connected

to the TS-820 to receive audio from the speaker?

Many thanks in advance for sharing your knowledge.

Tom

KC9JF

[Non-text portions of this message have been removed]

46057. RE: Re: [TS-520_820_530_830] I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:09:11 UTC
From: <jweigh@...>
Topic: 46050 Message: 46057

Mike, Thank you. It would be nice if everyone could use the names on the front panel.

I do understand most of the folks who have been around these radios awhile understand all the possible terms for things but when someone with a short time with them and the fear of god put into them about damaging the tubes gets 2-3 different terms for the same thing it can become intimidating. I'd like to hope the old timers wouldn't be put off by using the simpler language. It would be greatly appreciated.
Thanks again, Jerry K4GEW

---In TS-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

The "Driver tuning control" is the same as the "DRIVE" control in the upper right corner of the front panel.

The "drive level control" you are referring to is the "CAR" control.

After completing peaking the ALC meter indication in TUNE mode with the DRIVE control, wait a few extra seconds before unkeying the transmitter. Watch the ALC meter and if the ALC meter indication starts to fall back towards zero, that indicates a weak driver tube. This is assuming there are no other problems with your KW hybrid.

The above simple driver tube test should be conducted after the KW hybrid has warmed up for 10 minutes and the test should be conducted on 10 meters which is the band a weak driver tube will show up quicker than on the lower bands. Also, I recommend the test be conducted with a 50 ohm dummy load connected to the KW hybrid. I recommend all hams tune their transmitters into a 50 ohm dummy load before switching to their antenna. If you don't have a 50 ohm dummy load, I highly recommend you buy one. MFJ sells a couple of 50 ohm dry dummy load:

MFJ-260C - $39.95 - 300 watts
MFJ-264 - $74.95 - 1.5KW

What ever dummy load you purchase or use, ensure you adhere to all the maximum ratings. Failure to do this can result in damaging your dummy load.

73
Mike W5RKL

On 11/24/2013 2:25 PM, jweigh@... mailto:jweigh@... wrote:

I have a TS830S and was reading different tuning procedures. I think I'm good with tuning up okay but found this statement for checking the 12BY7A. I don't understand what is meant by "the driver tuning control" (what's this??) as compared to " the drive level control (potentiometer)" <---((this one I'm okay with)).
Any light you could shed would be greatly appreciated.

When in TUNE, you peak the driver tuning control (which is grid tuning on xmit, and receiver preselect peaking on receive) for a peak in ALC reading, and then you can adjust the drive up and down with the drive level control (potentiometer), which only works on TUNE and CW and does nothing in the SSB mode. When in TUNE and after the driver stage tuning is peaked, see if you can turn the drive level control up so high that the ALC meter "pegs" (goes offscale to the right). If so, the 12BY7 is probably okay.
Thanks, Jerry K4GEW

46058. Re: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:37:32 UTC
From: Joe - W7RKN
Topic: 46056 Message: 46058

Are you getting any readings from the meter? I suspect the problem is the shorting plug in back..is it there? It has to be and if it is there, is it inserted correctly? I have plugs made and then plugged in wrong...OOPS! No radio!

Joe - W7RKN
----- Original Message -----
From: "Tom Bryan" <kc9jzf@...>
Subject: [TS-520_820_530_830] Quick question

> I have a TS-820 that is deaf with the exception of a low amplitude hiss
> from
> the speaker. Years ago, in other radios,
>
> I remember that in order to receive, one had to have a microphone
> connected
> to complete a electrical path. I don't
>
> have a mic for it yet

46059. Re: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:39:16 UTC
From: Mike
Topic: 46056 Message: 46059

Tom,

The TS-820 does not require a microphone connected to hear receive in
the speaker. Who ever said you have to have a microphone connected to
the TS-820 to hear receive audio, obviously had no clue what they were
talking about. There are some 11 meter transceivers that require a
microphone, a couple I can think of off the top of my head are the
Johnson Messenger I and II as well as the Johnson Messenger 223 series
transceivers. However, you can be assured that none of the KW hybrids,
TS-520, TS-530, TS-820, and TS-830 transceivers do not require a
microphone connected to hear receive audio.

73
Mike W5RKL

On 11/24/2013 4:25 PM, Tom Bryan wrote:
>
>
>
> Good afternoon fellow hybrid lovers:
>
> I have a TS-820 that is deaf with the exception of a low amplitude
> hiss from
> the speaker. Years ago, in other radios,
>
> I remember that in order to receive, one had to have a microphone
> connected
> to complete a electrical path. I don't
>
> have a mic for it yet
>
> Before I dive in any further, I am wondering if this is the case for this
> radio. Does a microphone need to be connected
>
> to the TS-820 to receive audio from the speaker?
>
> Many thanks in advance for sharing your knowledge.
>
> Tom
>
> KC9JF
>
> [Non-text portions of this message have been removed]
>
>

46060. Re: Re: [TS-520_820_530_830] I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:41:06 UTC
From: Joe - W7RKN
Topic: 46050 Message: 46060

Ah Jeeze...What's wrong with calling the whatcha-ma-call it, a do-hicky-ma-thicky? makes sense to me!!

<<GRIN>>

Joe - W7RKN
----- Original Message -----
From: jweigh@...
Subject: RE: Re: [TS-520_820_530_830] I need some clarification of term and controls

Mike, Thank you. It would be nice if everyone could use the names on the front panel.

46061. RE: RE: RE: RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 22:50:06 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46061

Adrian:

It sounds like you are in the correct place. Only one C-L-C filter that I am aware of.

As I said dont have a 520S here to take measurements for comparison. Voltages seem low to me, but probably not enough to affect your WWV Amp, Het Osc, or Mixer performance.

If had rig here I would apply 14vdc to J14 terminal using my dc bench supply to see if it makes any improvement from 12vdc that you report. Also with 12 vdc applied to JAS the switching diodes should be shunting the RF signal from Ant terminal. Unless have bad D11 or bad D12. Not sure if you can place a jumper from ANT terminal to anode of D11 or not?

Have you tried running transformers T5 and T4 completely thru their ranges to make sure you have them peaked? Also when they are peaked then need to reduce sig gen level and adjust T3 for max on the S-meter.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

Hi Terry, Is this the filter connected to the +13.8V supply on the rear panel on TS520 (power for DG5 display if fitted)? I get 13.80V at C22, and 11.80V at C21 on the other side of the big choke. As TS520SE has rear panel connector for 13.8V the voltage seems correct on one side of choke at least. Do these measurements get any closer to diagnosing problem? 73 de Adrian G4IQW I can see C21, C22 on circuit diagram of rectifier unit, and the values match the big electrolytics which on TS520SE are right in the corner of chassis. The

46062. RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 23:01:30 UTC
From: Tom Bryan
Topic: 46056 Message: 46062

Thanks for your reply. I recently purchased this from an SK's estate. The radio is new to me.

The S meter shows full deflection. I have tried turning the AGC off without success.

There is a shorting plug in the back and it only appears to have 2 pins connected together.

I will have to do some research to see if that is correct.

I'm am just trying a few things before I remove the covers.

Thanks!

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Are you getting any readings from the meter? I suspect the problem is the shorting plug in back..is it there? It has to be and if it is there, is it inserted correctly? I have plugs made and then plugged in wrong...OOPS! No radio!

Joe - W7RKN
----- Original Message -----
From: "Tom Bryan" <kc9jzf@...>
Subject: [TS-520_820_530_830] Quick question

> I have a TS-820 that is deaf with the exception of a low amplitude hiss
> from
> the speaker. Years ago, in other radios,
>
> I remember that in order to receive, one had to have a microphone
> connected
> to complete a electrical path. I don't
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> have a mic for it yet

46063. Re: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 23:25:02 UTC
From: Joseph Stiles
Topic: 46056 Message: 46063

Tom,

If your rig has the "shorting plug" and has only 2 pins, #'s 8 & 9 "connected together," that is correct.

Look in the "operators manual." It shows you the info you need.

Make sure that the RF GAIN control is turned FULL RIGHT...or full clockwise to start.

Also make sure that the "cal" function is not turned on.

Since you do not know the whole history of this rig...the "golden screwdriver" may have been used.

Suggest you review the "operators manual" and take a look at the "service manual" also. Setting the zero or resting position of the "S" meter is not hard...but the S-9 setting requires
input from a signal generator...but at times can be "fudged" at bit after a basic IF/RF alignment...which is covered in your "operators manual."

73 Joe
WB7UQU

On Sunday, November 24, 2013 3:05 PM, Tom Bryan <kc9jzf@comcast.net> wrote:

>Thanks for your reply. I recently purchased this from an SK’s estate. The radio is new to me.
>
>The S meter shows full deflection. I have tried turning the AGC off without success.
>There is a shorting plug in the back and it only appears to have 2 pins connected together.
>I will have to do some research to see if that is correct.
>I’m am just trying a few things before I remove the covers.
>
>Thanks!
>
>
>Tom
>KC9JZF
>
>From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
>Sent: Sunday, November 24, 2013 4:38 PM
>To: TS-520_820_530_830@yahoogroups.com
>Subject: Re: [TS-520_820_530_830] Quick question
>
>

>Are you getting any readings from the meter? I suspect the problem is the
>shorting plug in back..is it there? It has to be and if it is there, is it
>inserted correctly? I have plugs made and then plugged in wrong...OOPS! No
>radio!
>
>Joe - W7RKN
>----- Original Message -----
>From: "Tom Bryan" <kc9jzf@...>
>Subject: [TS-520_820_530_830] Quick question
>
>> I have a TS-820 that is deaf with the exception of a low amplitude hiss
>> from
>> the speaker. Years ago, in other radios,
>>
>> I remember that in order to receive, one had to have a microphone
>> connected
>> to complete a electrical path. I don't
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>> have a mic for it yet
>
>
>

46064. RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 23:48:38 UTC
From: Tom Bryan
Topic: 46056 Message: 46064

I took a peek at the shorting plug and pins 4 and 5 are connected. In addition, another cable came with the rig that has an identical connector to the shorting plug

on one end with 2 cables coming from it. Each cable is terminated on the other end with an RCA (phono) plug. At the RCA end, the cables are labeled ”RELAY T”

on one of them and “ALC B” on the other. At the Amphenol end , the center conductors of the 2 cables are connected to pins 5 and 6 with the shields

connected and tied to pin 4. I’m wondering if this was to connect the rig to a linear amp?

Thanks!

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
Sent: Sunday, November 24, 2013 5:25 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Tom,

If your rig has the "shorting plug" and has only 2 pins, #'s 8 & 9 "connected together," that is correct.

Look in the "operators manual." It shows you the info you need.

Make sure that the RF GAIN control is turned FULL RIGHT...or full clockwise to start.

Also make sure that the "cal" function is not turned on.

Since you do not know the whole history of this rig...the "golden screwdriver" may have been used.

Suggest you review the "operators manual" and take a look at the "service manual" also. Setting the zero or resting position of the "S" meter is not hard...but the S-9 setting requires
input from a signal generator...but at times can be "fudged" at bit after a basic IF/RF alignment...which is covered in your "operators manual."

73 Joe
WB7UQU

On Sunday, November 24, 2013 3:05 PM, Tom Bryan <kc9jzf@...> wrote:

Thanks for your reply. I recently purchased this from an SK’s estate. The radio is new to me.

The S meter shows full deflection. I have tried turning the AGC off without success.

There is a shorting plug in the back and it only appears to have 2 pins connected together.

I will have to do some research to see if that is correct.

I’m am just trying a few things before I remove the covers.

Thanks!

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Are you getting any readings from the meter? I suspect the problem is the shorting plug in back..is it there? It has to be and if it is there, is it inserted correctly? I have plugs made and then plugged in wrong...OOPS! No radio!

Joe - W7RKN
----- Original Message -----
From: "Tom Bryan" <kc9jzf@...>
Subject: [TS-520_820_530_830] Quick question

> I have a TS-820 that is deaf with the exception of a low amplitude hiss
> from
> the speaker. Years ago, in other radios,
>
> I remember that in order to receive, one had to have a microphone
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> to complete a electrical path. I don't
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46065. RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-24 23:54:26 UTC
From: Tom Bryan
Topic: 46056 Message: 46065

Joe: Thanks for your help.

I found the manual. You were talking about the VFO connector. I have the external VFO plugged in there and it works fine. I was describing

the REMOTE plug. Sorry for the confusion.

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
Sent: Sunday, November 24, 2013 5:25 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Tom,

If your rig has the "shorting plug" and has only 2 pins, #'s 8 & 9 "connected together," that is correct.

Look in the "operators manual." It shows you the info you need.

Make sure that the RF GAIN control is turned FULL RIGHT...or full clockwise to start.

Also make sure that the "cal" function is not turned on.

Since you do not know the whole history of this rig...the "golden screwdriver" may have been used.

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input from a signal generator...but at times can be "fudged" at bit after a basic IF/RF alignment...which is covered in your "operators manual."

73 Joe
WB7UQU

On Sunday, November 24, 2013 3:05 PM, Tom Bryan <kc9jzf@...> wrote:

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Thanks!

Tom

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Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

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Joe - W7RKN
----- Original Message -----
From: "Tom Bryan" <kc9jzf@...>
Subject: [TS-520_820_530_830] Quick question

> I have a TS-820 that is deaf with the exception of a low amplitude hiss
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46066. RE: RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 01:51:47 UTC
From: <glene77is@...>
Topic: 46056 Message: 46066

Tom
KC9JZF
I have a Knwd 830S.
Have you tried turning your RF gain all the way up ?
When mine is down, the S-meter goes way up.

Glen Ellis, KK4LPG

---In TS-520_820_530_830@yahoogroups.com, <kc9jzf@...> wrote:

Thanks for your reply. I recently purchased this from an SK’s estate. The radio is new to me.

The S meter shows full deflection. I have tried turning the AGC off without success.
There is a shorting plug in the back and it only appears to have 2 pins connected together.
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KC9JZF

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Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

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shorting plug in back..is it there? It has to be and if it is there, is it
inserted correctly? I have plugs made and then plugged in wrong...OOPS! No
radio!

Joe - W7RKN

----- Original Message -----
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Subject: [TS-520_820_530_830] Quick question

> I have a TS-820 that is deaf with the exception of a low amplitude hiss
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> I remember that in order to receive, one had to have a microphone
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> to complete a electrical path. I don't
>

> have a mic for it yet

46067. Re: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 04:59:11 UTC
From: Joseph Stiles
Topic: 46056 Message: 46067

Tom,

  Ok...no problem. The "remote socket" is indeed used for linear amplifier control. There is no need to have anything plugged into this unless it's being used to operated an amplifier.

I understand you got the rig from a now SK. How long had it sat around without being used? These rigs don't like to sit around and not be used. Various controls, pins, sockets...etc. will
get corrosion and other "junk" on them. Many times, a good cleaning of ALL pins, sockets, controls..etc is a good first step. As others here may attest also...many problems have been
"fixed" by a good cleaning of the above stated items. I use DEOXIT D5...available at Radio Shack.(arrg)...any good electronic supply house, some times it can be found at a good music store...one that sells guitar amp..especially, or mail order....canned air or "air duster" can be found a computer stores, office supply stores...and Walmart.

Have you double checked position of ALL controls...especially the RF gain? That's a common "whooops."

If you do decide to clean all the "stuff"...TAKE NOTES/PICTURES or draw diagram of what plug you removed from where or what...especially the IF board! Use a "sharpie" to label connectors works too.

  Good luck...keep us posted

73 Joe
WB7UQU

On Sunday, November 24, 2013 8:36 PM, Tom Bryan <kc9jzf@comcast.net> wrote:

>Joe: Thanks for your help.
>
>I found the manual. You were talking about the VFO connector. I have the external VFO plugged in there and it works fine. I was describing
>the REMOTE plug. Sorry for the confusion.
>
>
>Tom
>KC9JZF
>
>From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
>Sent: Sunday, November 24, 2013 5:25 PM
>To: TS-520_820_530_830@yahoogroups.com
>Subject: Re: [TS-520_820_530_830] Quick question
>

>
>Tom,
>
> If your rig has the "shorting plug" and has only 2 pins, #'s 8 & 9 "connected together," that is correct.
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> Look in the "operators manual." It shows you the info you need.
>
> Make sure that the RF GAIN control is turned FULL RIGHT...or full clockwise to start.
>
> Also make sure that the "cal" function is not turned on.
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> Since you do not know the whole history of this rig...the "golden screwdriver" may have been used.
>
>   Suggest you review the "operators manual" and take a look at the "service manual" also.
>Setting the zero or resting position of the "S" meter is not hard...but the S-9 setting requires
>input from a signal generator...but at times can be "fudged" at bit after a basic IF/RF alignment...which is covered in your "operators manual."
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>>The S meter shows full deflection. I have tried turning the AGC off without success.
>>There is a shorting plug in the back and it only appears to have 2 pins connected together.
>>I will have to do some research to see if that is correct.
>>I’m am just trying a few things before I remove the covers.
>>
>>Thanks!
>>
>>
>>Tom
>>KC9JZF
>>
>>From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
>>Sent: Sunday, November 24, 2013 4:38 PM
>>To: TS-520_820_530_830@yahoogroups.com
>>Subject: Re: [TS-520_820_530_830] Quick question
>>
>>
>>Are you getting any readings from the meter? I suspect the problem is the

>>shorting plug in back..is it there? It has to be and if it is there, is it
>>inserted correctly? I have plugs made and then plugged in wrong...OOPS! No
>>radio!
>>
>>Joe - W7RKN
>>----- Original Message -----
>>From: "Tom Bryan" <kc9jzf@comcast.net>
>>Subject: [TS-520_820_530_830] Quick question
>>
>>> I have a TS-820 that is deaf with the exception of a low amplitude hiss
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>>> I remember that in order to receive, one had to have a microphone
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>
>
>

46068. RE: RE: RE: RE: RE: RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 08:52:39 UTC
From: <adrian@...>
Topic: 46040 Message: 46068

Hi Terry

Thanks for new ideas to try!

To my shame I don't have variable bench psu. But I did check T4/T5 again adjusting cores through dull range. They were correctly peaked. I had also maxed T3 s-meter reading.

I did manage to get jumper from D11 anode to the antenna input but made no difference, at least on marker signal. I had put away sig gen for now so if the marker is injected at antenna should be same as input at antenna terminal.

I haven't tested D11 or D12 yet. To do so I may have to snip one lead then resolder.

73 Adrian G4IQW

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Adrian:

It sounds like you are in the correct place. Only one C-L-C filter that I am aware of.

As I said dont have a 520S here to take measurements for comparison. Voltages seem low to me, but probably not enough to affect your WWV Amp, Het Osc, or Mixer performance.

If had rig here I would apply 14vdc to J14 terminal using my dc bench supply to see if it makes any improvement from 12vdc that you report. Also with 12 vdc applied to JAS the switching diodes should be shunting the RF signal from Ant terminal. Unless have bad D11 or bad D12. Not sure if you can place a jumper from ANT terminal to anode of D11 or not?

Have you tried running transformers T5 and T4 completely thru their ranges to make sure you have them peaked? Also when they are peaked then need to reduce sig gen level and adjust T3 for max on the S-meter.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

Hi Terry, Is this the filter connected to the +13.8V supply on the rear panel on TS520 (power for DG5 display if fitted)? I get 13.80V at C22, and 11.80V at C21 on the other side of the big choke. As TS520SE has rear panel connector for 13.8V the voltage seems correct on one side of choke at least. Do these measurements get any closer to diagnosing problem? 73 de Adrian G4IQW I can see C21, C22 on circuit diagram of rectifier unit, and the values match the big electrolytics which on TS520SE are right in the corner of chassis. The

46069. RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 10:26:37 UTC
From: <adrian@...>
Topic: 46040 Message: 46069

Could be getting somewhere! I've just tested D11 and D12 using diode tester as well as just resistance range. Tested them both in circuit but still both showed open circuit! Both appear blown. So am I correct in thinking that means WWV signal not getting through to the transformer of WWV rf amp? What is the actual function of diode switch - why can't WWV just be switched to Q5 via the band switch? At what point. Is marker injected (marker signal didn't change when I jumped antenna to D11 anode)? Feel am near a fix in this thanks to your help Terry. 73 de Adrian G4IQW

46070. Re: Re: [TS-520_820_530_830] I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 11:00:21 UTC
From: Gordon JC Pearce
Topic: 46050 Message: 46070

On Sun, Nov 24, 2013 at 02:09:11PM -0800, jweigh@... wrote:
> Mike, Thank you. It would be nice if everyone could use the names on the front panel.
>
> I do understand most of the folks who have been around these radios awhile understand all the possible terms for things but when someone with a short time with them and the fear of god put into them about damaging the tubes gets 2-3 different terms for the same thing it can become intimidating. I'd like to hope the old timers wouldn't be put off by using the simpler language. It would be greatly appreciated.
> Thanks again, Jerry K4GEW

These old tanks are pretty tough, and if the radio is basically healthy and you're tuning up into a dummy load (ie. no reflected power) and only using short bursts of trasmit, it's hard to get it wrong.

I wanted to test the transmit frequency stability of my TS-520 so I ran it into a chunky great 250W Rohde and Schwarz dummy load (looks like an old-fashioned heating radiator, only a little smaller than the 520) for a good ten minutes. At 80W output the output valves were just about warm. I did have my hand on the SEND switch ready to chop the power in the event of any distress, but I needn't have worried. I don't recommend you try this, unless you know everything in the PA cage is utterly beyond reproach.

Just keep your hand on the SEND switch, check your dummy load isn't trying to melt its way to China, and don't do anything silly.

Oh, and the DRIVE control also functions as the RX preselector tuning, so if you tune on receive for the strongest signal (or most noise) you'll be about the right place for peaking the DRIVE control on transmit.

--
Gordonjcp MM0YEQ

46071. RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 12:13:32 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46071

Adrian:

Assuming you are jumpering from Ant to anode of D11 properly with no improvement then it doesnt matter if the diodes are open or not. You should be shunting the 15mhz signal to T5 step-up transformer thru coupling cap C40.

What the jumper test tells you is that the problem is beyond the diode switches.

It is usually not possible to perform forward/reverse diode testing in circuit without lifting either the cathode or anode end of a diode.

If you can access anode of D11 then easy to inject 15mhz there from RF sig gen and see if it works. If not then inject at Drain of Q5 and so on down the signal path. Use a .01uf coupling cap in hot lead of sig gen.

You essentially have two front ends for this receiver.. One for the ham bands and one for 15mhz. Designers have two choices to switch the common antenna input to the two different front ends. One would be with mechanical bandswitch contacts as you suggest and the other would be to employ electronic switching using diodes and then switching the bias voltage to them. Using the diode method is easier and cheaper.

If you look at the original 520 you will see two front ends. Instead of using a common ANT it has two seperate Ant paths that are switched with a seperate switch not on the bandswitch decks. It also uses another switch to bias on diodes to select the output from each front end to feed the 8.830 RIF to the IF chain..

So one way or another you have to switch the off air input signals from one front end to the other and then switch the outputs.

Look at the schematic and will see the Marker output in dashed line that is in parallel with the normal off air input to the RF board. Marker takes exact same path as ham band signal does.

By RF signal injection should find where losing the signal and then take dc voltages at Q5, Q4 and Q8 as need is indicated. Beyond this there is not much more that I can offer.

At this point we need to ask if there is a member with covers off TS-520S who can measure J14 and JAS and see if they have 12vdc and not 14vdc and if WWV receive works well at that lower supply voltage level.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

Could be getting somewhere! I've just tested D11 and D12 using diode tester as well as just resistance range. Tested them both in circuit but still both showed open circuit! Both appear blown. So am I correct in thinking that means WWV signal not getting through to the transformer of WWV rf amp? What is the actual function of diode switch - why can't WWV just

be switched to Q5 via the band switch? At what point. Is marker injected (marker signal didn't change when I jumped antenna to D11 anode)? Feel am near a fix in this thanks to your help Terry. 73 de Adrian G4IQW

46072. RE: Re: Re: [TS-520_820_530_830] I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 12:45:46 UTC
From: <wagstw46@...>
Topic: 46050 Message: 46072

Agree Tanks are pretty hardy as long as dont have long off resonance key down times. Even then they can handle the elevated plate current for some time. Just no reason to stress them needlessly.

Quickest way to have instant 6146 failure is to have thermal run-away from loss of operating bias. Dirty bias pot can cause this when attempting to set 60ma zero signal current. Some people deliberately test the finals by adjusting the bias voltage and run Ip up to 350ma. I do not recommend this. It is a needless static dc test that tells you nothing about how tube works with RF drive.

The Drive control position for Rx and Tx can be out of sync if coil pack alignment is not done correctly. I see this regularly.

There is no reason to stress the 6146 finals when testing the Driver stage. Just simply turn off the SG switch. Now in CW mode with 6146 heaters on you can peak the Drive control and increase the CAR level pot for full scale ALC indication. Leave rig keyed for a few seconds and if you can attain FSD and it does not slowly drift off you know Driver stage is good. There is no 6146 plate current using this method. I would rather stress the Driver tube than the Finals. A lot cheaper tube.

Do this test on all bands. Allow the Driver tube to rest 10 seconds or so between each band as it is running Class A at full plate current (approx 27ma) and will get pretty hot. I have never lost a Driver tube doing this test, but it is possible especially if the tube is marginal to begin with.

If you have a good Driver stage and good alignment you should attain FSD ALC indication with the Car Level pot advanced no more than 1200 (typically between 1000 and 1100) with exception of perhaps 10 meters on the earlier rigs.

I often get rigs here that require CAR level pot settings at 1300 to 1400 to get FSD indication on all bands. Easy to fix this.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <gordon@...> wrote:

On Sun, Nov 24, 2013 at 02:09:11PM -0800, jweigh@... mailto:jweigh@... wrote:
> Mike, Thank you. It would be nice if everyone could use the names on the front panel.
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> I do understand most of the folks who have been around these radios awhile understand all the possible terms for things but when someone with a short time with them and the fear of god put into them about damaging the tubes gets 2-3 different terms for the same thing it can become intimidating. I'd like to hope the old timers wouldn't be put off by using the simpler language. It would be greatly appreciated.
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Gordonjcp MM0YEQ

46073. RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 14:05:39 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46073

Adrian:

One more quick check. If possible you could try jumpering across output switching diode D6 at the Drain of Q4

Terry K9TW.

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Adrian:

Assuming you are jumpering from Ant to anode of D11 properly with no improvement then it doesnt matter if the diodes are open or not. You should be shunting the 15mhz signal to T5 step-up transformer thru coupling cap C40.

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You essentially have two front ends for this receiver.. One for the ham bands and one for 15mhz. Designers have two choices to switch the common antenna input to the two different front ends. One would be with mechanical bandswitch contacts as you suggest and the other would be to employ electronic switching using diodes and then switching the bias voltage to them. Using the diode method is easier and cheaper.

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46074. Re: [TS-520_820_530_830] RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 14:55:30 UTC
From: Wes Will
Topic: 46040 Message: 46074

On 11/25/2013 08:05 AM, wagstw46@... wrote:

> One more quick check. If possible you could try jumpering across output
> switching diode D6 at the Drain of Q4

Ah! Now I know why my head kept taking me back to that diode. I've been following this and chasing down the schematic as the discussion has been going on, for the practice.

(I do that with most of the problems with technical and troubleshooting solutions that come across this list. I'm NOT good at these radios, not yet, being much too far out of practice after twenty-five years of "throw the board away" type 'repairs' in the computer side of electronics. But I intend to get better.)

Shorting that diode will force Q4 to conduct, and if everything else is good (excepting that switching diode, which would more likely fail "OPEN" than "SHORT") the gain should jump up to normal.

Oh, and I opened my 520SE (in the middle of the bleedin' night; insomnia is good for something, but I don't recommend it for troubleshooting) and located the switch deck, the J14 / JAS point. THAT took a little while, but I did find it and verified that it was the correct point on the switch deck. I checked at the S5-6 and S5-7 points, to be sure there was no corrosion causing resistance on the wafers or anything, too.

ON the WWV setting (which is working - I get a good WWV signal when I put even a 2-meter whip on the antenna plug) the meter shows 13.5 VDC at both points. That's going to be plus or minus 0.2 VDC due to meter error and with my best-guess calibration. But the voltage there is definitely at least 13 volts, very likely a bit higher.

(I don't have a voltage standard that is all that good. I used four different meters - 3 of them digital - and two different batteries to get an average reading of the batteries, then applied that to the analogue Heathkit VTVM calibration. Did the same again using a bench power supply and then for AC, just line voltage out of the wall for higher ranges. Low range, best I can do is 0.2 VDC. and that's probably wishful thinking despite doing the best I could with what I have.)

--
Wes Will
N9KDY

46075. RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 14:34:18 UTC
From: Tom Bryan
Topic: 46056 Message: 46075

Thanks Joe. I have no idea how long this has been sitting. After reading the posts here every day, I agree with you that a good cleaning is probably the next step. I will order some DEOXIT from my

favorite supply house. Your advice about using a camera to document everything is good advice, thanks.

After playing around with it, I think the AF amp is working but it has nothing to amplify. I checked the RF gain and it is turned all the way clockwise. I will get back to the group after I clean it out.

Thanks for everyone’s advice. It is much appreciated.

Tom

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
Sent: Sunday, November 24, 2013 10:59 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Tom,

Ok...no problem. The "remote socket" is indeed used for linear amplifier control. There is no need to have anything plugged into this unless it's being used to operated an amplifier.

I understand you got the rig from a now SK. How long had it sat around without being used? These rigs don't like to sit around and not be used. Various controls, pins, sockets...etc. will
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Have you double checked position of ALL controls...especially the RF gain? That's a common "whooops."

If you do decide to clean all the "stuff"...TAKE NOTES/PICTURES or draw diagram of what plug you removed from where or what...especially the IF board! Use a "sharpie" to label connectors works too.

Good luck...keep us posted

73 Joe
WB7UQU

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KC9JZF

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Sent: Sunday, November 24, 2013 5:25 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

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Also make sure that the "cal" function is not turned on.

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Suggest you review the "operators manual" and take a look at the "service manual" also. Setting the zero or resting position of the "S" meter is not hard...but the S-9 setting requires
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I’m am just trying a few things before I remove the covers.

Thanks!

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Are you getting any readings from the meter? I suspect the problem is the shorting plug in back..is it there? It has to be and if it is there, is it inserted correctly? I have plugs made and then plugged in wrong...OOPS! No radio!

Joe - W7RKN
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Subject: [TS-520_820_530_830] Quick question

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46076. Re: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 16:22:49 UTC
From: Joseph Stiles
Topic: 46056 Message: 46076

Tom,

OK....but I have one question for you.....can you hear the "CAL"(marker) signal???

73 Joe
WB7UQU

On Monday, November 25, 2013 8:18 AM, Tom Bryan <kc9jzf@...> wrote:

>Thanks Joe. I have no idea how long this has been sitting. After reading the posts here every day, I agree with you that a good cleaning is probably the next step. I will order some DEOXIT from my
>favorite supply house. Your advice about using a camera to document everything is good advice, thanks.
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>Tom
>
>
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>Sent: Sunday, November 24, 2013 10:59 PM
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>WB7UQU
>
>On Sunday, November 24, 2013 8:36 PM, Tom Bryan <kc9jzf@...> wrote:
>
>>Joe: Thanks for your help.
>>
>>I found the manual. You were talking about the VFO connector. I have the external VFO plugged in there and it works fine. I was describing
>>the REMOTE plug. Sorry for the confusion.
>>
>>
>>Tom
>>KC9JZF
>>
>>From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
>>Sent: Sunday, November 24, 2013 5:25 PM
>>To: TS-520_820_530_830@yahoogroups.com
>>Subject: Re: [TS-520_820_530_830] Quick question
>>
>>
>>Tom,
>>
>> If your rig has the "shorting plug" and has only 2 pins, #'s 8 & 9 "connected together," that is correct.
>>
>> Look in the "operators manual." It shows you the info you need.
>>
>> Make sure that the RF GAIN control is turned FULL RIGHT...or full clockwise to start.
>>
>> Also make sure that the "cal" function is not turned on.
>>
>> Since you do not know the whole history of this rig...the "golden screwdriver" may have been used.
>>
>>   Suggest you review the "operators manual" and take a look at the "service manual"

also.
>>Setting the zero or resting position of the "S" meter is not hard...but the S-9 setting requires
>>input from a signal generator...but at times can be "fudged" at bit after a basic IF/RF alignment...which is covered in your "operators manual."
>>
>>
>>73 Joe
>>WB7UQU
>>
>>On Sunday, November 24, 2013 3:05 PM, Tom Bryan <kc9jzf@...> wrote:
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>>>The S meter shows full deflection. I have tried turning the AGC off without success.
>>>There is a shorting plug in the back and it only appears to have 2 pins connected together.
>>>I will have to do some research to see if that is correct.
>>>I’m am just trying a few things before I remove the covers.
>>>
>>>Thanks!
>>>
>>>
>>>Tom
>>>KC9JZF
>>>
>>>From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
>>>Sent: Sunday, November 24, 2013 4:38 PM
>>>To: TS-520_820_530_830@yahoogroups.com
>>>Subject: Re: [TS-520_820_530_830] Quick question
>>>
>>>
>>>Are you getting any readings from the meter? I suspect the problem is the
>>>shorting plug in back..is it there? It has to be and if it is there, is it
>>>inserted correctly? I have plugs made and then plugged in wrong...OOPS! No
>>>radio!
>>>
>>>Joe - W7RKN
>>>----- Original Message -----
>>>From: "Tom Bryan" <kc9jzf@...>
>>>Subject: [TS-520_820_530_830] Quick question
>>>
>>>> I have a TS-820 that is deaf with the exception of a low amplitude hiss
>>>> from
>>>> the speaker. Years ago, in other radios,
>>>>
>>>> I remember that in order to receive, one had to have a microphone
>>>> connected
>>>> to complete a electrical path. I don't

>>>>
>>>> have a mic for it yet
>>>
>>
>
>
>

46077. RE: Re: [TS-520_820_530_830] RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 16:49:59 UTC
From: <wagstw46@...>
Topic: 46040 Message: 46077

Wes

Thanks for looking at the "normal" voltages at J14 and JAS for Adrian. Your 13.5vdc is more like what I would expect rather than the high 11 vdc that he is reporting. He likely needs to change the Pi filter electrolytics.

So the question remains what will the gain of the dual gate mosfets look like with 12vdc as opposed to 13.5vdc applied? I dont think as drastic a reduction as he is seeing. If switching diodes are good they will turn on with 12vdc applied. I see approx 3.3k resistor limiting the current so only about 3.6 ma of forward current. So not turned on very hard with either 12vdc or 14vdc foward bias. As you note if open then he would experience the loss of signal level he is reporting.

If you look at Q5 and Q4 you will see that they employ "self-bias" using 100 ohm Source resistors so all they need is Drain voltage to amplify and function as mixer. I dont think a problem with Q8 Het Osc as he reports some level of 15mhz copy so Q8 must be oscillating and providing some level of 23.895mhz local oscillator signal to Q4 Mixer..

Here in the states if a person doesnt have a bench supply they can go to Walmart or the Dollar Store and buy cheap 6vdc and 1.5vdc lantern batteries and have a source of DC for testing. Two 6vdc and one 1.5vdc in series makes a nice clean 13.5vdc supply with decent ampacity. Most of this power supply substitution is at very low current so these batteries will last about as long as shelf life. Just have to store them in container that would contain electrolyte should they develop a leak. Very corrosive. .

It is pretty rare for these switching diodes to fail, but relatively easy to jumper them to see if normal signal is restored.

WIth decent RF sig gen these kinds of problems can be pretty quickly isolated to a stage or device. Biggest trick is getting on test points on component side of the boards to inject and measure.

Thanks again for your help. I have pretty much exhausted any help I can give Adrian. If you see something jump in.

Terry K9TW

.

---In TS-520_820_530_830@yahoogroups.com, <wwill@...> wrote:

On 11/25/2013 08:05 AM, wagstw46@... mailto:wagstw46@... wrote:

> One more quick check. If possible you could try jumpering across output
> switching diode D6 at the Drain of Q4

Ah! Now I know why my head kept taking me back to that diode. I've been following this and chasing down the schematic as the discussion has been going on, for the practice.

(I do that with most of the problems with technical and troubleshooting solutions that come across this list. I'm NOT good at these radios, not yet, being much too far out of practice after twenty-five years of "throw the board away" type 'repairs' in the computer side of electronics. But I intend to get better.)

Shorting that diode will force Q4 to conduct, and if everything else is good (excepting that switching diode, which would more likely fail "OPEN" than "SHORT") the gain should jump up to normal.

Oh, and I opened my 520SE (in the middle of the bleedin' night; insomnia is good for something, but I don't recommend it for troubleshooting) and located the switch deck, the J14 / JAS point. THAT took a little while, but I did find it and verified that it was the correct point on the switch deck. I checked at the S5-6 and S5-7 points, to be sure there was no corrosion causing resistance on the wafers or anything, too.

ON the WWV setting (which is working - I get a good WWV signal when I put even a 2-meter whip on the antenna plug) the meter shows 13.5 VDC at both points. That's going to be plus or minus 0.2 VDC due to meter error and with my best-guess calibration. But the voltage there is definitely at least 13 volts, very likely a bit higher.

(I don't have a voltage standard that is all that good. I used four different meters - 3 of them digital - and two different batteries to get an average reading of the batteries, then applied that to the analogue Heathkit VTVM calibration. Did the same again using a bench power supply and then for AC, just line voltage out of the wall for higher ranges. Low range, best I can do is 0.2 VDC. and that's probably wishful thinking despite doing the best I could with what I have.)

--
Wes Will
N9KDY

46078. RE: RE: Re: [TS-520_820_530_830] RE: RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 17:10:08 UTC
From: <adrian@...>
Topic: 46040 Message: 46078

Terry thanks for such a complete answer to my query re the switching diodes, and for more troubleshooting suggestions. It's great to learn more about these rigs as well as get nearer to solving an issue. We'd thanks for measuring voltages at times above and beyond call of duty! I am working away from home now so can't try going down signal chain with sig gen (protected against DC with the cap) - and jumpering diode at Q4 - till weekend now but am looking forward to it with all the great help here. I do have schematics with me on my iPad so can at least get familiar with the path and the RF board x-ray so I'm all set when time comes. Terry I can see on schematic that the marker is injected right at the antenna as you confirmed. 73 guys and I'll report back in a week! Adrian G4IQW

46079. Re: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 17:31:36 UTC
From: Gordon JC Pearce
Topic: 46056 Message: 46079

On Sun, Nov 24, 2013 at 08:59:11PM -0800, Joseph Stiles wrote:
> These rigs don't like to sit around and not be used. Various controls, pins, sockets...etc. will
> get corrosion and other "junk"? on them. Many times, a good cleaning of ALL pins, sockets,
> controls..etc is a good first step. As others here may attest also...many problems have been
> "fixed" by a good cleaning of the above stated items. I use DEOXIT D5...available at Radio Shack.(arrg)...any good electronic supply house, some times it can be found at a good music store...one that sells guitar amp..especially, or mail order....canned air or "air duster" can be found a computer stores, office supply stores...and Walmart.

I can tell you, my early TS520 does not like to sit about and if I haven't had it on for a week everything is very scratchy and intermittent until it gets good and warm.

The solution, of course, is to throw a few buckets of electrons at the sky every day.

--
Gordonjcp MM0YEQ

46080. RE: I need some clarification of term and controls

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 18:10:18 UTC
From: <jweigh@...>
Topic: 46050 Message: 46080

Well, thank you all for the great info. It is greatly appreciated. I have respect and admiration for all the time and knowledge you put into a great hobby and this forum. TANK YOU. Jerry K4GEW

---In ts-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Agree Tanks are pretty hardy as long as dont have long off resonance key down times. Even then they can handle the elevated plate current for some time. Just no reason to stress them needlessly.

Quickest way to have instant 6146 failure is to have thermal run-away from loss of operating bias. Dirty bias pot can cause this when attempting to set 60ma zero signal current. Some people deliberately test the finals by adjusting the bias voltage and run Ip up to 350ma. I do not recommend this. It is a needless static dc test that tells you nothing about how tube works with RF drive.

The Drive control position for Rx and Tx can be out of sync if coil pack alignment is not done correctly. I see this regularly.

There is no reason to stress the 6146 finals when testing the Driver stage. Just simply turn off the SG switch. Now in CW mode with 6146 heaters on you can peak the Drive control and increase the CAR level pot for full scale ALC indication. Leave rig keyed for a few seconds and if you can attain FSD and it does not slowly drift off you know Driver stage is good. There is no 6146 plate current using this method. I would rather stress the Driver tube than the Finals. A lot cheaper tube.

Do this test on all bands. Allow the Driver tube to rest 10 seconds or so between each band as it is running Class A at full plate current (approx 27ma) and will get pretty hot. I have never lost a Driver tube doing this test, but it is possible especially if the tube is marginal to begin with.

If you have a good Driver stage and good alignment you should attain FSD ALC indication with the Car Level pot advanced no more than 1200 (typically between 1000 and 1100) with exception of perhaps 10 meters on the earlier rigs.

I often get rigs here that require CAR level pot settings at 1300 to 1400 to get FSD indication on all bands. Easy to fix this.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <gordon@...> wrote:

On Sun, Nov 24, 2013 at 02:09:11PM -0800, jweigh@... mailto:jweigh@... wrote:
> Mike, Thank you. It would be nice if everyone could use the names on the front panel.
>
> I do understand most of the folks who have been around these radios awhile understand all the possible terms for things but when someone with a short time with them and the fear of god put into them about damaging the tubes gets 2-3 different terms for the same thing it

can become intimidating. I'd like to hope the old timers wouldn't be put off by using the simpler language. It would be greatly appreciated.
> Thanks again, Jerry K4GEW

These old tanks are pretty tough, and if the radio is basically healthy and you're tuning up into a dummy load (ie. no reflected power) and only using short bursts of trasmit, it's hard to get it wrong.

I wanted to test the transmit frequency stability of my TS-520 so I ran it into a chunky great 250W Rohde and Schwarz dummy load (looks like an old-fashioned heating radiator, only a little smaller than the 520) for a good ten minutes. At 80W output the output valves were just about warm. I did have my hand on the SEND switch ready to chop the power in the event of any distress, but I needn't have worried. I don't recommend you try this, unless you know everything in the PA cage is utterly beyond reproach.

Just keep your hand on the SEND switch, check your dummy load isn't trying to melt its way to China, and don't do anything silly.

Oh, and the DRIVE control also functions as the RX preselector tuning, so if you tune on receive for the strongest signal (or most noise) you'll be about the right place for peaking the DRIVE control on transmit.

--
Gordonjcp MM0YEQ

46081. RE: RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 18:37:20 UTC
From: <wagstw46@...>
Topic: 46056 Message: 46081

Hate to stick my nose in here, but have a suggestion:

Assuming that the S-meter is pegged full scale with RF gain pot full CW then you have lost the voltage to the AGC bus line or there is a fault on it pulling it down.

How comfortable are you working inside the radio?

Do you have a multimeter of some type to take some voltage readings?

Before taking voltage measurements you can try removing and cleaning the Aux Relay contacts on the Relay Unit Board on bottom side of the rig. This board has the Aux relay in a socket and the 14vdc filter caps on it.

This relay switches the AGC and ALC bus lines and common problem is dirty contacts.

With rig down powered and unplugged you can remove the covers and pull Aux Relay and remove its plastic cover and clean the contacts by pulling strip of copy paper wetted with Deoxit thru both the NC and NO contacts applying light pressure to the armature.

If cleaning the contacts of the Aux relay does not restore your AGC bus voltage then we can talk about measuring RF-1 voltage at IF board and if need be at the AVR board.

Terry
K9TW

---In TS-520_820_530_830@yahoogroups.com, <kc9jzf@...> wrote:

Thanks for your reply. I recently purchased this from an SK’s estate. The radio is new to me.

The S meter shows full deflection. I have tried turning the AGC off without success.
There is a shorting plug in the back and it only appears to have 2 pins connected together. I will have to do some research to see if that is correct.
I’m am just trying a few things before I remove the covers.

Thanks!

Tom
KC9JZF

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Are you getting any readings from the meter? I suspect the problem is the
shorting plug in back..is it there? It has to be and if it is there, is it
inserted correctly? I have plugs made and then plugged in wrong...OOPS! No

radio!

Joe - W7RKN

----- Original Message -----
From: "Tom Bryan" <kc9jzf@... mailto:kc9jzf@...>
Subject: [TS-520_820_530_830] Quick question

> I have a TS-820 that is deaf with the exception of a low amplitude hiss
> from
> the speaker. Years ago, in other radios,
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> I remember that in order to receive, one had to have a microphone
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> to complete a electrical path. I don't
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> have a mic for it yet

46082. RE: [TS-520_820_530_830] Quick question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-25 20:19:49 UTC
From: Tom Bryan
Topic: 46056 Message: 46082

Hi Joe! Thanks again for your interest in my problem.

I tried CAL on 20 and 40 meters. I could hear the CAL signal every 25KHz on both bands but it was very faint, even with the RF and AF gains maxed.

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
Sent: Monday, November 25, 2013 10:23 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Tom,

OK....but I have one question for you.....can you hear the "CAL"(marker) signal???

73 Joe
WB7UQU

On Monday, November 25, 2013 8:18 AM, Tom Bryan <kc9jzf@...> wrote:

Thanks Joe. I have no idea how long this has been sitting. After reading the posts here every day, I agree with you that a good cleaning is probably the next step. I will order some DEOXIT from my

favorite supply house. Your advice about using a camera to document everything is good advice, thanks.

After playing around with it, I think the AF amp is working but it has nothing to amplify. I checked the RF gain and it is turned all the way clockwise. I will get back to the group after I clean it out.

Thanks for everyone’s advice. It is much appreciated.

Tom

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
Sent: Sunday, November 24, 2013 10:59 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Tom,

Ok...no problem. The "remote socket" is indeed used for linear amplifier control. There is no need to have anything plugged into this unless it's being used to operated an amplifier.

I understand you got the rig from a now SK. How long had it sat around without being used? These rigs don't like to sit around and not be used. Various controls, pins, sockets...etc. will
get corrosion and other "junk" on them. Many times, a good cleaning of ALL pins, sockets, controls..etc is a good first step. As others here may attest also...many problems have been
"fixed" by a good cleaning of the above stated items. I use DEOXIT D5...available at Radio Shack.(arrg)...any good electronic supply house, some times it can be found at a good music store...one that sells guitar amp..especially, or mail order....canned air or "air duster" can be found a computer stores, office supply stores...and Walmart.

Have you double checked position of ALL controls...especially the RF gain? That's a common "whooops."

If you do decide to clean all the "stuff"...TAKE NOTES/PICTURES or draw diagram of what plug you removed from where or what...especially the IF board! Use a "sharpie" to label connectors works too.

Good luck...keep us posted

73 Joe
WB7UQU

On Sunday, November 24, 2013 8:36 PM, Tom Bryan <kc9jzf@...> wrote:

Joe: Thanks for your help.

I found the manual. You were talking about the VFO connector. I have the external VFO plugged in there and it works fine. I was describing

the REMOTE plug. Sorry for the confusion.

Tom

KC9JZF

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Sent: Sunday, November 24, 2013 5:25 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Quick question

Tom,

If your rig has the "shorting plug" and has only 2 pins, #'s 8 & 9 "connected together," that is correct.

Look in the "operators manual." It shows you the info you need.

Make sure that the RF GAIN control is turned FULL RIGHT...or full clockwise to start.

Also make sure that the "cal" function is not turned on.

Since you do not know the whole history of this rig...the "golden screwdriver" may have been used.

Suggest you review the "operators manual" and take a look at the "service manual" also. Setting the zero or resting position of the "S" meter is not hard...but the S-9 setting requires
input from a signal generator...but at times can be "fudged" at bit after a basic IF/RF alignment...which is covered in your "operators manual."

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WB7UQU

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I’m am just trying a few things before I remove the covers.

Thanks!

Tom

KC9JZF

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Sent: Sunday, November 24, 2013 4:38 PM
To: TS-520_820_530_830@yahoogroups.com
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Joe - W7RKN
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Subject: [TS-520_820_530_830] Quick question

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46083. RE: RE: RE: RE: RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 10:43:32 UTC
From: <sw20plus@...>
Topic: 45960 Message: 46083

Hi Terry,
I am still alive. Not (yet) electrocuted. had to do something else no hobby related...

I am using a simple home made RF probe consisting of 2 x 100 ohm 5 W resistors in paralell an a 1n34 germanium diode with a 100nF cap... That thing I am also using for checking my SW20+ QRP 20 meter TRX (Small Wonder Labs). And that's working FB. And because there is not much RF power coming from the 520 when the SG is off. I can use that one.

Wally/Pa3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally:

Yes for any band that you are getting RF output power as seen on RF position of the panel meter or on an external wattmeter then you have to have RF drive at the
control grids of your 6146 finals. If you have RF drive then you have to have feed thru power from the control grids to the plate circuit thru that 0.22pf Cgp.

If you try neutralizing on 40 meters will see feed thru power, but will be lower than what I gave you for 10 meters. Probably a high of approx 270mv and low of approx 20mv. If using a single germanium diode probe then might just see slight meter indication as the diode barrier will be approx 250mv.

What kind of RF probe are you using?

Terry

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Ok Terry,
All understood.
Will check it tomorrow.... but what I still don't understand is, that the rig is working FB on 7 mhz and higher,
So it must have drive on pin 5 otherwise it wouldn't work at all.... right?

but will check it and let you know the outcome..

Many thanks for spending your time to answer me... very much appreciated

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Well you can cut the Neutralizing capacitor out and toss over your shoulder and rig should have some RF voltage at the SO-239 in this test configuration (typically a max of 1.0 rms rf volts with Drive control peaked and Plate tank cap adjusted to resonance). .

What you are looking at is the feed thru power from the 6146 control grid to the 6146 anode. This power is the result of the RF drive voltage swing at the control grid causing a small RF current to flow from the 6146 tubes control grid to the anode thru the tubes inter-electrode capacitance or Cgp. Approx 0.22pf capacitor.

It sounds to me like you have no RF drive voltage at the control grid Pin 5?

If you have rig configured as you say and you can peak the Drive control to get full scale ALC meter deflection then should see something on the order of approx 45 rf volts at Pin 5. I would measure this to confirm finals are seeing Drive.

Best to measure this with O-scope or RF Millivolt meter or a multi-diode RF probe.

If you have to use a single diode RF probe need to back down the CAR Level so you dont burn out the diode in the probe. Connect RF probe to Pin 5 at 6146 tube socket and key rig and slowly bring up the CAR level from zero. Do not exceed approx 30 rms rf volts.

If you have RF drive voltage at Pin 5 you have to have RF voltage at the SO-239 unless bad TR relay contacts or bad SO-239 solder connection or bad Plate blocking/coupling cap or bad plate choke. This should not be as you have normal RF output when you load the rig.

After confirming that you have approx 45 rf volts drive at the 6146 control grids move scope or millivolt meter to the SO-239. Key the rig and adjust the Plate capacitor (tune or tank) thru its range for maximum RF voltage. You should then be able to run the NC cap thru its range and see something on the order of a high of 900mv and a low of 10mv to 15mv at the null.

Make sure using a well insulated tool as you are a fraction of an inch from 900vdc anode lead.

If you have 45 volts at Pin 5 and no voltage at SO-239 then you have to have a high resistance connection in the path from the anode to the SO-239 or something shunting this low level signal. I have never seen a bad L7 safety choke. .

I am basing all of this on fact that you report normal full load output and just have plate current dip not occurring at max RF output. A common problem on low bands and of no concern. As long as can get plate current dip and max rf output to occur close to same at 28mhz that is all you need to prevent tubes from taking off on 10 meters. Tube interelectrode capacitive reactance as you move lower in frequency makes it very unlikely tubes will oscillate. Use to neutralize at 21 mhz in attempt to gt it to work across all bands and was not necessary and designers changed procedure to do it on 10 meters where Xc is lowest.

One last thing I may have asked does the main plate choke winding look good with no signs of overheating? I suppose another place that could be shunting low level RF back to HV supply?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Terry,
You are right I is very unusual to have no output reading at all.
Yes I do all the steps you are mentioning. So the only way to find out is to open the rig

and check if the neut cap is actually hooked up to something..... more and more I get the idea that is has a cold solderjoint or something like that.
As I have mentioned earlier, I can rotate the cap 360 degrees, but there is no point that gives some meter deflection.......

Only on 80 and 160 meter the is a S9 noise level... I have contacted Ken K4EAA, he mentioned a faulty bandswitch. So I am going to check and clean the switch first, so I can eliminatie that option.....

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

After loading to full RF output in CW mode do you just unkey rig and turn off the SG switch and connect RF probe and re-key the rig?

Must be in CW mode and Car Pot Level where it was when you loaded the rig.

You also can try adjusting the Drive control for max ALC indication with SG off.

If you are leaving Car Level Pot where it was to attain full output then it would be very unusual to have no RF voltage at the SO-239 connector unless the neutralizing cap was spot on and then typically will not be able to get a complete voltage null.

To test receive sensitivity with the Marker put the rig on dummy load. You dont want any off air signals at this time for this test

I dont know how you will work with a S9 +10 noise level? Sure hope that is not the norm for your QTH?.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.
The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
We have also tried a monitor rx on the local clubstation. but altough there is no RF indication on the VTVM/rf-probe. And also on the monitor RX there wasn't any indication when adjusting the neut cap.

On the low receive thing.....when RF gain fully open (fully CW)noise is peaking at S9+ 10dB.
The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

Altough I am restricted to work on 10/20 meters. the set is working FB. Do receive good reports. 5-9/599
on USB and CW.

As mentioned earlier I do get the idea that someone has been poking around in the PA section. turning the neut cap SHOULD give some kind of indication I guess....
But thanks again for the replay.....

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

Low receive on couple of bands:

Very briefly you say you can hear the Marker on 160 and 80. A more informative report would be what S-meter indication do you get with the Marker signal?

A fully functional and well aligned 520S should be close to S9 with Drive control peaked at approx 1200 if you have VFO set at 1.9mhz. Will be less at 28.8mhz. perhaps S6 to S7.

If Marker signal levels are down follow the Coil Pack alignment steps in the Instruction Manual Section 6 as a first step to resolve.

Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE. here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

46084. RE: RE: RE: RE: RE: RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 15:15:25 UTC
From: <wagstw46@...>
Topic: 45960 Message: 46084

OK with this type probe then you dont need a dummy load connected to the SO-239 connector to perform neutralization as long as you have the SG switch off.

I am assumng the 50 ohms is connected in shunt and your diode is in series so you will read the voltage drop across the paralleled 100 ohm resistors in the probe.

Kind of unusual config as most commercial RF probes use a series dc blocking cap, a shunt diode, and a high value of series meter multiplier resistor so that it will read close to rms value on your 10 meg DMM or 11 meg VTVM.

As long as have good 1N34 then your probe will work.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Hi Terry,
I am still alive. Not (yet) electrocuted. had to do something else no hobby related...

I am using a simple home made RF probe consisting of 2 x 100 ohm 5 W resistors in paralell an a 1n34 germanium diode with a 100nF cap... That thing I am also using for checking my SW20+ QRP 20 meter TRX (Small Wonder Labs). And that's working FB. And because there is not much RF power coming from the 520 when the SG is off. I can use that one.

Wally/Pa3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally:

Yes for any band that you are getting RF output power as seen on RF position of the panel meter or on an external wattmeter then you have to have RF drive at the
control grids of your 6146 finals. If you have RF drive then you have to have feed thru power from the control grids to the plate circuit thru that 0.22pf Cgp.

If you try neutralizing on 40 meters will see feed thru power, but will be lower than what I gave you for 10 meters. Probably a high of approx 270mv and low of approx 20mv. If using a single germanium diode probe then might just see slight meter indication as the diode barrier will be approx 250mv.

What kind of RF probe are you using?

Terry

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Ok Terry,
All understood.
Will check it tomorrow.... but what I still don't understand is, that the rig is working FB on 7 mhz and higher,
So it must have drive on pin 5 otherwise it wouldn't work at all.... right?

but will check it and let you know the outcome..

Many thanks for spending your time to answer me... very much appreciated

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Well you can cut the Neutralizing capacitor out and toss over your shoulder and rig should have some RF voltage at the SO-239 in this test configuration (typically a max of 1.0 rms rf volts with Drive control peaked and Plate tank cap adjusted to resonance). .

What you are looking at is the feed thru power from the 6146 control grid to the 6146 anode. This power is the result of the RF drive voltage swing at the control grid causing a small RF current to flow from the 6146 tubes control grid to the anode thru the tubes inter-electrode capacitance or Cgp. Approx 0.22pf capacitor.

It sounds to me like you have no RF drive voltage at the control grid Pin 5?

If you have rig configured as you say and you can peak the Drive control to get full scale ALC meter deflection then should see something on the order of approx 45 rf volts at Pin 5. I would measure this to confirm finals are seeing Drive.

Best to measure this with O-scope or RF Millivolt meter or a multi-diode RF probe.

If you have to use a single diode RF probe need to back down the CAR Level so you dont burn out the diode in the probe. Connect RF probe to Pin 5 at 6146 tube socket and key rig and slowly bring up the CAR level from zero. Do not exceed approx 30 rms rf volts.

If you have RF drive voltage at Pin 5 you have to have RF voltage at the SO-239 unless bad TR relay contacts or bad SO-239 solder connection or bad Plate blocking/coupling cap or bad plate choke. This should not be as you have normal RF output when you load the rig.

After confirming that you have approx 45 rf volts drive at the 6146 control grids move scope or millivolt meter to the SO-239. Key the rig and adjust the Plate capacitor (tune or tank) thru its range for maximum RF voltage. You should then be able to run the NC cap thru its range and see something on the order of a high of 900mv and a low of 10mv to 15mv at the null.

Make sure using a well insulated tool as you are a fraction of an inch from 900vdc anode lead.

If you have 45 volts at Pin 5 and no voltage at SO-239 then you have to have a high resistance connection in the path from the anode to the SO-239 or something shunting this low level signal. I have never seen a bad L7 safety choke. .

I am basing all of this on fact that you report normal full load output and just have plate current dip not occurring at max RF output. A common problem on low bands and of no concern. As long as can get plate current dip and max rf output to occur close to same at

28mhz that is all you need to prevent tubes from taking off on 10 meters. Tube interelectrode capacitive reactance as you move lower in frequency makes it very unlikely tubes will oscillate. Use to neutralize at 21 mhz in attempt to gt it to work across all bands and was not necessary and designers changed procedure to do it on 10 meters where Xc is lowest.

One last thing I may have asked does the main plate choke winding look good with no signs of overheating? I suppose another place that could be shunting low level RF back to HV supply?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Terry,
You are right I is very unusual to have no output reading at all.
Yes I do all the steps you are mentioning. So the only way to find out is to open the rig and check if the neut cap is actually hooked up to something..... more and more I get the idea that is has a cold solderjoint or something like that.
As I have mentioned earlier, I can rotate the cap 360 degrees, but there is no point that gives some meter deflection.......

Only on 80 and 160 meter the is a S9 noise level... I have contacted Ken K4EAA, he mentioned a faulty bandswitch. So I am going to check and clean the switch first, so I can eliminatie that option.....

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

After loading to full RF output in CW mode do you just unkey rig and turn off the SG switch and connect RF probe and re-key the rig?

Must be in CW mode and Car Pot Level where it was when you loaded the rig.

You also can try adjusting the Drive control for max ALC indication with SG off.

If you are leaving Car Level Pot where it was to attain full output then it would be very unusual to have no RF voltage at the SO-239 connector unless the neutralizing cap was spot on and then typically will not be able to get a complete voltage null.

To test receive sensitivity with the Marker put the rig on dummy load. You dont want any off air signals at this time for this test

I dont know how you will work with a S9 +10 noise level? Sure hope that is not the norm for your QTH?.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.

The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
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The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

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Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

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I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

46085. Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 19:38:48 UTC
From: kd8hmo_us
Topic: 46085 Message: 46085

Hi guys,

Can anyone tell me what wires go on what pins for the connector on my D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a shield. Colors are red, white and black. I keep hearing something about keeping grounds separate to prevent hum. Can anyone tell me where the wires go?

Thanks,

Richard, KD8HMO

46086. Re: [TS-520_820_530_830] Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 19:44:44 UTC
From: John Davidson
Topic: 46085 Message: 46086

ACTIVATE the PTT and measure between the black and each of the other color wires, with an ohm meter set to low resistance scale, to see what one keys the transwmitter. Black is probably ground. the remaining wire is the mic audio.

On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@...> wrote:

Hi guys,

Can anyone tell me what wires go on what pins for the connector on my D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a shield. Colors are red, white and black. I keep hearing something about keeping grounds separate to prevent hum. Can anyone tell me where the wires go?

Thanks,

Richard, KD8HMO

46087. "quick question" thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 19:48:40 UTC
From: Joseph Stiles
Topic: 46087 Message: 46087

Terry & Tom,

Terry, no problem about "sticking your nose in." You brought forth sound statements and, your knowledge and expertise are...in my opinion anyway....most EXCELLENT

The poster, I think, is unfamiliar with these fine old rigs, and possibly some diagnostic equipment.
But that's why we are here. I wanted to start out simple...and progress slowly...and get "more in depth" as the thread continued.

Terry, thanks for being a mentor and group member

Tom, Terry's statements are based on sound diagnostic logic. But, let's start at the bottom..get the rig "cleaned up" as stated in prior posts...and go from there.

73 Joe
WB7UQU

46088. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 19:53:49 UTC
From: kd8hmo_us
Topic: 46085 Message: 46088

Thanks for the quick response. Im not sure if this radio requires 3 or 4 including the shield. I havnt had much luck yet.

--- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
> ACTIVATE the PTT and measure between the black and each of the other color wires, with an ohm meter set to low resistance scale, Â to see what one keys the transwmitter. Black is probably ground. the remaining wire is the mic audio.
>
>
>
> On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@...> wrote:
>
> Â
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>
> Thanks,
>
> Richard, KD8HMO
>

46089. Re: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 20:09:29 UTC
From: Ken Winterling
Topic: 46085 Message: 46089

Richard,

It is likely that white is mic hi, the shield is mic lo. Black is PTT ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is suggested to keep the mic and PTT grounds separate to reduce the chance of hum. Sometimes you can not avoid connecting the shield to PTT ground if the shield is grounded to the mic frame.

If the wiring is as I suggested above then use the following wiring for the plug:
Pin 1: White (mic hi)
Pin 2: Red (PTT)
Pin 3: Black (PTT ground)
Pin 4: Shield (mic lo)

Depending on your particular base, the attached link may help. You can see the same cable and color codes you describe.
http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf

Ken
WA2LBI

On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@...> wrote:

>
>
> Thanks for the quick response. Im not sure if this radio requires 3 or 4
> including the shield. I havnt had much luck yet.
>
> --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
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> > ACTIVATE the PTT and measure between the black and each of the other
> color wires, with an ohm meter set to low resistance scale, Â to see what
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> > Thanks,
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> > Richard, KD8HMO
> >
>

46090. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:19:17 UTC
From: kd8hmo_us
Topic: 46085 Message: 46090

I just wired it the way Ken said and it wont key the radio in either relay or electronic switching. The mic does drive the radio in VOX mode however..

--- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@...> wrote:
>
> Richard,
>
> It is likely that white is mic hi, the shield is mic lo. Black is PTT
> ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is
> suggested to keep the mic and PTT grounds separate to reduce the chance of
> hum. Sometimes you can not avoid connecting the shield to PTT ground if
> the shield is grounded to the mic frame.
>
> If the wiring is as I suggested above then use the following wiring for the
> plug:
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> Pin 2: Red (PTT)
> Pin 3: Black (PTT ground)
> Pin 4: Shield (mic lo)
>
> Depending on your particular base, the attached link may help. You can see
> the same cable and color codes you describe.
> http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf
>
> Ken
> WA2LBI
>
>
> On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@...> wrote:
>
> > >
> > > Thanks for the quick response. Im not sure if this radio requires 3 or 4
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> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@> wrote:
> > > >
> > > > ACTIVATE the PTT and measure between the black and each of the other
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> > > >
> > > >
> > > >

> > > On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@>
> > wrote:
> > >
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> > > Richard, KD8HMO
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> >
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46091. Re: [TS-520_820_530_830] Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:27:39 UTC
From: Mike
Topic: 46085 Message: 46091

Most D-104s, including the amplified model/base, has the wiring and switch diagram on the inside bottom cover. Did you check the bottom cover plate?

If I may ask, are you going to use the amplified D-104 with your KW hybrid and if so, which KW hybrid model?

73
Mike W5RKL

On 11/26/2013 1:38 PM, kd8hmo_us wrote:
>
> Hi guys,
>
> Can anyone tell me what wires go on what pins for the connector on my
> D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires
> and a shield. Colors are red, white and black. I keep hearing
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> tell me where the wires go?
>
> Thanks,
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> Richard, KD8HMO
>
>

46092. RE: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:28:54 UTC
From: Jan
Topic: 46085 Message: 46092

Hi,

This is a very good site with mic information.

You will also find schematic for the Astatic D-104

http://www.qsl.net/g4wpw/date.html

73

Jan ☐ LA2XSA

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of kd8hmo_us
Sent: Tuesday, November 26, 2013 10:19 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Re: Using D-104 with TS-520S

I just wired it the way Ken said and it wont key the radio in either relay
or electronic switching. The mic does drive the radio in VOX mode however..

--- In <mailto:TS-520_820_530_830@yahoogroups.com>
TS-520_820_530_830@yahoogroups.com, Ken Winterling < <mailto:wa2lbi@...>
wa2lbi@...> wrote:
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> Richard,
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> It is likely that white is mic hi, the shield is mic lo. Black is PTT
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> Depending on your particular base, the attached link may help. You can see
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<http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.
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http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.p
df
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> Ken
> WA2LBI
>
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> On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us < <mailto:burwell.rick@...>
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46093. Re: [TS-520_820_530_830] Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:35:40 UTC
From: Mike
Topic: 46085 Message: 46093

I see I missed the KW hybrid model in the subject line, you're using it with a TS-520.

Are you aware the amplified D-104 has a "low impedance" spec and the TS-520 has a "high impedance" specs? Using the amplified D-104 with a TS-520 will result in a microphone impedance "mismatch" which will effect how your transmit audio sounds. Also if you turn the amplifier in the base of the D-104 up so you sound "louder" at the receive end or an attempt to overcome the impedance mismatch, this could easily lead to over driving the speech amplifier in the TS-520 leading to distortion in your transmit audio.

73
Mike W5RKL

On 11/26/2013 3:27 PM, Mike wrote:
> Most D-104s, including the amplified model/base, has the wiring and
> switch diagram on the inside bottom cover. Did you check the bottom
> cover plate?
>
> If I may ask, are you going to use the amplified D-104 with your KW
> hybrid and if so, which KW hybrid model?
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 11/26/2013 1:38 PM, kd8hmo_us wrote:
>>
>> Hi guys,
>>
>> Can anyone tell me what wires go on what pins for the connector on my
>> D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires
>> and a shield. Colors are red, white and black. I keep hearing
>> something about keeping grounds separate to prevent hum. Can anyone
>> tell me where the wires go?
>>
>> Thanks,
>>
>> Richard, KD8HMO
>>
>>

>

46094. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:37:07 UTC
From: kd8hmo_us
Topic: 46085 Message: 46094

Im going to use the mic with my 520S and 530S. Wiring info seems to be a real secret on the internet for these radios and this mic LOL

--- In TS-520_820_530_830@yahoogroups.com, Mike <w5rkl@...> wrote:
>
> Most D-104s, including the amplified model/base, has the wiring and
> switch diagram on the inside bottom cover. Did you check the bottom
> cover plate?
>
> If I may ask, are you going to use the amplified D-104 with your KW
> hybrid and if so, which KW hybrid model?
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 11/26/2013 1:38 PM, kd8hmo_us wrote:
> >
> > Hi guys,
> >
> > Can anyone tell me what wires go on what pins for the connector on my
> > D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires
> > and a shield. Colors are red, white and black. I keep hearing
> > something about keeping grounds separate to prevent hum. Can anyone
> > tell me where the wires go?
> >
> > Thanks,
> >
> > Richard, KD8HMO
> >
> >
>

46095. Re: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:05:24 UTC
From: Joe - W7RKN
Topic: 46085 Message: 46095

I believe the D-104 mic also had the wiring schematic on the inside of the base plate/cover.

Joe - W7RKN
----- Original Message -----
From: Jan
Subject: RE: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Hi,

This is a very good site with mic information.

You will also find schematic for the Astatic D-104

http://www.qsl.net/g4wpw/date.html

46096. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:12:42 UTC
From: kd8hmo_us
Topic: 46085 Message: 46096

Im still trying to figure out if there is a problem in the mic, or my connections aren't correct. I don't even know for sure if I need all 3 wires and the shield connected. This seems to be top secret. I cant find hardly any reference to it, even on sites that have wiring guides...

--- In TS-520_820_530_830@yahoogroups.com, Joe - W7RKN <w7rkn.7@...> wrote:
>
> *I believe* the D-104 mic also had the wiring schematic on the inside of the base plate/cover.
>
> Joe - W7RKN
> ----- Original Message -----
> From: Jan
> Subject: RE: [TS-520_820_530_830] Re: Using D-104 with TS-520S
>
>
> Hi,
>
> This is a very good site with mic information.
>
> You will also find schematic for the Astatic D-104
>
> http://www.qsl.net/g4wpw/date.html
>

46097. RE: Re: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:21:39 UTC
From: <kj6ix@...>
Topic: 46085 Message: 46097

Richard

I have the orginal schematic for the D-104..

Send a email to kj6ix@arrl.net and I will shoot it your way

73's Dale

---In TS-520_820_530_830@yahoogroups.com, <wa2lbi@...> wrote:

Richard,

It is likely that white is mic hi, the shield is mic lo. Black is PTT ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is suggested to keep the mic and PTT grounds separate to reduce the chance of hum. Sometimes you can not avoid connecting the shield to PTT ground if the shield is grounded to the mic frame.

If the wiring is as I suggested above then use the following wiring for the plug:
Pin 1: White (mic hi)
Pin 2: Red (PTT)
Pin 3: Black (PTT ground)
Pin 4: Shield (mic lo)

Depending on your particular base, the attached link may help. You can see the same cable and color codes you describe.
http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf
http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf

Ken
WA2LBI

On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@... mailto:burwell.rick@...> wrote:
Thanks for the quick response. Im not sure if this radio requires 3 or 4 including the shield. I havnt had much luck yet.

--- In TS-520_820_530_830@yahoogroups.com mailto:TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@...> wrote:
>
> ACTIVATE the PTT and measure between the black and each of the other color wires, with an ohm meter set to low resistance scale, Â to see what one keys the transwmitter. Black is probably ground. the remaining wire is the mic audio.
>
>
>
> On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@...> wrote:
>
> Â

> Hi guys,
>
> Can anyone tell me what wires go on what pins for the connector on my D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a shield. Colors are red, white and black. I keep hearing something about keeping grounds separate to prevent hum. Can anyone tell me where the wires go?
>
> Thanks,
>
> Richard, KD8HMO
>

46098. RE: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 21:35:17 UTC
From: <kj6ix@...>
Topic: 46085 Message: 46098

Richard Send me a message to kj6ix@arrl.net and I will send you the original photo of the wiring diagram for the D-104

Dale

---In TS-520_820_530_830@yahoogroups.com, <burwell.rick@...> wrote:

Hi guys,

Can anyone tell me what wires go on what pins for the connector on my D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a shield. Colors are red, white and black. I keep hearing something about keeping grounds separate to prevent hum. Can anyone tell me where the wires go?

Thanks,

Richard, KD8HMO

46099. Re: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:23:44 UTC
From: Ken Winterling
Topic: 46085 Message: 46099

You say the mic works in VOX mode so you are making progress. Did you verify with an ohm meter that the red and black are the PTT circuit? It is possible that there is an issue with the mic switch(es). It is also possible that somebody has changed the wiring. Maybe they wired it so that PTT ground is the shield and the red or back is the PTT line. You need to do some work with the ohm meter.

Maybe I missed this if you stated it earlier but did you verify that the rig keys when you short pins 2 and 3 on the mic jack or do you have another mic that works in PTT mode on the rig? If the rig isn't keying with a short on pins 2 & 3 or with a known-good mic then get the rig fixed before you work on the mic.

Keep us posted!

Ken
WA2LBI

On Tue, Nov 26, 2013 at 4:19 PM, kd8hmo_us <burwell.rick@...> wrote:

>
>
> I just wired it the way Ken said and it wont key the radio in either relay
> or electronic switching. The mic does drive the radio in VOX mode however..
>
> --- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@...>
> wrote:
> >
> > Richard,
> >
> > It is likely that white is mic hi, the shield is mic lo. Black is PTT
> > ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is
> > suggested to keep the mic and PTT grounds separate to reduce the chance
> of
> > hum. Sometimes you can not avoid connecting the shield to PTT ground if
> > the shield is grounded to the mic frame.
> >
> > If the wiring is as I suggested above then use the following wiring for
> the
> > plug:
> > Pin 1: White (mic hi)
> > Pin 2: Red (PTT)
> > Pin 3: Black (PTT ground)
> > Pin 4: Shield (mic lo)
> >
> > Depending on your particular base, the attached link may help. You can

> see
> > the same cable and color codes you describe.
> >
> http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf
> >
> > Ken
> > WA2LBI
> >
> >
> > On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@...> wrote:
> >
> > > >
> > > >
> > > > Thanks for the quick response. Im not sure if this radio requires 3 or
> 4
> > > > including the shield. I havnt had much luck yet.
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@>
> wrote:
> > > > >
> > > > > ACTIVATE the PTT and measure between the black and each of the other
> > > > color wires, with an ohm meter set to low resistance scale, Ã, to see
> what
> >
> > > > one keys the transwmitter. Black is probably ground. the remaining
> wire is
> > > > the mic audio.
> > > > >
> > > > >
> > > > >
> > > > > On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@>
> > > > wrote:
> > > > >
> > > > > Ã,
> >
> > > > > Hi guys,
> > > > >
> > > > > Can anyone tell me what wires go on what pins for the connector on my
> > > > D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires
> and a
> > > > shield. Colors are red, white and black. I keep hearing something about
> > > > keeping grounds separate to prevent hum. Can anyone tell me where the
> wires
> > > > go?
> > > > >
> > > > > Thanks,
> > > > >
> > > > > Richard, KD8HMO
> > > > >
> > > >

> >
>

46100. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:39:27 UTC
From: kd8hmo_us
Topic: 46085 Message: 46100

Well, I just found the problem. Seems there is a short or break in the mic cord right where it goes into the base, inside the strain relief. The correct wiring is:

1- white
2- red
3- black
4- shield

I had to dig out the ohm meter, my blood pressure was starting to go up lol

--- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@...> wrote:
>
> You say the mic works in VOX mode so you are making progress. Did you
> verify with an ohm meter that the red and black are the PTT circuit? It is
> possible that there is an issue with the mic switch(es). It is also
> possible that somebody has changed the wiring. Maybe they wired it so that
> PTT ground is the shield and the red or back is the PTT line. You need to
> do some work with the ohm meter.
>
> Maybe I missed this if you stated it earlier but did you verify that the
> rig keys when you short pins 2 and 3 on the mic jack or do you have another
> mic that works in PTT mode on the rig? If the rig isn't keying with a
> short on pins 2 & 3 or with a known-good mic then get the rig fixed before
> you work on the mic.
>
> Keep us posted!
>
> Ken
> WA2LBI
>
>
> On Tue, Nov 26, 2013 at 4:19 PM, kd8hmo_us <burwell.rick@...> wrote:
>
> > >
> > >
> > > I just wired it the way Ken said and it wont key the radio in either relay
> > > or electronic switching. The mic does drive the radio in VOX mode however..
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@>
> > > wrote:
> > > >
> > > > Richard,
> > > >
> > > > It is likely that white is mic hi, the shield is mic lo. Black is PTT
> > > > ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is

> > > suggested to keep the mic and PTT grounds separate to reduce the chance
> > of
> > > hum. Sometimes you can not avoid connecting the shield to PTT ground if
> > > the shield is grounded to the mic frame.
> > >
> > > If the wiring is as I suggested above then use the following wiring for
> > the
> > > plug:
> > > Pin 1: White (mic hi)
> > > Pin 2: Red (PTT)
> > > Pin 3: Black (PTT ground)
> > > Pin 4: Shield (mic lo)
> > >
> > > Depending on your particular base, the attached link may help. You can
> > see
> > > the same cable and color codes you describe.
> > >
> > http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf
> > >
> > > Ken
> > > WA2LBI
> > >
> > >
> > > On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@> wrote:
> > >
> > > >
> > > >
> > > > Thanks for the quick response. Im not sure if this radio requires 3 or
> > 4
> > > > including the shield. I havnt had much luck yet.
> > > >
> > > > --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@>
> > wrote:
> > > > >
> > > > > ACTIVATE the PTT and measure between the black and each of the other
> > > > color wires, with an ohm meter set to low resistance scale, Ã□â□□ to see
> > what
> > > >
> > > > one keys the transwmitter. Black is probably ground. the remaining
> > wire is
> > > > the mic audio.
> > > > >
> > > > >
> > > > >
> > > > > On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@>
> > > > wrote:
> > > > >
> > > > > Ã□â□□
> > >

> > > > > Hi guys,
> > > > >
> > > > > Can anyone tell me what wires go on what pins for the connector on my
> > > > D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires
> > and a
> > > > > shield. Colors are red, white and black. I keep hearing something about
> > > > > keeping grounds separate to prevent hum. Can anyone tell me where the
> > wires
> > > > > go?
> > > > > >
> > > > > > Thanks,
> > > > > >
> > > > > > Richard, KD8HMO
> > > > > >
> > > > >
> > > >
> > >
>

46101. Re: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:49:29 UTC
From: K5MYJ
Topic: 46085 Message: 46101

You need a TS-520S manual!

The 520 has a 4 pin mic connector. Two pins are for the mike element. The other two are for the switch.

Connect an ohm meter to the red and black leads then push the switch.

There is a mike wiring diagram in the 520 manual.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: kd8hmo_us
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, November 26, 2013 2:12 PM
Subject: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Im still trying to figure out if there is a problem in the mic, or my connections aren't correct. I don't even know for sure if I need all 3 wires and the shield connected. This seems to be top secret. I cant find hardly any reference to it, even on sites that have wiring guides...

--- In TS-520_820_530_830@yahoogroups.com, Joe - W7RKN <w7rkn.7@...> wrote:
>
> *I believe* the D-104 mic also had the wiring schematic on the inside of the base plate/cover.
>
> Joe - W7RKN
> ----- Original Message -----
> From: Jan
> Subject: RE: [TS-520_820_530_830] Re: Using D-104 with TS-520S
>
>
> Hi,
>
> This is a very good site with mic information.
>
> You will also find schematic for the Astatic D-104
>
> http://www.qsl.net/g4wpw/date.html
>

46102. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:51:56 UTC
From: kd8hmo_us
Topic: 46085 Message: 46102

Thanks everyone, I think I got it figured out finally. Gotta love it when there is more than one thing wrong at the same time LOL

--- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@...> wrote:
>
> You need a TS-520S manual!
>
> The 520 has a 4 pin mic connector. Two pins are for the mike element. The other two are for the switch.
>
> Connect an ohm meter to the red and black leads then push the switch.
>
> There is a mike wiring diagram in the 520 manual.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: kd8hmo_us
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Tuesday, November 26, 2013 2:12 PM
> Subject: [TS-520_820_530_830] Re: Using D-104 with TS-520S
>
>
>
> Im still trying to figure out if there is a problem in the mic, or my connections aren't correct. I don't even know for sure if I need all 3 wires and the shield connected. This seems to be top secret. I cant find hardly any reference to it, even on sites that have wiring guides...
>
> --- In TS-520_820_530_830@yahoogroups.com, Joe - W7RKN <w7rkn.7@> wrote:
> >
> > *I believe* the D-104 mic also had the wiring schematic on the inside of the base plate/cover.
> >
> > Joe - W7RKN
> > ----- Original Message -----
> > From: Jan
> > Subject: RE: [TS-520_820_530_830] Re: Using D-104 with TS-520S
> >
> >
> > Hi,
> >
> > This is a very good site with mic information.

> >
> > You will also find schematic for the Astatic D-104
> >
> > http://www.qsl.net/g4wpw/date.html
> >
>

46103. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 23:18:37 UTC
From: kd8hmo_us
Topic: 46085 Message: 46103

I now know why this mic had a $5 price-tag at the garage sale where I bought it. It has a break in the cord, a resistor had one leg out of its hole in the pc board, and I also replaced the 5mf electrolytic just because. Now its working great.. lol

--- In TS-520_820_530_830@yahoogroups.com, "kd8hmo_us" <burwell.rick@...> wrote:
>
> Thanks everyone, I think I got it figured out finally. Gotta love it when there is more than one thing wrong at the same time LOL
>
> --- In TS-520_820_530_830@yahoogroups.com, "K5MYJ" <macklinbob@> wrote:
> >
> > You need a TS-520S manual!
> >
> > The 520 has a 4 pin mic connector. Two pins are for the mike element. The other two are for the switch.
> >
> > Connect an ohm meter to the red and black leads then push the switch.
> >
> > There is a mike wiring diagram in the 520 manual.
> >
> > Bob Macklin
> > K5MYJ
> > Seattle, Wa.
> > "Real Radios Glow In The Dark"
> > ----- Original Message -----
> > From: kd8hmo_us
> > To: TS-520_820_530_830@yahoogroups.com
> > Sent: Tuesday, November 26, 2013 2:12 PM
> > Subject: [TS-520_820_530_830] Re: Using D-104 with TS-520S
> >
> >
> >
> > Im still trying to figure out if there is a problem in the mic, or my connections aren't correct. I don't even know for sure if I need all 3 wires and the shield connected. This seems to be top secret. I cant find hardly any reference to it, even on sites that have wiring guides...
> >
> > --- In TS-520_820_530_830@yahoogroups.com, Joe - W7RKN <w7rkn.7@> wrote:
> > >
> > > *I believe* the D-104 mic also had the wiring schematic on the inside of the base plate/cover.
> > >
> > > Joe - W7RKN
> > > ----- Original Message -----
> > > From: Jan

> > > Subject: RE: [TS-520_820_530_830] Re: Using D-104 with TS-520S
> > >
> > >
> > > Hi,
> > >
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> > > http://www.qsl.net/g4wpw/date.html
> > >
> >
>

46104. Re: [TS-520_820_530_830] Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 22:40:40 UTC
From: Ken Burchfield
Topic: 46085 Message: 46104

Richard maybe this schematic of the UG8 base will help, I did not have the mic connections for the TS520S at hand i might look it up
73 Ken.

PacketRadio is Still Alive.......Mississippi.......145.010.......Simplex.......1200 baud Baud

On Tuesday, November 26, 2013 1:38 PM, kd8hmo_us <burwell.rick@...> wrote:

Hi guys,

Can anyone tell me what wires go on what pins for the connector on my D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a shield. Colors are red, white and black. I keep hearing something about keeping grounds separate to prevent hum. Can anyone tell me where the wires go?

Thanks,

Richard, KD8HMO

[Non-text portions of this message have been removed]

46105. Re: [TS-520_820_530_830] Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-26 23:09:15 UTC
From: Ken Burchfield
Topic: 46085 Message: 46105

KENWOOD-T599S-TS120S-120V-700G-700S-130S-130V-490-520S-530S-820S-830S-
TR2300-TR2200-TR2200GX-TR3200-TR7010-TR7200-TR7200G-TR7400A-TR7500-TR7600-TR7625
PIN1 MIC
PIN2 PTT
PIN3 PTT/EARTH
PIN4 SCREEN AND EARTH
Richard, this data appears a little different.
{PTT pin3 andpin4
73
Ken

PacketRadio is Still Alive.....Mississippi.....145.010.....Simplex.....1200 baud
Baud

On Tuesday, November 26, 2013 3:19 PM, kd8hmo_us <burwell.rick@...> wrote:

I just wired it the way Ken said and it wont key the radio in either relay or electronic
switching. The mic does drive the radio in VOX mode however..

--- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@...> wrote:
>
> Richard,
>
> It is likely that white is mic hi, the shield is mic lo. Black is PTT
> ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is
> suggested to keep the mic and PTT grounds separate to reduce the chance of
> hum. Sometimes you can not avoid connecting the shield to PTT ground if
> the shield is grounded to the mic frame.
>
> If the wiring is as I suggested above then use the following wiring for the
> plug:
> Pin 1: White (mic hi)
> Pin 2: Red (PTT)
> Pin 3: Black (PTT ground)
> Pin 4: Shield (mic lo)
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> Depending on your particular base, the attached link may help. You can see
> the same cable and color codes you describe.
> http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf
>
> Ken
> WA2LBI
>
>
> On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@...> wrote:
>

> >
> >
> > Thanks for the quick response. Im not sure if this radio requires 3 or 4
> > including the shield. I havnt had much luck yet.
> >
> > --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@> wrote:
> > >
> > > ACTIVATE the PTT and measure between the black and each of the other
> > color wires, with an ohm meter set to low resistance scale, Ã, to see what
> > one keys the transwmitter. Black is probably ground. the remaining wire is
> > the mic audio.
> > >
> > >
> > >
> > > On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@>
> > wrote:
> > >
> > > Ã,
> > > Hi guys,
> > >
> > > Can anyone tell me what wires go on what pins for the connector on my
> > D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a
> > shield. Colors are red, white and black. I keep hearing something about
> > keeping grounds separate to prevent hum. Can anyone tell me where the wires
> > go?
> > >
> > > Thanks,
> > >
> > > Richard, KD8HMO
> > >
> >
>

46106. Re: Using D-104 with TS-520S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 00:22:49 UTC
From: kd8hmo_us
Topic: 46085 Message: 46106

Thanks guys, finally got it working. The mic had three things wrong at the same time LOL

--- In TS-520_820_530_830@yahoogroups.com, Ken Burchfield <k5jxl@...> wrote:
>
>
> KENWOOD-T599S-TS120S-120V-700G-700S-130S-130V-490-520S-530S-820S-830S-
> TR2300-TR2200-TR2200GX-TR3200-TR7010-TR7200-TR7200G-TR7400A-TR7500-TR7600-TR7625
> PIN1 MIC
> PIN2 PTT
> PIN3 PTT/EARTH
> PIN4 SCREEN AND EARTH
> Richard, this data appears a little different.
> {PTT pin3 andpin4
> 73
> Ken
>
> Â
> Â PacketRadio is Still Alive.....Mississippi.....145.010.....Simplex.....1200 baud Baud
>
>
>
>
>
> On Tuesday, November 26, 2013 3:19 PM, kd8hmo_us <burwell.rick@...> wrote:
>
> Â
> I just wired it the way Ken said and it wont key the radio in either relay or electronic switching. The mic does drive the radio in VOX mode however..
>
> --- In TS-520_820_530_830@yahoogroups.com, Ken Winterling <wa2lbi@> wrote:
> >
> > Richard,
> >
> > It is likely that white is mic hi, the shield is mic lo. Black is PTT
> > ground and red is PTT. If you are wiring it for Kenwood 4 pin rig it is
> > suggested to keep the mic and PTT grounds separate to reduce the chance of
> > hum. Sometimes you can not avoid connecting the shield to PTT ground if
> > the shield is grounded to the mic frame.
> >
> > If the wiring is as I suggested above then use the following wiring for the
> > plug:
> > Pin 1: White (mic hi)
> > Pin 2: Red (PTT)
> > Pin 3: Black (PTT ground)

> > Pin 4: Shield (mic lo)
> >
> > Depending on your particular base, the attached link may help. You can see
> > the same cable and color codes you describe.
> > http://www.radiomanual.info/schemi/ACC_microphone/Astatic_T-UG8-D-104_user.pdf
> >
> > Ken
> > WA2LBI
> >
> >
> > On Tue, Nov 26, 2013 at 2:53 PM, kd8hmo_us <burwell.rick@> wrote:
> >
> > >
> > >
> > > Thanks for the quick response. Im not sure if this radio requires 3 or 4
> > > including the shield. I havnt had much luck yet.
> > >
> > > --- In TS-520_820_530_830@yahoogroups.com, John Davidson <k8jd@> wrote:
> > > >
> > > > ACTIVATE the PTT and measure between the black and each of the other
> > > color wires, with an ohm meter set to low resistance scale, Ã□â□□ to see what
> > > one keys the transwmitter. Black is probably ground. the remaining wire is
> > > the mic audio.
> > > >
> > > >
> > > >
> > > > On Tuesday, November 26, 2013 2:38 PM, kd8hmo_us <burwell.rick@>
> > > wrote:
> > > >
> > > > Ã□â□□
> > > > Hi guys,
> > > >
> > > > Can anyone tell me what wires go on what pins for the connector on my
> > > D104? Im using a D-104 with the TUG8 amplified stand. It has 3 wires and a
> > > shield. Colors are red, white and black. I keep hearing something about
> > > keeping grounds separate to prevent hum. Can anyone tell me where the wires
> > > go?
> > > >
> > > > Thanks,
> > > >
> > > > Richard, KD8HMO
> > > >
> > > >
> > >
> > >
> >

46107. RE: "quick question" thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 02:38:50 UTC
From: <wagstw46@...>
Topic: 46087 Message: 46107

I dont call cleaning aux relay contacts getting in "depth".

There are lots of people who preach cleaning all molex connectors on these KW hybrids rigs to resolve any and all operational issues and often get lucky and affect a fix, but they have no idea what was wrong and what fixed it.

However any time you start pulling/cleaning molex connectors you risk damage. This is especially true with the TS530 and TS830 radios. Very easy to pull molex connectors off the boards. Now risk lifting foils and pads in the repair process on old phenolic boards.

It bemuses me that so many still dont understand what a pegged S-meter is telling you after all the time that has been devoted to explaining how the AGC and S-meter circuit functions in the rigs.

I saw only one "basic" suggestion on this thread and that was to make sure RF gain was full CW position. A common operator error that anyone could make.

He can have a ball pulling all the molex connectors off his TS-820. Not something I would advise him to do.

One thing I have learned with many vintage rigs it is easy to induce new faults and some of those will be latent faults when you disturb things that are not broken.

For me I prefer to troubleshoot.

73s
Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Terry & Tom,

Terry, no problem about "sticking your nose in." You brought forth sound statements and, your knowledge and expertise are...in my opinion anyway....most EXCELLENT

The poster, I think, is unfamiliar with these fine old rigs, and possibly some diagnostic equipment.
But that's why we are here. I wanted to start out simple...and progress slowly...and get "more in depth" as the thread continued.

Terry, thanks for being a mentor and group member

Tom, Terry's statements are based on sound diagnostic logic. But, let's start at the bottom..get the rig "cleaned up" as stated in prior posts...and go from there.

73 Joe
WB7UQU

46108. TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 00:26:44 UTC
From: <tghotdogz@...>
Topic: 6105 Message: 46108

Hello to the group,

Long time member, first time poster.
Some background on me. Licensed about 12 years ago, Call is W7OA, name is Tom, and I'm in Reno, NV. I enjoy working on / restoring older radios / amps, mostly from the tube era and have worked on, (and own - much to the XYL's chagrin), a fair number. I have worked on a few hybrids, both Kenwood and Yaesu so not totally out of my depth here - I hope. I would consider I have decent troubleshooting skills and a fairly well equipped bench.
So, on to my problem: A TS-820S I'm bringing back to life is now working fine except for an issue with the dgital display. The display works properly on all bands except the four 10 meter band segments. On these segments the display wanders around apparently randomly, showing around 23. xxx or 24.xxx mhz. The receiver is however receiving on the proper frequency, as checked with a SG. Also oddly, once properly loaded up for transmit, the display shows the proper frequency while transmitting, and reverts to random numbers during receive. This is the case on all four 10 meter segments.
I'm hoping someone in the group has come across this or a similar problem before and can give me a shortcut in the right direction.
Thanks for any help.
W7OA
Tom, Reno, NV

46109. Re: [TS-520_820_530_830] TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 10:54:38 UTC
From: ravi sumith
Topic: 6105 Message: 46109

Tom: Once I came across a similar problem with my friend's 820. Erratic display was there on all bands. More than likely the problem is caused by dirty contacts in various areas within the 820. I think a good cleaning is in order for your 820.
I cleaned the CAR,PLL and COUNTER units and problem gone.These units have 2 PC boards inside each metal enclosure. The boards are connected together inside each metal enclosure through a set of fix pins inside the metal enclosures. Quite often the connections between the internal PC boards become corroded resulting in poor connection. Removing each unit and cleaning the connections inside the metal enclosures, more often than not, fixed the problems you are experiencing.

73's de 4s6rav (Ravi)

On Wednesday, 27 November 2013 8:35 AM, "tghotdogz@charter.net" <tghotdogz@...> wrote:

Hello to the group,

Long time member, first time poster.
Some background on me. Licensed about 12 years ago, Call is W7OA, name is Tom, and I'm in Reno, NV. I enjoy working on / restoring older radios / amps, mostly from the tube era and have worked on, (and own - much to the XYL's chagrin), a fair number. I have worked on a few hybrids, both Kenwood and Yaesu so not totally out of my depth here - I hope. I would consider I have decent troubleshooting skills and a fairly well equipped bench.
So, on to my problem: A TS-820S I'm bringing back to life is now working fine except for an issue with the dgital display. The display works properly on all bands except the four 10 meter band segments. On these segments the display wanders around apparently randomly, showing around 23. xxx or 24.xxx mhz. The receiver is however receiving on the proper frequency, as checked with a SG. Also oddly, once properly loaded up for transmit, the display shows the proper frequency while transmitting, and reverts to random numbers during receive. This is the case on all four 10 meter segments.
I'm hoping someone in the group has come across this or a similar problem before and can give me a shortcut in the right direction.
Thanks for any help.
W7OA
Tom, Reno, NV

46110. Re: [TS-520_820_530_830] TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 14:03:43 UTC
From: BILL KELLEY
Topic: 6105 Message: 46110

Hi gents, the problem lies in the vias (connections between top and bottom of the board(s) in the display unit. Fought mine, finally soldered bus wire through each via after sucking out the solder, resoldering each via.
Pretty sure well known problem with the 820 display units.
Has worked 100% ever since. Not a bad job, but I am an electronic tech and deal with issues like this daily.
Bill AB4KH

Sent from Yahoo! Mail on Android

46111. Re: [TS-520_820_530_830] TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 03:50:37 UTC
From: George
Topic: 6105 Message: 46111

I've heard these are a pain to work on
Usually not a bad device but poor solder joints....

Read here on the section 820s

http://www.hybridrestore.com/whats-acceptable-for-repair/

Good luck
George NE2I

Sent from my iPad

On Nov 26, 2013, at 7:26 PM, <tghotdogz@...> wrote:

> Hello to the group,
>
>
>
> Long time member, first time poster.
>
> Some background on me. Licensed about 12 years ago, Call is W7OA, name is Tom, and I'm in Reno, NV. I enjoy working on / restoring older radios / amps, mostly from the tube era and have worked on, (and own - much to the XYL's chagrin), a fair number. I have worked on a few hybrids, both Kenwood and Yaesu so not totally out of my depth here - I hope. I would consider I have decent troubleshooting skills and a fairly well equipped bench.
>
> So, on to my problem: A TS-820S I'm bringing back to life is now working fine except for an issue with the dgital display. The display works properly on all bands except the four 10 meter band segments. On these segments the display wanders around apparently randomly, showing around 23. xxx or 24.xxx mhz. The receiver is however receiving on the proper frequency, as checked with a SG. Also oddly, once properly loaded up for transmit, the display shows the proper frequency while transmitting, and reverts to random numbers during receive. This is the case on all four 10 meter segments.
>
> I'm hoping someone in the group has come across this or a similar problem before and can give me a shortcut in the right direction.
>
> Thanks for any help.
>
> W7OA
>
> Tom, Reno, NV
>
>

46112. resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 16:42:47 UTC
From: <bozo231@...>
Topic: 46112 Message: 46112

does anyone know of a source for 410k 1/2 watt resistors Thanks Ron KK4PWF

46113. RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:03:30 UTC
From: <paw_paw44036@...>
Topic: 46112 Message: 46113

410K is not a common value, but if you parallel 2 - 820k it will give you 410K.
Bill WD8OSJ

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

does anyone know of a source for 410k 1/2 watt resistors Thanks Ron KK4PWF

46114. Re: [TS-520_820_530_830] resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:09:29 UTC
From: Mike
Topic: 46112 Message: 46114

Yes, Mouser sells them, 412K 1/2 watt 1%, for 14 cents each under part number 273-412K-RC.

73
Mike W5RKL

On 11/27/2013 10:42 AM, bozo231@... wrote:
>
> does anyone know of a source for 410k 1/2 watt resistors Thanks
> Ron KK4PWF
>
>

46115. Re: [TS-520_820_530_830] resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:12:35 UTC
From: Mike
Topic: 46112 Message: 46115

As Bill said, and I agree, 410K is not a common resistor value BUT, a
412K will work in place of a 410K.

73
Mike W5RKL

On 11/27/2013 11:09 AM, Mike wrote:
>
> Yes, Mouser sells them, 412K 1/2 watt 1%, for 14 cents each under part
> number 273-412K-RC.
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 11/27/2013 10:42 AM, bozo231@... wrote:
>
>> does anyone know of a source for 410k 1/2 watt resistors Thanks
>> Ron KK4PWF
>>
>
>

46116. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:18:58 UTC
From: K5MYJ
Topic: 46112 Message: 46116

412K is the closest stock value.

What is the application?

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: paw_paw44036@...
To: TS-520_820_530_830@...m
Sent: Wednesday, November 27, 2013 9:03 AM
Subject: [TS-520_820_530_830] RE: resistors

410K is not a common value, but if you parallel 2 - 820k it will give you 410K.

Bill WD8OSJ

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

does anyone know of a source for 410k 1/2 watt resistors Thanks Ron KK4PWF

46117. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:24:36 UTC
From: Ronald Robinson
Topic: 46112 Message: 46117

ok thanks now i read in the parts list of an 820 rectifier board R1-R4 as 410k 1/2 watt resistors and on the x-ray view it shows 470K so which is it anyone know?

On Wednesday, November 27, 2013 11:03 AM, "paw_paw44036@..." <paw_paw44036@...> wrote:

410K is not a common value, but if you parallel 2 - 820k it will give you 410K.
Bill WD8OSJ

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

does anyone know of a source for 410k 1/2 watt resistors   Thanks Ron KK4PWF

46118. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:36:26 UTC
From: Gordon JC Pearce
Topic: 46112 Message: 46118

On Wed, Nov 27, 2013 at 09:24:36AM -0800, Ronald Robinson wrote:
> ok thanks now? i read in the parts list of an 820 rectifier board? R1-R4 as 410k 1/2 watt resistors and on the x-ray view it shows 470K so which is it anyone know?

470k sounds more right that 410k. Aren't they just bleed resistors? I doubt they're in any way critical.

--
Gordonjcp MM0YEQ

46119. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:35:11 UTC
From: Ronald Robinson
Topic: 46112 Message: 46119

if i am right with the math it should be 470K   Ron KK4PWF

On Wednesday, November 27, 2013 11:29 AM, Ronald Robinson <bozo231@...> wrote:

ok thanks now i read in the parts list of an 820 rectifier board R1-R4 as 410k 1/2 watt resistors and on the x-ray view it shows 470K so which is it anyone know?

On Wednesday, November 27, 2013 11:03 AM, "paw_paw44036@..." <paw_paw44036@...> wrote:

410K is not a common value, but if you parallel 2 - 820k it will give you 410K.
Bill WD8OSJ

---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:

does anyone know of a source for 410k 1/2 watt resistors   Thanks Ron KK4PWF

46120. Re: [TS-520_820_530_830] resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 17:51:23 UTC
From: Mike Millen
Topic: 46112 Message: 46120

Two 820K, 1/4W in parallel?

Sorry... couldn't resist it.

Mike
M0MLM

----- Original Message -----
From: bozo231@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, November 27, 2013 4:42 PM
Subject: [TS-520_820_530_830] resistors

does anyone know of a source for 410k 1/2 watt resistors Thanks Ron KK4PWF

.

46121. TS-820D

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 18:32:04 UTC
From: <famtech@...>
Topic: 17105 Message: 46121

Ok, I give up. What's exactly is a Kenwood/Trio MODEL TS-820D and where does it fit in the 820 series ?? Is it for the Japanese market ?? 100 volt power transformer primary ?? What's the "D" mean for this rig ??

Jim L.

46122. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 20:41:23 UTC
From: Mike
Topic: 46112 Message: 46122

R1 thru R4 are NOT bleeder resistors. R1 thru R4 on the Rectifier Unit board are reverse voltage equalizing resistors to protect the series connected diodes, D1 thru D4, against reverse voltage spikes that could damage any of the individual diodes D1 thru D4.

Mouser sells various 470K 1/2 watt resistor but since R1 thru R4 are used in the Rectifier Unit's HV supply, the voltage rating of the resistors used should be taken into consideration. Not all resistors, even resistors of the same power rating, have the same voltage rating.

Mouser sells a 470K 1/2 watt 1% metal film resistor with a voltage rating of 500 volts, part number "71-CMF60470K00FHEK", for 30 cents each.

If you are replacing any of the 4 resistors, R1 thru R4, I recommend you replace all 4 resistor together as a group, even if only one or two resistors are found to be bad or out of tolerance. You want each resistor to be as close in resistance as possible and I believe these 1% resistor will fill that requirement.

Now, my questions are

1. Why are you replacing the Rectifier Unit resistors R1 thru R4?
2. Are they blown, burnt/cracked, or what?
3. If they are burnt/cracked, then have you checked each filter capacitor, C21 and C22, to determine if they too should be replaced as well?
4. Have you checked diodes D1 thru D4 to see if they are bad/blown "open"?

73
Mike W5RKL

On 11/27/2013 11:24 AM, Ronald Robinson wrote:
> ok thanks now i read in the parts list of an 820 rectifier board
> R1-R4 as 410k 1/2 watt resistors and on the x-ray view it shows 470K
> so which is it anyone know?
>
>
>
> On Wednesday, November 27, 2013 11:03 AM, "paw_paw44036@..."
> <paw_paw44036@...> wrote:
>
>
> 410K is not a common value, but if you parallel 2 - 820k it will give
> you 410K.
> Bill WD8OSJ
>
>

> ---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
>
> does anyone know of a source for 410k 1/2 watt resistors Thanks
> Ron KK4PWF
>
>
>
>
>

46123. Re: [TS-520_820_530_830] TS-820D

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 20:39:17 UTC
From: Joseph Stiles
Topic: 17105 Message: 46123

Jim,

  The "D" model I believe, was a non-export Japanese model only. I think that it was originally wired for 100V, not the common 120V here. Also, I think that the output power was limited to maybe 50W output. Since quite a number of our military were in Japan..many may have made it here and been "converted" to 120V. I have never seen one up close.

73 Joe
WB7UQU

On Wednesday, November 27, 2013 12:35 PM, "famtech@..." <famtech@...> wrote:

>Ok, I give up. What's exactly is a Kenwood/Trio MODEL TS-820D and where does it fit in the 820 series ?? Is it for the Japanese market ?? 100 volt power transformer primary ?? What's the "D" mean for this rig ??
>
>Jim L.
>
>
>

46124. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 20:55:12 UTC
From: Gordon JC Pearce
Topic: 46112 Message: 46124

On Wed, Nov 27, 2013 at 02:41:23PM -0600, Mike wrote:
> R1 thru R4 are NOT bleeder resistors. R1 thru R4 on the Rectifier
> Unit board are reverse voltage equalizing resistors to protect the
> series connected diodes, D1 thru D4, against reverse voltage spikes
> that could damage any of the individual diodes D1 thru D4.

Oh yes, that's right. I didn't have the manual in front of me at the time.

> Mouser sells various 470K 1/2 watt resistor but since R1 thru R4 are
> used in the Rectifier Unit's HV supply, the voltage rating of the
> resistors used should be taken into consideration. Not all
> resistors, even resistors of the same power rating, have the same
> voltage rating.

Something people unused to valves often forget!

> Now, my questions are
>
> 1. Why are you replacing the Rectifier Unit resistors R1 thru R4?
> 2. Are they blown, burnt/cracked, or what?
> 3. If they are burnt/cracked, then have you checked each filter
> capacitor, C21 and C22, to determine if they too should be replaced
> as well?
> 4. Have you checked diodes D1 thru D4 to see if they are bad/blown "open"?
>

Bingo. It smacks a bit of the "it's not working, must replace all caps" mentality...

--
Gordonjcp MM0YEQ

46125. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 20:57:04 UTC
From: Ronald Robinson
Topic: 46112 Message: 46125

On Wednesday, November 27, 2013 2:41 PM, Mike <w5rkl@...> wrote:

R1 thru R4 are NOT bleeder resistors. R1 thru R4 on the Rectifier Unit board are reverse voltage equalizing resistors to protect the series connected diodes, D1 thru D4, against reverse voltage spikes that could damage any of the individual diodes D1 thru D4.

Mouser sells various 470K 1/2 watt resistor but since R1 thru R4
are used in the Rectifier Unit's HV supply, the voltage rating of
the resistors used should be taken into consideration. Not all
resistors, even resistors of the same power rating, have the same
voltage rating.

Mouser sells a 470K 1/2 watt 1% metal film resistor with a voltage
rating of 500 volts, part number "71-CMF60470K00FHEK", for 30 cents each.

If you are replacing any of the 4 resistors, R1 thru R4, I
recommend you replace all 4 resistor together as a group, even if
only one or two resistors are found to be bad or out of tolerance.
You want each resistor to be as close in resistance as possible
and I believe these 1% resistor will fill that requirement.

Now, my questions are

1. Why are you replacing the Rectifier Unit resistors R1 thru R4?
2. Are they blown, burnt/cracked, or what?
3. If they are burnt/cracked, then have you checked each filter
capacitor, C21 and C22, to determine if they too should be
replaced as well?
4. Have you checked diodes D1 thru D4 to see if they are bad/blown
"open"?

73
Mike W5RKL

On 11/27/2013 11:24 AM, Ronald Robinson wrote:

>ok thanks now i read in the parts list of an 820 rectifier board R1-R4 as 410k 1/2 watt resistors and on the x-ray view it shows 470K so which is it anyone know?
>
>
>
>
>
>
>On Wednesday, November 27, 2013 11:03 AM, "paw_paw44036@..." <paw_paw44036@...> wrote:
>
>

>
>
>410K is not a common value, but if you parallel 2 - 820k it will give you 410K.
>Bill WD8OSJ
>
>
>
>---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
>
>
>does anyone know of a source for 410k 1/2 watt resistors   Thanks Ron KK4PWF
>
>
>
>
>

46126. Re: [TS-520_820_530_830] RE: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 21:00:54 UTC
From: Ronald Robinson
Topic: 46112 Message: 46126

sorry Mike but the cause of all the ghosting problems I had with this unit is over the transformer just cooked it self !!!!!! at least i don't have to trouble shoot it any more lol , everytime i bumped the unit something else went out on it so here we go from scratch again thanks Ron KK4PWF

On Wednesday, November 27, 2013 2:41 PM, Mike <w5rkl@yahoo.com> wrote:

R1 thru R4 are NOT bleeder resistors. R1 thru R4 on the Rectifier Unit board are reverse voltage equalizing resistors to protect the series connected diodes, D1 thru D4, against reverse voltage spikes that could damage any of the individual diodes D1 thru D4.

Mouser sells various 470K 1/2 watt resistor but since R1 thru R4
are used in the Rectifier Unit's HV supply, the voltage rating of
the resistors used should be taken into consideration. Not all
resistors, even resistors of the same power rating, have the same
voltage rating.

Mouser sells a 470K 1/2 watt 1% metal film resistor with a voltage
rating of 500 volts, part number "71-CMF60470K00FHEK", for 30 cents each.

If you are replacing any of the 4 resistors, R1 thru R4, I
recommend you replace all 4 resistor together as a group, even if
only one or two resistors are found to be bad or out of tolerance.
You want each resistor to be as close in resistance as possible
and I believe these 1% resistor will fill that requirement.

Now, my questions are

1. Why are you replacing the Rectifier Unit resistors R1 thru R4?
2. Are they blown, burnt/cracked, or what?
3. If they are burnt/cracked, then have you checked each filter
capacitor, C21 and C22, to determine if they too should be
replaced as well?
4. Have you checked diodes D1 thru D4 to see if they are bad/blown
"open"?

73
Mike W5RKL

On 11/27/2013 11:24 AM, Ronald Robinson wrote:

>ok thanks now i read in the parts list of an 820 rectifier board R1-R4 as 410k 1/2 watt resistors and on the x-ray view it shows 470K so which is it anyone know?
>
>
>
>

>
>
>On Wednesday, November 27, 2013 11:03 AM, "paw_paw44036@..." <paw_paw44036@...> wrote:
>
>
>
>
>410K is not a common value, but if you parallel 2 - 820k it will give you 410K.
>Bill WD8OSJ
>
>
>
>---In TS-520_820_530_830@yahoogroups.com, <bozo231@...> wrote:
>
>
>does anyone know of a source for 410k 1/2 watt resistors   Thanks Ron KK4PWF
>
>
>
>
>

46127. RE: TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 21:18:09 UTC
From: <mgilger@...>
Topic: 6105 Message: 46127

If you have not performed the procedures in Kenwood's #54 tech bulletin, that would be a good place to start. You can view it here:

http://wb4hfn.com/KENWOOD/Articles/SERVICE%20NOTES%20-%20ALL%20HYBRIDS.pdf

It's a good idea to put a piece of wire, like what you would find on an 1/8 watt resistor lead, through the plated through holes and solder both sides. There are probably 15-20 of these that this needs to be performed on.

Regards,
Mark, WB0IQK

---In TS-520_820_530_830@yahoogroups.com, <tghotdogz@...> wrote:

Hello to the group,

Long time member, first time poster.
Some background on me. Licensed about 12 years ago, Call is W7OA, name is Tom, and I'm in Reno, NV. I enjoy working on / restoring older radios / amps, mostly from the tube era and have worked on, (and own - much to the XYL's chagrin), a fair number. I have worked on a few hybrids, both Kenwood and Yaesu so not totally out of my depth here - I hope. I would consider I have decent troubleshooting skills and a fairly well equipped bench.
So, on to my problem: A TS-820S I'm bringing back to life is now working fine except for an issue with the dgital display. The display works properly on all bands except the four 10 meter band segments. On these segments the display wanders around apparently randomly, showing around 23. xxx or 24.xxx mhz. The receiver is however receiving on the proper frequency, as checked with a SG. Also oddly, once properly loaded up for transmit, the display shows the proper frequency while transmitting, and reverts to random numbers during receive. This is the case on all four 10 meter segments.
I'm hoping someone in the group has come across this or a similar problem before and can give me a shortcut in the right direction.
Thanks for any help.
W7OA
Tom, Reno, NV

46128. TS-830 ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 20:50:17 UTC
From: Jim W7RY
Topic: 46128 Message: 46128

Has anyone come up with a solution to the TS-830S transmitter ALC overshoot? A Google search netted no results.

Thanks
73
Jim W7RY

46129. RE: [TS-520_820_530_830] "quick question" thread

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 21:38:37 UTC
From: Tom Bryan
Topic: 46087 Message: 46129

Gentlemen:

You are all being a big help here. I did study electronics back in the 70's when troubleshooting discrete components was all there was. TTL and the 555 timer were advanced stuff. I still have an old Heath kit oscilloscope

that I bought and assembled in the early 80's. I have been repairing PC's for a while lately. So, I am familiar with some test equipment. the advantage of giving this a cleaning first, is it lets you familiarize yourself with the

transceiver and locate different sections of the schematic in the radio. I think just that will be a good start to my troubleshooting. My Deoxit arrived today so I will be able to do some cleaning as I study this rig.

I'm starting to think that "quick question" was not an appropriate name for this thread..

Happy Thanksgiving to you folks in the states and once again, THANK YOU for all your assistance.

Tom

KC9JZF

From: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joseph Stiles
Sent: Tuesday, November 26, 2013 1:49 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] "quick question" thread

Terry & Tom,

Terry, no problem about "sticking your nose in." You brought forth sound statements and, your knowledge and expertise are...in my opinion anyway....most EXCELLENT

The poster, I think, is unfamiliar with these fine old rigs, and possibly some diagnostic equipment.

But that's why we are here. I wanted to start out simple...and progress slowly...and get "more in depth" as the thread continued.

Terry, thanks for being a mentor and group member

Tom, Terry's statements are based on sound diagnostic logic. But, let's start at the bottom..get the rig "cleaned up" as stated in prior posts...and go from there.

73 Joe
WB7UQU

46130. Re: [TS-520_820_530_830] TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 21:51:39 UTC
From: clifford wright
Topic: 6105 Message: 46130

I have had this problem too Tom with my much modified TS820s. In my case
the bands affected were 21 and the 28 MHz ranges. Oddly enough the 24
and 18 MHz WARC bands were OK (my unit is modified for WARC).
Now there is a mod on the mods.dk site which involves putting an extra
tuned circuit in the synthesiser to remove a potential spurious signal.
This works, up to a point, but clean contacts are also a good idea.
However I am pretty sure that the chip used to combine the various
signals is no longer up to scratch. Problem is (of course) 1970's IC's
are even more made of "unobtanium" than 1970's tubes!!!
73 ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46131. Re: resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 21:54:34 UTC
From: clifford wright
Topic: 46112 Message: 46131

Try 2 x 820K in parallel.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46132. 830S Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 21:58:29 UTC
From: richard radke
Topic: 46132 Message: 46132

Does anyone have a 830S on the bench (bottom) open? Replaced cathode and screen resistors. Does the green wire going to the board also go to the “H” post along with the purple wire? I know, I know, I should’a took a picture.

Rick
W9WS

46133. Re: [TS-520_820_530_830] 830S Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 22:07:49 UTC
From: Joseph Stiles
Topic: 46132 Message: 46133

Rick.....VIOLET & GREEN got to the "H" (heater) post

73 Joe
WB7UQU

On Wednesday, November 27, 2013 1:58 PM, richard radke <rar100@...> wrote:

Does anyone have a 830S on the bench (bottom) open? Replaced cathode and screen resistors. Does the green wire going to the board also go to the “H” post along with the purple wire? I know, I know, I should’a took a picture.
>
>Rick
>W9WS
>
>------------------------------------
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>Yahoo Groups Links
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46134. Re: [TS-520_820_530_830] 830S Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 22:41:08 UTC
From: richard radke
Topic: 46132 Message: 46134

Thanks Joe. Done 3 of these in the last couple years and thought “I don’t need no stinking pictures”, yah right.

Have a safe holiday!
Rick
W9WS

On Nov 27, 2013, at 4:07 PM, Joseph Stiles <stilesjoseph@...> wrote:

>
> Rick.....VIOLET & GREEN got to the "H" (heater) post
>
>
> 73 Joe
> WB7UQU
>
>
> On Wednesday, November 27, 2013 1:58 PM, richard radke <rar100@...> wrote:
> Does anyone have a 830S on the bench (bottom) open? Replaced cathode and screen resistors. Does the green wire going to the board also go to the “H” post along with the purple wire? I know, I know, I should’a took a picture.
>
> Rick
> W9WS
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46135. 820S parts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 23:19:41 UTC
From: <bozo231@...>
Topic: 46135 Message: 46135

just want to let the group know I'm parting out a TS 820s if anyone needs parts thanks Ron KK4PWF

46136. RE: TS-820D

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 22:58:34 UTC
From: <famtech@...>
Topic: 17105 Message: 46136

Thanks for all the information regarding this model. One good clue about this rig is that it's badged "Trio" instead of "Kenwood". One just showed-up today on Fleabay which got my attention and why I posted the question. Received but no transmit. It went pretty fast under "Buy It Now" for two-hundred bucks including shipping and I'm glad I passed it up even though I'm a big fan of the older Kenwood hybrid rigs. Sure enjoy using my "D-Twins".

Regards,

Jim L.

---In ts-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Jim,

The "D" model I believe, was a non-export Japanese model only. I think that it was originally wired for 100V, not the common 120V here. Also, I think that the output power was limited to maybe 50W output. Since quite a number of our military were in Japan..many may have made it here and been "converted" to 120V. I have never seen one up close.

73 Joe
WB7UQU

On Wednesday, November 27, 2013 12:35 PM, "famtech@..." <famtech@...> wrote:

Ok, I give up. What's exactly is a Kenwood/Trio MODEL TS-820D and where does it fit in the 820 series ?? Is it for the Japanese market ?? 100 volt power transformer primary ?? What's the "D" mean for this rig ??

Jim L.

46137. Re: [TS-520_820_530_830] 830S Question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-27 23:38:58 UTC
From: Joseph Stiles
Topic: 46132 Message: 46137

Rick,

Glad to help. I know what you mean. Safe & Happy Holidays to you also.

73 Joe
WB7UQU

On Wednesday, November 27, 2013 2:41 PM, richard radke <rar100@...> wrote:

>Thanks Joe. Done 3 of these in the last couple years and thought “I don’t need no stinking pictures”, yah right.
>
>
>Have a safe holiday!
>Rick
>W9WS
>
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>
>On Nov 27, 2013, at 4:07 PM, Joseph Stiles <stilesjoseph@...> wrote:
>
>
>>
>>
>>   Rick.....VIOLET & GREEN got to the "H" (heater) post
>>
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>>
>>73 Joe
>>WB7UQU
>>
>>
>>
>>On Wednesday, November 27, 2013 1:58 PM, richard radke <rar100@...> wrote:
>>
>>Does anyone have a 830S on the bench (bottom) open? Replaced cathode and screen resistors. Does the green wire going to the board also go to the “H” post along with the purple wire? I know, I know, I should’a took a picture.
>>>
>>>Rick
>>>W9WS
>>>

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46138. Re: [TS-520_820_530_830] TS-820D

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 04:59:40 UTC
From: Wes Will
Topic: 17105 Message: 46138

On 11/27/2013 12:32 PM, famtech@... wrote:
>
>
> Ok, I give up. What's exactly is a Kenwood/Trio MODEL TS-820D and where
> does it fit in the 820 series ?? Is it for the Japanese market ?? 100
> volt power transformer primary ?? What's the "D" mean for this rig ??
>
> Jim L.

D for Domestic. NON-EXPORT model of the 820, for the Japanese market.

Some have come across the pond, mostly via U.S. military members, they were available fairly cheaply in the after-market in the mid- to late-80's when I was stationed in Misawa Air Base, Aomori Prefecture, on Honshu.

(Also Known As "The Great White North," 6 to 8 meters of snowfall a year where I was, on average. In 1986 the snowfall was almost double the average, all told.... For some reason everyone thinks of Japan all being like Okinawa, a tropical paradise. Not only is Japan NOT all tropical, Okinawa is NOT even Japan - MOST DECIDEDLY NOT! Japan, I was there the day the Japanese government raised the Japanese flag (instead of the Okinawan flag) over the Okinawan Diet (Congress, sort of) for the first time. I thought they were going to burn that whole island down...)

As for the differences in the radios, S vs. D series, I can only go by memory, but the memory is that there is NO difference excepting the power supply section. The transformer in the D models was for 100 volt Japanese power, and it accepted both 50 and 60 Hz frequency line voltage. Converting them to "S" model was mostly a swap of the transformer and some fuses, I believe. Possibly a few other odds and ends, but the primary winding was the big change in the D series radio versus the S model.

Japanese power is a whole 'nother topic all its own.

The big kicker, is that part of Japan is on 50 Hz, the rest on 60 Hz. Most non-power-line-synched devices just cope with the difference in frequency, and a large portion of U.S. market general electrical and electronic gear will run just fine on the Japanese current. The majority of small devices sole inside Japan have a "50/60" Hz frequency switch which must be toggled to the correct value, depending upon where you are in the country. (AC synchronous motors in clocks for instance, rely on the frequency of the power line current to stay 'on time' and CAN NOT just be expected to work properly when fed current of a different frequency.)

A lot of stuff will "just work" in Japan, if it was made for the U.S. market. But NOT everything.

Woe betide (s)he who plugs a resistive-element hair dryer meant for 60 Hz 120 VAC power (Stateside) into a Japanese 50 Hz 100 VAC socket. (The plug will quite likely FIT, too!) The cloud of smoke is not only large, but -rather- smelly, and the hair 'dried' with it will smell of burned insulation for - and I am absolutely not joking here - SEVERAL DAYS! If the hair did not catch fire and burn mostly OFF, that is.

My ex-wife lost a hair dryer in a Tokyo motel that way, when she was new to the country..... About burned the motel room down, too. She was quite frazzled when I got there to pick her up and get us both on the train back to base, on the other end of Honshu. And FRIZZLED, too! Didn't burn her hair off, quite, but it was a bit crispier than the day before.

--
Wes Will
N9KDY

46139. Low output SSB on TS-820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 07:04:50 UTC
From: Benjamin Kuo
Topic: 46139 Message: 46139

KENWOOD TS-520_820_530_830Hi all--
I’m a fairly new ham (first ticket this year), but have a electrical engineering background and am comfortable debugging circuits and soldering. However, I have very little experience with fixing hybrid rigs like the Kenwood (although I have both a TS-520 and TS-820S, my primary radios).
I recently picked up a TS-820S, and it works great except that I am getting lower than expected output on both USB and LSB on all bands. (CW power at 100 watts-120 watts; SSB output only puts out about 15-25 watts; for comparison, my TS-520 tuned up to the same CW power level will often read 75-100 watts on SSB on the same power meter). With Compression turned on have the same problem. ALC metering as expected. Full output on CW and CAR control allows me to adjust levels for the full range in CW.
I thought this esteemed group might help point me in the right direction before I spend a lot of time poking around the innards of the radio.
Base on the schematics, I am guessing that there might be issues at Q20 or Q21 causing low output on SSB. Am I on the right track? Also, anything I ought to know about replacement transistors for either or both of these 2SC733’s? Or, is there something else I should be looking at?
Thanks (and happy Turkey day!)
Ben
KK6FUT

46140. Re: [TS-520_820_530_830] Low output SSB on TS-820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 12:20:25 UTC
From: Mike
Topic: 46139 Message: 46140

Ben,

You say your TS-520 produces 75 to 100 watts output as indicated on your watt meter in "SSB" (USB or LSB) mode? What make and model watt meter are you using that displays that power output level from your TS-520 in sideband transmit? Also what indications are you seeing on the meter (meter switch set to ALC) during voice peaks in USB or LSB mode with 75 to 100 watts output indicated on your watt meter?

The TS-520's normal DC input power (CW mode) is 160 watts (.2 x 800 = 160). Typical final amplifier efficiency rating (output power verses input power ratio) is between 55% and 60%. If we lean more towards the 60% efficiency rating, the CW carrier power output into a 50 ohm load from your TS-520 will be approximately 96 watts (.6 x 160 = 96).

You then say your newly acquired TS-820S is producing similar 75 to 100 watts CW carrier output power but in SSB (LSB or USB) it is only indicating 15 to 25 watts output. That appears to be normal power output on voice peaks from your TS-820S when output is fed to an average watt meter.

Again, what make, model, and type of watt meter are you using, Peak reading or average power?

73
Mike W5RKL

On 11/28/2013 1:04 AM, Benjamin Kuo wrote:
>
> Hi all--
> I’m a fairly new ham (first ticket this year), but have a electrical
> engineering background and am comfortable debugging circuits and
> soldering. However, I have very little experience with fixing hybrid
> rigs like the Kenwood (although I have both a TS-520 and TS-820S, my
> primary radios).
> I recently picked up a TS-820S, and it works great except that I am
> getting lower than expected output on both USB and LSB on all bands.
> (CW power at 100 watts-120 watts; SSB output only puts out about 15-25
> watts; for comparison, my TS-520 tuned up to the same CW power level
> will often read 75-100 watts on SSB on the same power meter). With
> Compression turned on have the same problem. ALC metering as expected.
> Full output on CW and CAR control allows me to adjust levels for the
> full range in CW.
> I thought this esteemed group might help point me in the right
> direction before I spend a lot of time poking around the innards of
> the radio.

> Base on the schematics, I am guessing that there might be issues at
> Q20 or Q21 causing low output on SSB. Am I on the right track? Also,
> anything I ought to know about replacement transistors for either or
> both of these 2SC733’s? Or, is there something else I should be
> looking at?
> Thanks (and happy Turkey day!)
> Ben
> KK6FUT
>

46141. Re: [TS-520_820_530_830] Low output SSB on TS-820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 12:22:21 UTC
From: Mike
Topic: 46139 Message: 46141

*Ben,

I forgot to a**sk what the TS-820S "ALC" meter indications are on voice peaks with 15 to 20 watts indicated **on your watt meter?**
**
73
**Mike W5RKL*

On 11/28/2013 6:20 AM, Mike wrote:
> Ben,
>
> You say your TS-520 produces 75 to 100 watts output as indicated on
> your watt meter in "SSB" (USB or LSB) mode? What make and model watt
> meter are you using that displays that power output level from your
> TS-520 in sideband transmit? Also what indications are you seeing on
> the meter (meter switch set to ALC) during voice peaks in USB or LSB
> mode with 75 to 100 watts output indicated on your watt meter?
>
> The TS-520's normal DC input power (CW mode) is 160 watts (.2 x 800 =
> 160). Typical final amplifier efficiency rating (output power verses
> input power ratio) is between 55% and 60%. If we lean more towards the
> 60% efficiency rating, the CW carrier power output into a 50 ohm load
> from your TS-520 will be approximately 96 watts (.6 x 160 = 96).
>
> You then say your newly acquired TS-820S is producing similar 75 to
> 100 watts CW carrier output power but in SSB (LSB or USB) it is only
> indicating 15 to 25 watts output. That appears to be normal power
> output on voice peaks from your TS-820S when output is fed to an
> average watt meter.
>
> Again, what make, model, and type of watt meter are you using, Peak
> reading or average power?
>
> 73
> Mike W5RKL
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>
> On 11/28/2013 1:04 AM, Benjamin Kuo wrote:
>>
>> Hi all--
>> I'm a fairly new ham (first ticket this year), but have a

>> electrical engineering background and am comfortable debugging
>> circuits and soldering. However, I have very little experience with
>> fixing hybrid rigs like the Kenwood (although I have both a TS-520
>> and TS-820S, my primary radios).
>> I recently picked up a TS-820S, and it works great except that I am
>> getting lower than expected output on both USB and LSB on all bands.
>> (CW power at 100 watts-120 watts; SSB output only puts out about
>> 15-25 watts; for comparison, my TS-520 tuned up to the same CW power
>> level will often read 75-100 watts on SSB on the same power meter).
>> With Compression turned on have the same problem. ALC metering as
>> expected. Full output on CW and CAR control allows me to adjust
>> levels for the full range in CW.
>> I thought this esteemed group might help point me in the right
>> direction before I spend a lot of time poking around the innards of
>> the radio.
>> Base on the schematics, I am guessing that there might be issues at
>> Q20 or Q21 causing low output on SSB. Am I on the right track? Also,
>> anything I ought to know about replacement transistors for either or
>> both of these 2SC733’s? Or, is there something else I should be
>> looking at?
>> Thanks (and happy Turkey day!)
>> Ben
>> KK6FUT
>>
>

46142. Thanksgiving

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 13:58:10 UTC
From: <paw_paw44036@...>
Topic: 46142 Message: 46142

Just want to wish all of you a Happy Thanksgiving Holiday.
God Bless All.
Bill WD8OSJ

46143. RE: Thanksgiving

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 16:34:52 UTC
From: <bonnevilleblb@...>
Topic: 46142 Message: 46143

Hope EVERYBODY has a great Thanksgiving - we sure have a LOT to be thankful for! God bless everybody,

Barry
KK4RXN
Jeremiah 29:11 / John 3:16

---In ts-520_820_530_830@yahoogroups.com, <paw_paw44036@...> wrote:

Just want to wish all of you a Happy Thanksgiving Holiday.
God Bless All.
Bill WD8OSJ

46144. RE: Low output SSB on TS-820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 16:32:59 UTC
From: Benjamin Kuo
Topic: 46139 Message: 46144

KENWOOD TS-520_820_530_830Mike,

Thanks for the reply.

The watt meter I am using is the MFJ 949 (wattmeter built into the MFJ Deluxe Versa Tuner). I'm not sure if it's calibrated, how accurate, or how well it works, but usually both rigs end up right at around or above 100 watts peak reading on the meter in CW mode when tuned up using the procedures in the manual. Idle current set to 60ma on both rigs, if the IP meter is correct. Drive tuning to peak ALC, plate tuned to minimum current.

The readings I am seeing in SSB are peak readings after following tuning procedures.

ALC meter indications are per the tuning procedures for voice, with MIC control adjusted to peak ALC on the upper end of the ALC indicator on the dial in both cases. For both rigs, that ends up being a MIC level of 3.

For the 820S:
in TUN mode, ALC peaked, IP reading around 65ma (manual indicates this should be 100ma)
in CW mode, IP reading only around 75ma (manual indicates this should be 200ma)
In LSB or USB, IP reading 60ma to 130ma (manual indicates range should be 60 to 250ma).
No idea what this would indicate. My (TS520, for comparison, is showing TUN peak of 50ma, CW of 200ma, LSB of 60ma to 130ma).

The only reason I ask is the peak readings on SSB are significantly different between the 520 and 820S, with the same CW output level, and in some testing with some very local stations on 40m (ie across town) they are able to hear the difference in output power. I am assuming (perhaps incorrectly) that the two rigs would have a somewhat similar power output profile??

Thanks,

Ben
KK6FUT

1a

Re: Low output SSB on TS-820S

Thu Nov 28, 2013 4:20 am (PST) . Posted by:

"Mike" w5rkl

Ben,

You say your TS-520 produces 75 to 100 watts output as indicated on your watt meter in "SSB" (USB or LSB) mode? What make and model watt meter are you using that displays that power output level from your TS-520 in sideband transmit? Also what indications are you seeing on the meter (meter switch set to ALC) during voice peaks in USB or LSB mode with 75 to 100 watts output indicated on your watt meter?

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You then say your newly acquired TS-820S is producing similar 75 to 100 watts CW carrier output power but in SSB (LSB or USB) it is only indicating 15 to 25 watts output. That appears to be normal power output on voice peaks from your TS-820S when output is fed to an average watt meter.

Again, what make, model, and type of watt meter are you using, Peak reading or average power?

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Mike W5RKL

On 11/28/2013 1:04 AM, Benjamin Kuo wrote:
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> Hi all--
> Iâ□□m a fairly new ham (first ticket this year), but have a electrical
> engineering background and am comfortable debugging circuits and
> soldering. However, I have very little experience with fixing hybrid
> rigs like the Kenwood (although I have both a TS-520 and TS-820S, my
> primary radios).
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> (CW power at 100 watts-120 watts; SSB output only puts out about 15-25
> watts; for comparison, my TS-520 tuned up to the same CW power level
> will often read 75-100 watts on SSB on the same power meter). With
> Compression turned on have the same problem. ALC metering as expected.
> Full output on CW and CAR control allows me to adjust levels for the
> full range in CW.
> I thought this esteemed group might help point me in the right
> direction before I spend a lot of time poking around the innards of
> the radio.
> Base on the schematics, I am guessing that there might be issues at
> Q20 or Q21 causing low output on SSB. Am I on the right track? Also,
> anything I ought to know about replacement transistors for either or
> both of these 2SC733â□□s? Or, is there something else I should be
> looking at?
> Thanks (and happy Turkey day!)

> Ben
> KK6FUT
>

46145. Re: [TS-520_820_530_830] RE: Low output SSB on TS-820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 20:26:58 UTC
From: Mike
Topic: 46139 Message: 46145

Ben,

I assume you have set the MFJ-949 watt meter "Peak/Average" switch to "Peak".

I don't know what you mean when you say:

"/*For the 820S:
in TUN mode, ALC peaked, IP reading around 65ma (manual indicates this should be 100ma)
in CW mode, IP reading only around 75ma (manual indicates this should be 200ma)"

*/It is true the DRIVE control is adjusted for a peak ALC meter indication in TUNE mode then the meter switch is set to IP and the PLATE control is adjusted for a "dip" in IP current. However, you say the IP meter reading is 65ma which is normal but you say the manual says it should be "100ma". I don't know where you read that, I have looked at the 820 operator's manual and I can't find where it says that.

The following is how you initially set the Class AB1 60ma idling current using the bias pot adjustment, followed by how to tune the transmitter on any band. The MFJ-949 has an internal 50 ohm "300 watt" dummy load so I recommend you get use to using it when tuning up your transmitters.

Setting the final amplifier's bias pot for Class AB1 60ma idling current:

1. Connect the 820 to a 50 ohm dummy load.
2. Set the Mode switch to either USB or LSB (it doesn't matter which sideband, LSB or USB, you use), MIC gain control fully CCW, and the meter switch to IP.
3. Flip the SEND switch UP (keys the transmitter) and adjust the bias pot on the rear panel so the meter points to 60ma (top scale) then flip the SEND switch DOWN (unkeys the transmitter).

This concludes the final amplifier's 60ma idling current setting. You should not have to adjust the bias pot in the future unless you change final tubes or you have performed service on the final amplifier. You do not have to adjust the bias pot if you change the driver tube only.

Next is the tune up procedures (820 is still connected to the 50 ohm dummy load):

1. Set LOAD control fully CCW
2. Set PLATE control knob so it points to the middle of the white silk screen band arc above the PLATE control based on the band selected by the band switch.

3. Set the Mode switch to TUNE
4. Set the Meter switch to ALC
5. Set the CAR control knob so it points between 10 and 11 o'clock.
6. Flip SEND switch UP (keys the transmitter) then adjust the DRIVE control for a peak meter indication (ignore ALL meter scales!!). If while adjusting the DRIVE control, the meter pegs full scale to the right, rotate the CAR control CCW so the meter pointer is pointing at 12 o'clock then continue adjusting the DRIVE control for a peak meter indication, again "ignoring all meter scales".
7. Set meter switch to IP.
8. Adjust the PLATE control for a dip in IP current (top scale).
9. FLIP the SEND switch DOWN.

Let the 820 cool down a few minutes.

10. Set the MODE switch to CW
11. Set the METER switch to RF
12. Flip the SEND switch UP
13. Adjust both the LOAD control and the PLATE control for a peak meter indication, ignoring ALL meter scales. If the meter pegs full scale to the right adjust the "RF VOLT" pot on the rear panel for a meter indication that points between 1 and 2 o'clock then continue adjusting the PLATE and LOAD controls for a peak meter indication. The RF meter is not a watt meter. It simply displays "relative" power output and there are no meter scales for the RF meter switch position.
14. Set meter switch to IP and adjust the CAR control for an IP indication of 200ma
15. Flip the SEND switch down (unkeys) the transmitter.

You can determine the approximate input and output power, in CW mode, by noting the IP meter and HV meter indications. Multiply the IP meter indication by the HV meter indication will show the "DC input power" in the final amplifier. The final amplifier in the 820, and all of the KW hybrids, operates in Class AB1 so the efficiency percentage is between 55 and 60 percent. Therefore, multiply .55 or .6 by the DC input power and you will calculate the approximate average RF output power at the antenna connector on the rear panel.

You're done tuning the transmitter. If you are using the tuner in the MFJ-949 to feed your antenna and to tune for lowest SWR, do not touch or adjust the 820 transmitter's PLATE and LOAD controls, adjust the tuner controls ONLY for the lowest SWR.

In sideband, set the MIC gain fully CCW, meter switch to ALC, then press the PTT button. Speaking in a normal voice level about an inch or so from the microphone, adjust the MIC gain to the point where the ALC meter just starts to rise above zero then stop adjusting the MIC gain. This will give you some "head room" if you talk a bit louder, a lot of hams tend to talk louder after they make initial adjustments, which should result in the ALC meter to peak at the top end of the ALC scale when speaking slightly louder into the microphone. You should not adjust

the MIC gain that results in the the ALC meter, on voice peaks, remains "constantly" at the top end of the ALC scale. The average power output in sideband indicated on an average watt meter will be between 20 and 25 watts, somewhat higher on a peak reading watt meter. The peak reading watt meter option in your MFJ-949 is activated by pressing the PEAK/AVERAGE meter switch on the right side of the front panel, "in". If this push button switch is not pressed "IN" then the meter is displaying "average" power (see the MFJ-949 manual, page 1, for details).

The CAR control is "disabled" in either LSB or USB modes. The CAR knob controls power output in TUNE and CW mode and is only active in TUNE and CW mode.

The CW socket is a "N.C." socket which means you do not have to have a CW key/plug inserted into the CW socket for the transmitter to produce RF output in CW transmit. A CW key "IS" required to send CW.

What type of microphone are you using with the TS-820? The microphone impedance for the TS-820 is 50K ohms, same as the TS-520.

73
Mike W5RKL

On 11/28/2013 10:32 AM, Benjamin Kuo wrote:
>
> KENWOOD TS-520_820_530_830Mike,
>
> Thanks for the reply.
>
> The watt meter I am using is the MFJ 949 (wattmeter built into the MFJ
> Deluxe Versa Tuner). I'm not sure if it's calibrated, how accurate, or
> how
> well it works, but usually both rigs end up right at around or above 100
> watts peak reading on the meter in CW mode when tuned up using the
> procedures in the manual. Idle current set to 60ma on both rigs, if
> the IP
> meter is correct. Drive tuning to peak ALC, plate tuned to minimum
> current.
>
> The readings I am seeing in SSB are peak readings after following tuning
> procedures.
>
> ALC meter indications are per the tuning procedures for voice, with MIC
> control adjusted to peak ALC on the upper end of the ALC indicator on the
> dial in both cases. For both rigs, that ends up being a MIC level of 3.
>
> For the 820S:
> in TUN mode, ALC peaked, IP reading around 65ma (manual indicates this
> should be 100ma)
> in CW mode, IP reading only around 75ma (manual indicates this should be
> 200ma)

> In LSB or USB, IP reading 60ma to 130ma (manual indicates range should
> be 60
> to 250ma).
> No idea what this would indicate. My (TS520, for comparison, is
> showing TUN
> peak of 50ma, CW of 200ma, LSB of 60ma to 130ma).
>
> The only reason I ask is the peak readings on SSB are significantly
> different between the 520 and 820S, with the same CW output level, and in
> some testing with some very local stations on 40m (ie across town)
> they are
> able to hear the difference in output power. I am assuming (perhaps
> incorrectly) that the two rigs would have a somewhat similar power output
> profile??
>
> Thanks,
>
> Ben
> KK6FUT
>
> 1a
>
> Re: Low output SSB on TS-820S
>
> Thu Nov 28, 2013 4:20 am (PST) . Posted by:
>
> "Mike" w5rkl
>
> Ben,
>
> You say your TS-520 produces 75 to 100 watts output as indicated on your
> watt meter in "SSB" (USB or LSB) mode? What make and model watt meter
> are you using that displays that power output level from your TS-520 in
> sideband transmit? Also what indications are you seeing on the meter
> (meter switch set to ALC) during voice peaks in USB or LSB mode with 75
> to 100 watts output indicated on your watt meter?
>
> The TS-520's normal DC input power (CW mode) is 160 watts (.2 x 800 =
> 160). Typical final amplifier efficiency rating (output power verses
> input power ratio) is between 55% and 60%. If we lean more towards the
> 60% efficiency rating, the CW carrier power output into a 50 ohm load
> from your TS-520 will be approximately 96 watts (.6 x 160 = 96).
>
> You then say your newly acquired TS-820S is producing similar 75 to 100
> watts CW carrier output power but in SSB (LSB or USB) it is only
> indicating 15 to 25 watts output. That appears to be normal power output
> on voice peaks from your TS-820S when output is fed to an average watt
> meter.
>

> Again, what make, model, and type of watt meter are you using, Peak
> reading or average power?
>
> 73
> Mike W5RKL
>
> On 11/28/2013 1:04 AM, Benjamin Kuo wrote:
> >
> > Hi all--
> > Iâ□□m a fairly new ham (first ticket this year), but have a
> electrical
> > engineering background and am comfortable debugging circuits and
> > soldering. However, I have very little experience with fixing hybrid
> > rigs like the Kenwood (although I have both a TS-520 and TS-820S, my
> > primary radios).
> > I recently picked up a TS-820S, and it works great except that I am
> > getting lower than expected output on both USB and LSB on all bands.
> > (CW power at 100 watts-120 watts; SSB output only puts out about 15-25
> > watts; for comparison, my TS-520 tuned up to the same CW power level
> > will often read 75-100 watts on SSB on the same power meter). With
> > Compression turned on have the same problem. ALC metering as expected.
> > Full output on CW and CAR control allows me to adjust levels for the
> > full range in CW.
> > I thought this esteemed group might help point me in the right
> > direction before I spend a lot of time poking around the innards of
> > the radio.
> > Base on the schematics, I am guessing that there might be issues at
> > Q20 or Q21 causing low output on SSB. Am I on the right track? Also,
> > anything I ought to know about replacement transistors for either or
> > both of these 2SC733â□□s? Or, is there something else I should be
> > looking at?
> > Thanks (and happy Turkey day!)
> > Ben
> > KK6FUT
> >
>
>

46146. Re: [TS-520_820_530_830] RE: Low output SSB on TS-820S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 20:30:59 UTC
From: Mike
Topic: 46139 Message: 46146

I misspoke by saying the MFJ-949 PEAK/AVERAGE meter push button switch
is on the right side of the front panel. It's on the "right hand side"
of the cabinet.

73
Mike W5RKL

On 11/28/2013 2:26 PM, Mike wrote:
> Ben,
>
> I assume you have set the MFJ-949 watt meter "Peak/Average" switch to
> "Peak".
>
> I don't know what you mean when you say:
>
> "/*For the 820S:
> in TUN mode, ALC peaked, IP reading around 65ma (manual indicates this
> should be 100ma)
> in CW mode, IP reading only around 75ma (manual indicates this should be
> 200ma)"
>
> */It is true the DRIVE control is adjusted for a peak ALC meter
> indication in TUNE mode then the meter switch is set to IP and the
> PLATE control is adjusted for a "dip" in IP current. However, you say
> the IP meter reading is 65ma which is normal but you say the manual
> says it should be "100ma". I don't know where you read that, I have
> looked at the 820 operator's manual and I can't find where it says that.
>
> The following is how you initially set the Class AB1 60ma idling
> current using the bias pot adjustment, followed by how to tune the
> transmitter on any band. The MFJ-949 has an internal 50 ohm "300 watt"
> dummy load so I recommend you get use to using it when tuning up your
> transmitters.
>
> Setting the final amplifier's bias pot for Class AB1 60ma idling current:
>
> 1. Connect the 820 to a 50 ohm dummy load.
> 2. Set the Mode switch to either USB or LSB (it doesn't matter which
> sideband, LSB or USB, you use), MIC gain control fully CCW, and the
> meter switch to IP.
> 3. Flip the SEND switch UP (keys the transmitter) and adjust the bias
> pot on the rear panel so the meter points to 60ma (top scale) then
> flip the SEND switch DOWN (unkeys the transmitter).
>
> This concludes the final amplifier's 60ma idling current setting. You

> should not have to adjust the bias pot in the future unless you change
> final tubes or you have performed service on the final amplifier. You
> do not have to adjust the bias pot if you change the driver tube only.
>
> Next is the tune up procedures (820 is still connected to the 50 ohm
> dummy load):
>
> 1. Set LOAD control fully CCW
> 2. Set PLATE control knob so it points to the middle of the white silk
> screen band arc above the PLATE control based on the band selected by
> the band switch.
> 3. Set the Mode switch to TUNE
> 4. Set the Meter switch to ALC
> 5. Set the CAR control knob so it points between 10 and 11 o'clock.
> 6. Flip SEND switch UP (keys the transmitter) then adjust the DRIVE
> control for a peak meter indication (ignore ALL meter scales!!). If
> while adjusting the DRIVE control, the meter pegs full scale to the
> right, rotate the CAR control CCW so the meter pointer is pointing at
> 12 o'clock then continue adjusting the DRIVE control for a peak meter
> indication, again "ignoring all meter scales".
> 7. Set meter switch to IP.
> 8. Adjust the PLATE control for a dip in IP current (top scale).
> 9. FLIP the SEND switch DOWN.
>
> Let the 820 cool down a few minutes.
>
> 10. Set the MODE switch to CW
> 11. Set the METER switch to RF
> 12. Flip the SEND switch UP
> 13. Adjust both the LOAD control and the PLATE control for a peak
> meter indication, ignoring ALL meter scales. If the meter pegs full
> scale to the right adjust the "RF VOLT" pot on the rear panel for a
> meter indication that points between 1 and 2 o'clock then continue
> adjusting the PLATE and LOAD controls for a peak meter indication. The
> RF meter is not a watt meter. It simply displays "relative" power
> output and there are no meter scales for the RF meter switch position.
> 14. Set meter switch to IP and adjust the CAR control for an IP
> indication of 200ma
> 15. Flip the SEND switch down (unkeys) the transmitter.
>
> You can determine the approximate input and output power, in CW mode,
> by noting the IP meter and HV meter indications. Multiply the IP meter
> indication by the HV meter indication will show the "DC input power"
> in the final amplifier. The final amplifier in the 820, and all of the
> KW hybrids, operates in Class AB1 so the efficiency percentage is
> between 55 and 60 percent. Therefore, multiply .55 or .6 by the DC
> input power and you will calculate the approximate average RF output
> power at the antenna connector on the rear panel.
>

> You're done tuning the transmitter. If you are using the tuner in the
> MFJ-949 to feed your antenna and to tune for lowest SWR, do not touch
> or adjust the 820 transmitter's PLATE and LOAD controls, adjust the
> tuner controls ONLY for the lowest SWR.
>
> In sideband, set the MIC gain fully CCW, meter switch to ALC, then
> press the PTT button. Speaking in a normal voice level about an inch
> or so from the microphone, adjust the MIC gain to the point where the
> ALC meter just starts to rise above zero then stop adjusting the MIC
> gain. This will give you some "head room" if you talk a bit louder, a
> lot of hams tend to talk louder after they make initial adjustments,
> which should result in the ALC meter to peak at the top end of the ALC
> scale when speaking slightly louder into the microphone. You should
> not adjust the MIC gain that results in the the ALC meter, on voice
> peaks, remains "constantly" at the top end of the ALC scale. The
> average power output in sideband indicated on an average watt meter
> will be between 20 and 25 watts, somewhat higher on a peak reading
> watt meter. The peak reading watt meter option in your MFJ-949 is
> activated by pressing the PEAK/AVERAGE meter switch on the right side
> of the front panel, "in". If this push button switch is not pressed
> "IN" then the meter is displaying "average" power (see the MFJ-949
> manual, page 1, for details).
>
> The CAR control is "disabled" in either LSB or USB modes. The CAR knob
> controls power output in TUNE and CW mode and is only active in TUNE
> and CW mode.
>
> The CW socket is a "N.C." socket which means you do not have to have a
> CW key/plug inserted into the CW socket for the transmitter to produce
> RF output in CW transmit. A CW key "IS" required to send CW.
>
> What type of microphone are you using with the TS-820? The microphone
> impedance for the TS-820 is 50K ohms, same as the TS-520.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
>
>
>
> On 11/28/2013 10:32 AM, Benjamin Kuo wrote:
>>
>> KENWOOD TS-520_820_530_830Mike,
>>

>> Thanks for the reply.
>>
>> The watt meter I am using is the MFJ 949 (wattmeter built into the MFJ
>> Deluxe Versa Tuner). I'm not sure if it's calibrated, how accurate,
>> or how
>> well it works, but usually both rigs end up right at around or above 100
>> watts peak reading on the meter in CW mode when tuned up using the
>> procedures in the manual. Idle current set to 60ma on both rigs, if
>> the IP
>> meter is correct. Drive tuning to peak ALC, plate tuned to minimum
>> current.
>>
>> The readings I am seeing in SSB are peak readings after following tuning
>> procedures.
>>
>> ALC meter indications are per the tuning procedures for voice, with MIC
>> control adjusted to peak ALC on the upper end of the ALC indicator on
>> the
>> dial in both cases. For both rigs, that ends up being a MIC level of 3.
>>
>> For the 820S:
>> in TUN mode, ALC peaked, IP reading around 65ma (manual indicates this
>> should be 100ma)
>> in CW mode, IP reading only around 75ma (manual indicates this should be
>> 200ma)
>> In LSB or USB, IP reading 60ma to 130ma (manual indicates range
>> should be 60
>> to 250ma).
>> No idea what this would indicate. My (TS520, for comparison, is
>> showing TUN
>> peak of 50ma, CW of 200ma, LSB of 60ma to 130ma).
>>
>> The only reason I ask is the peak readings on SSB are significantly
>> different between the 520 and 820S, with the same CW output level,
>> and in
>> some testing with some very local stations on 40m (ie across town)
>> they are
>> able to hear the difference in output power. I am assuming (perhaps
>> incorrectly) that the two rigs would have a somewhat similar power
>> output
>> profile??
>>
>> Thanks,
>>
>> Ben
>> KK6FUT
>>
>> 1a
>>

>> Re: Low output SSB on TS-820S
>>
>> Thu Nov 28, 2013 4:20 am (PST) . Posted by:
>>
>> "Mike" w5rkl
>>
>> Ben,
>>
>> You say your TS-520 produces 75 to 100 watts output as indicated on your
>> watt meter in "SSB" (USB or LSB) mode? What make and model watt meter
>> are you using that displays that power output level from your TS-520 in
>> sideband transmit? Also what indications are you seeing on the meter
>> (meter switch set to ALC) during voice peaks in USB or LSB mode with 75
>> to 100 watts output indicated on your watt meter?
>>
>> The TS-520's normal DC input power (CW mode) is 160 watts (.2 x 800 =
>> 160). Typical final amplifier efficiency rating (output power verses
>> input power ratio) is between 55% and 60%. If we lean more towards the
>> 60% efficiency rating, the CW carrier power output into a 50 ohm load
>> from your TS-520 will be approximately 96 watts (.6 x 160 = 96).
>>
>> You then say your newly acquired TS-820S is producing similar 75 to 100
>> watts CW carrier output power but in SSB (LSB or USB) it is only
>> indicating 15 to 25 watts output. That appears to be normal power output
>> on voice peaks from your TS-820S when output is fed to an average watt
>> meter.
>>
>> Again, what make, model, and type of watt meter are you using, Peak
>> reading or average power?
>>
>> 73
>> Mike W5RKL
>>
>> On 11/28/2013 1:04 AM, Benjamin Kuo wrote:
>> >
>> > Hi all--
>> > Iâ□□m a fairly new ham (first ticket this year), but have a
>> electrical
>> > engineering background and am comfortable debugging circuits and
>> > soldering. However, I have very little experience with fixing hybrid
>> > rigs like the Kenwood (although I have both a TS-520 and TS-820S, my
>> > primary radios).
>> > I recently picked up a TS-820S, and it works great except that I am
>> > getting lower than expected output on both USB and LSB on all bands.
>> > (CW power at 100 watts-120 watts; SSB output only puts out about 15-25
>> > watts; for comparison, my TS-520 tuned up to the same CW power level
>> > will often read 75-100 watts on SSB on the same power meter). With
>> > Compression turned on have the same problem. ALC metering as expected.
>> > Full output on CW and CAR control allows me to adjust levels for the

>> > full range in CW.
>> > I thought this esteemed group might help point me in the right
>> > direction before I spend a lot of time poking around the innards of
>> > the radio.
>> > Base on the schematics, I am guessing that there might be issues at
>> > Q20 or Q21 causing low output on SSB. Am I on the right track? Also,
>> > anything I ought to know about replacement transistors for either or
>> > both of these 2SC733â□□s? Or, is there something else I should be
>> > looking at?
>> > Thanks (and happy Turkey day!)
>> > Ben
>> > KK6FUT
>> >
>>
>>
>

46147. TS-830 ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 04:36:30 UTC
From: w7ry_1
Topic: 46128 Message: 46147

I seem not to be able to post from my Gmail account. Is this a common problem?

Has anyone come up with a solution to the TS-830S transmitter ALC overshoot? A Google search netted no results.

Thanks
73
Jim W7RY

46148. Is this thing working????????????

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 17:21:49 UTC
From: Jim W7RY
Topic: 46148 Message: 46148

Why don't my posts show up???

Jim W7RY

46149. TS830 ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-28 17:20:48 UTC
From: Jim W7RY
Topic: 46149 Message: 46149

Has anyone come up with a solution to the TS-830S transmitter ALC overshoot? A Google search netted no results.

Thanks
73
Jim W7RY

46150. Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 04:38:51 UTC
From: w7ry_1
Topic: 46150 Message: 46150

I seem to be having issues posting with my Gmail account. Is this a common problem? I have replied to several posts, and have asked the following question 4 times now with no results or any of my postings showing up.

Has anyone come up with a solution to the TS-830S transmitter ALC overshoot? A Google search netted no results.

Thanks
73
Jim W7RY

46151. Re: [TS-520_820_530_830] TS-830 ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 05:19:45 UTC
From: Wes Will
Topic: 46148 Message: 46151

On 11/28/2013 11:21 AM, Jim W7RY wrote:
>
>
> Why don't my posts show up???
>
> Jim W7RY

Jim:

Yes, the thing is sort of working. As to your posts, yes, they do show up.

Eventually.

Even if your posts are not in the "moderator must approve" list, the new "improved" mess that the Yahooligans made of their kludge of a mailing list manager makes things quite problematical.

(Quite frankly my little one-lung MailMan manager running via PostFix under Linux has a higher throughput, from the look of things and figuring against the size of the pipe going into the server. The size they list in their corporate brag-rag, anyway. Their huge pipe is seemingly less efficient than my little one.)

(Why?? My guess? They're working on 'phasing out' the email-only portion of their disservice, and trying to force everyone to the web page instead, which eats a lot more bandwidth than just text. This would be to ensure that they get all the ad revenue possible. Not all they need to make a healthy profit above overhead. All That Is POSSIBLE, whatever it does to the end-users, in true modern-America maximum-corporate-greed fashion.)

And no, I can find nothing to assist you in the ALC overshoot problem in any of the archives I can find to search. Can you describe the problem more explicitly, or point to a better description of it somewhere on another list or site?

--
Wes Will
N9KDY

46152. Re: [TS-520_820_530_830] Is this thing working???????????

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 05:35:01 UTC
From: Joseph Stiles
Topic: 46148 Message: 46152

Jim,

Since it appears that you are a new member of this group, your posts are "moderated." This means that: one of the Co-owners or, one of the moderators MUST approve your messages/posts PRIOR to them being sent to the groups main message area. This is done to cut down on spam and other interference. The period of time a person is "moderated" depends on them...for example: you are very active and "play by the policies of the group" gets you un-moderated quickly...say 7 days or so. At times even my post have taken 24 hours to get posted. The Co-owners and the Moderators are not here 24/7.

I will check on your message history and, if appropriate, un-moderate you

73 Joe
WB7UQU
Group Co-owner

On Thursday, November 28, 2013 8:59 PM, Jim W7RY <jimw7ry@...> wrote:

>Why don't my posts show up???
>
>Jim W7RY
>
>
>
>
>

46153. RE: RE: RE: RE: RE: RE: RE: RE: RE: RE: Ts 520S calibration and neutralizing

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 12:41:29 UTC
From: <sw20plus@...>
Topic: 45960 Message: 46153

Hi Terry,
I think we are talking on different freq HI
I am using the RF probe as mentioned on the site from N5ese

http://n5ese.com/rfprobe1.htm

But without the 4,7M ohm. that is indeed with a series dc blocking cap

73Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

OK with this type probe then you dont need a dummy load connected to the SO-239 connector to perform neutralization as long as you have the SG switch off.

I am assumng the 50 ohms is connected in shunt and your diode is in series so you will read the voltage drop across the paralleled 100 ohm resistors in the probe.

Kind of unusual config as most commercial RF probes use a series dc blocking cap, a shunt diode, and a high value of series meter multiplier resistor so that it will read close to rms value on your 10 meg DMM or 11 meg VTVM.

As long as have good 1N34 then your probe will work.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Hi Terry,
I am still alive. Not (yet) electrocuted. had to do something else no hobby related...

I am using a simple home made RF probe consisting of 2 x 100 ohm 5 W resistors in paralell an a 1n34 germanium diode with a 100nF cap... That thing I am also using for checking my SW20+ QRP 20 meter TRX (Small Wonder Labs). And that's working FB. And because there is not much RF power coming from the 520 when the SG is off. I can use that one.

Wally/Pa3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally:

Yes for any band that you are getting RF output power as seen on RF position of the panel meter or on an external wattmeter then you have to have RF drive at the
control grids of your 6146 finals. If you have RF drive then you have to have feed thru power from the control grids to the plate circuit thru that 0.22pf Cgp.

If you try neutralizing on 40 meters will see feed thru power, but will be lower than what I gave you for 10 meters. Probably a high of approx 270mv and low of approx 20mv. If using a single germanium diode probe then might just see slight meter indication as the diode barrier will be approx 250mv.

What kind of RF probe are you using?

Terry

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Ok Terry,
All understood.
Will check it tomorrow.... but what I still don't understand is, that the rig is working FB on 7 mhz and higher,
So it must have drive on pin 5 otherwise it wouldn't work at all.... right?

but will check it and let you know the outcome..

Many thanks for spending your time to answer me... very much appreciated

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Well you can cut the Neutralizing capacitor out and toss over your shoulder and rig should have some RF voltage at the SO-239 in this test configuration (typically a max of 1.0 rms rf volts with Drive control peaked and Plate tank cap adjusted to resonance). .

What you are looking at is the feed thru power from the 6146 control grid to the 6146 anode. This power is the result of the RF drive voltage swing at the control grid causing a small RF current to flow from the 6146 tubes control grid to the anode thru the tubes inter-electrode capacitance or Cgp. Approx 0.22pf capacitor.

It sounds to me like you have no RF drive voltage at the control grid Pin 5?

If you have rig configured as you say and you can peak the Drive control to get full scale ALC meter deflection then should see something on the order of approx 45 rf volts at Pin 5. I would measure this to confirm finals are seeing Drive.

Best to measure this with O-scope or RF Millivolt meter or a multi-diode RF probe.

If you have to use a single diode RF probe need to back down the CAR Level so you dont burn out the diode in the probe. Connect RF probe to Pin 5 at 6146 tube socket and key rig and slowly bring up the CAR level from zero. Do not exceed approx 30 rms rf volts.

If you have RF drive voltage at Pin 5 you have to have RF voltage at the SO-239 unless bad TR relay contacts or bad SO-239 solder connection or bad Plate blocking/coupling cap or bad plate choke. This should not be as you have normal RF output when you load the rig.

After confirming that you have approx 45 rf volts drive at the 6146 control grids move scope or millivolt meter to the SO-239. Key the rig and adjust the Plate capacitor (tune or tank) thru its range for maximum RF voltage. You should then be able to run the NC cap thru its range and see something on the order of a high of 900mv and a low of 10mv to 15mv at the null.

Make sure using a well insulated tool as you are a fraction of an inch from 900vdc anode lead.

If you have 45 volts at Pin 5 and no voltage at SO-239 then you have to have a high resistance connection in the path from the anode to the SO-239 or something shunting this low level signal. I have never seen a bad L7 safety choke. .

I am basing all of this on fact that you report normal full load output and just have plate current dip not occurring at max RF output. A common problem on low bands and of no concern. As long as can get plate current dip and max rf output to occur close to same at 28mhz that is all you need to prevent tubes from taking off on 10 meters. Tube interelectrode capacitive reactance as you move lower in frequency makes it very unlikely tubes will oscillate. Use to neutralize at 21 mhz in attempt to gt it to work across all bands and was not necessary and designers changed procedure to do it on 10 meters where Xc is lowest.

One last thing I may have asked does the main plate choke winding look good with no signs of overheating? I suppose another place that could be shunting low level RF back to HV supply?

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Terry,
You are right I is very unusual to have no output reading at all.
Yes I do all the steps you are mentioning. So the only way to find out is to open the rig and check if the neut cap is actually hooked up to something..... more and more I get the idea that is has a cold solderjoint or something like that.
As I have mentioned earlier, I can rotate the cap 360 degrees, but there is no point that gives some meter deflection.......

Only on 80 and 160 meter the is a S9 noise level... I have contacted Ken K4EAA, he mentioned a faulty bandswitch. So I am going to check and clean the switch first, so I can eliminatie that option.....

Wally/PA3BTT

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

After loading to full RF output in CW mode do you just unkey rig and turn off the SG switch and connect RF probe and re-key the rig?

Must be in CW mode and Car Pot Level where it was when you loaded the rig.

You also can try adjusting the Drive control for max ALC indication with SG off.

If you are leaving Car Level Pot where it was to attain full output then it would be very unusual to have no RF voltage at the SO-239 connector unless the neutralizing cap was spot on and then typically will not be able to get a complete voltage null.

To test receive sensitivity with the Marker put the rig on dummy load. You dont want any off air signals at this time for this test

I dont know how you will work with a S9 +10 noise level? Sure hope that is not the norm for your QTH?.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

Hi Terry thanks for the rpely
I have followd both manuals but neither did work...
And I have tried both VTVM and RF probe. Rf probe checked with other (QRP) Trx.
and the 28.5 Mhz plus SG switch turned off.
The strange thing is, that there is NO indication at all of any RF signal when keying the 520S.

no matter what the position of the neutralizing capacitor is.... I am thinking of a loose contact of the capacitor.
We have also tried a monitor rx on the local clubstation. but altough there is no RF indication on the VTVM/rf-probe. And also on the monitor RX there wasn't any indication when adjusting the neut cap.

On the low receive thing.....when RF gain fully open (fully CW)noise is peaking at S9+ 10dB.
The marker signal is noticeable under the noise....(but weaker). I will go and follow the instructions in section 6 for trying to resolve it.....

Altough I am restricted to work on 10/20 meters. the set is working FB. Do receive good reports. 5-9/599
on USB and CW.
As mentioned earlier I do get the idea that someone has been poking around in the PA section. turning the neut cap SHOULD give some kind of indication I guess....
But thanks again for the replay.....

---In TS-520_820_530_830@yahoogroups.com, <wagstw46@...> wrote:

Wally

What instructions are you following? Instruction manual or Service Manual? They are different. Did you load to full load first at 28.5 mhz and then turn off the SG switch?

Are you measuring the rf voltage drop across a dummy load?

What does your RF probe/VTVM read when you flip to Send?

Is it possible your RF probe has a bad diode?

Does your TS520SE receive?

If so, place it next to the TS520S on the bench that you are trying to neutralize and place a short jumper in the TS-520SE SO-239 to serve as an antenna. Key the TS520S and tune for max S meter indication at 28.5mhz on your TS520SE.

Now key again and adjust neutralizing capacitor for lowest S-meter indication and audio. After you reach that point then adjust the the plate tuning and load capacitors for a new maximum S-meter level and touch up neutralizing capacitor again.

Use the same procedure if you have a good RF probe and VTVM.

I use a couple of 100 ohm 1/2 watt resistors soldered to a PL-259. Screw it on the SO-239 and now have good dummy load to connect your RF probe, O-scope, or RF millivolt meter across.

Low receive on couple of bands:

Very briefly you say you can hear the Marker on 160 and 80. A more informative report would be what S-meter indication do you get with the Marker signal?

A fully functional and well aligned 520S should be close to S9 with Drive control peaked at approx 1200 if you have VFO set at 1.9mhz. Will be less at 28.8mhz. perhaps S6 to S7.

If Marker signal levels are down follow the Coil Pack alignment steps in the Instruction Manual Section 6 as a first step to resolve.

Do a good visual on all the cores before you start to id any that are cracked. Cant adjust cracked cores. Must remove them. Some folks apply a drop of lube to top of the former. Make sure use correct alignment tool for the core. Easy to rip a coil off the former due to a core frozen in place. Some report success with applying tip of soldering iron to the core to free it.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <sw20plus@...> wrote:

A couple of month ago I received a TS520 for FREE.. nice of cousre.
The endtubes were a 6146A an a 6146B. So I swapped them with 2 6146B's from my old TS520SE. here it comes.

1. I cannot neutralize thePA. I have connected a VTVM AND a rf probe to the set and followed the manual precisely.. But I have turned the TC1 neutralize cap 260 degrees. but no change in deflection of the connected meters... The set is working FB however. But the deip in Ip is not coniciding with the max RF output. .

2. The set is quite deaf on 1.8 en 3.5 Mhz just a loud hiss... when i use a crystal oscillator in the vicinity I do hear the freq of the xtal though.... but a HAM nearby I cannot hear on 80 meters.... Is that just a matter of re-alignment ?? the rest of the band are receiving FB.
I have attached a end fed halve wave for 20 mtrs. so I can only tx on 20 and 10 meter

Tks

Wally/PA3BTT

46154. Re: [TS-520_820_530_830] Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 14:39:13 UTC
From: Mark Gilger
Topic: 46150 Message: 46154

Jim,

I've seen this post several times showing up
here. Surprised no one has responded. What do you mean by ALC overshoot?

Mark

At 11:38 PM 11/28/2013, w7ry_1 wrote:
>
>
>I seem to be having issues posting with my Gmail
>account. Is this a common problem? I have
>replied to several posts, and have asked the
>following question 4 times now with no results
>or any of my postings showing up.
>
>Has anyone come up with a solution to the
>TS-830S transmitter ALC overshoot? A Google search netted no results.
>
>Thanks
>73
>Jim W7RY
>
>

46155. RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 14:44:30 UTC
From: <lonelyone_64109@...>
Topic: 45930 Message: 46155

I watched the video and here is an update on the rig:
Checked all voltages on the PA board and the driver board with the SG switch in the on position. I was able to get the PA idling current to register and have it set for 60 mA. The receive is still down as well as no output. While listening on a second receiver (Drake TR-4C) I was able to to hear the output of the 520S as I attempted to tune it up (still no output on the power meter). The signal strength was stronger when I switched from TUNE to CW.

In the receive mode with the calibrator on the S meter is only reading S5 to maybe S7. Some bands are not as good as others as far and in the WWV position WWV is not very strong at all. So maybe a quick check of the coil pack tuning will be in order soon. I broke out the RF generator and plan to do some signal injection in the receiver chain to see if there is anything out of the ordinary.

Here are the voltages I get:

HV: 933V
210 Supply: 256V
300 Supply: 344V
14 Supply: 14 V
-6 Supply: -5.9V

---In ts-520_820_530_830@yahoogroups.com, <w5rkl@...> wrote:

Paul,

You also might want to watch my video on the 520/820 cathode circuit. The video can be found at the following link:

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/TS520%20and%20TS-820%20Cathode%20circuit%20calculations.wmv http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/TS520%20and%20TS-820%20Cathode%20circuit%20calculations.wmv

My video assumes the cathode resistors are 10 ohms each, not 9 or 11 ohms and the meter multiplier resistor is 3.3K. Actual cathode and meter multiplier resistor values will not be exactly 10 ohms and not be exactly 3.3K.

You can use different values of cathode current, such as 60ma for example, to determine what the cathode voltage will be then use the cathode voltage to determine what the voltage applied to the meter will be. Not all meters have the same exact internal resistance. I used the resistance values indicated in the video to keep the math simple, actual resistance values will be slightly different.

73
Mike W5RKL

On 11/17/2013 7:24 PM, lonelyone_64109@... mailto:lonelyone_64109@... wrote:

I checked the SG switch and it is on. When I have the radio in the USB or LSB position and speak into the microphone I get a normal ALC deflection with the meter in the ALC position. With the meter in the Ip or RF output position I do not see any movement. Also when I put the rig in the tune position and try to adjust the drive control through its range I do not get any ALC, Ip or RF output indication at all, . The same goes for the 60 mA plate idling current. Thinking it MIGHT be the metering circuit I even put a wattmeter in line with the dummy load but again no power output. I need to go through and check the voltages on the final board, the RF board, and possibly the IF board. I also have a service bulletin reprint saying to check the -6V source as it could also cause low receive and no TX output. But due to my work schedule it will be Thursday evening before I can get any time to further look into this problem. Since there were several resistors burned up i am thinking there is one that I have not found that is open and is causing the lack of RF output and meter indications.

Paul WB0CJB

---In ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com, <w5rkl@...> mailto:w5rkl@... wrote:

Forgot to mentioned. If the SG switch is, in fact, in the "OFF" position there will be no RF output, regardless of the mode.

73
Mike W5RKL

On 11/17/2013 1:13 PM, Mike wrote:

Paul,

You said the ALC meter position works fine. Are you saying that in TUNE mode with the meter switch set to ALC and the transmitter keyed with the SEND switch, adjusting the DRIVE control produces ALC meter indication? You also said there is no 60ma idling current with the transmitter keyed with PTT in LSB or USB, is that correct? If both answers are "yes" then you need to check the rear panel's "SG" switch to ensure it is in the "ON" Position. Quite often when handling the transceiver this switch gets slide, accidentally, into the "OFF" position. When that occurs there will be no 60ma idling current indicated on the meter (meter switch set to IP) when the transmitter is keyed in LSB or USB.

73
Mike W5RKL

On 11/17/2013 12:42 PM, lonelyone_64109@... mailto:lonelyone_64109@... wrote:

I have a TS520S that the cathode and screen resistors were burned up due to being overdriven.(the owner turned up something when his friends on the air said he was really weak). I've replaced the resistors as well as the 470 ohm resistors in the 210 and 300 volt supplies. I also replaced the caps and RF choke in the final cage as per K4EAA. Prior to installing the tubes I checked the voltages and the HV was 933, the 210 read 256, and the 300 supply read 344 (all were no load values). I installed the tubes and the receive is very low. The S-meter reads S-2 in receive but does drop to zero in transmit. All bands are working as I can hear the phone stations running the sweepstakes this weekend. The crystal calibrator works fine and the signal lever from it is around S-5 to S-9 depending on the band.

I plugged in a microphone and the rig works in VOX as well as PTT and the ALC position on the meter reads fine. I am not showing any plate bias current on the meter when in transmit but but I do have the HV reading on the meter when I switch to transmit.

I am wondering if i missed something that may have gotten burnt or has opened up. With the exception of the receive and no output the radio is working just fine. Any help would be appreciated.

Paul WB0CJB

46156. D-104 Update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 17:01:37 UTC
From: kd8hmo_us
Topic: 46156 Message: 46156

Repaired D-104 seems to be working great with my 530S. I didn't realize that my 520S only accepts a high Z microphone. I see in the manuals that the 530S accepts a wider range of impedance than the 520S. I guess I will be using my MC-50 on the 520S LOL

46157. RE: [TS-520_820_530_830] TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 17:56:20 UTC
From: Thomas Gugler
Topic: 6105 Message: 46157

Hi again Guys,

Thanks for all the replies. I removed the counter unit, took the two boards out and inspected the solder joints and the connectors. What was immediately clear is that a prior owner did exactly what you all recommended. It appears that all of the solder joints and particularly the through hole component side ones were re-heated and re-done. Not to take any chances, I went through the process again, re doing each solder joint, (real fun task). Put it all back together, and – no joy. Same problem with no change, (at least I didn't make anything worse)! I guess I'll need to bone up and counter and clock circuits and start some more in depth troubleshooting.

Regards

Tom

W7OA

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of tghotdogz@...
Sent: Tuesday, November 26, 2013 4:27 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] TS-820S Digital Display Problem

Hello to the group,

Long time member, first time poster.

Some background on me. Licensed about 12 years ago, Call is W7OA, name is Tom, and I'm in Reno, NV. I enjoy working on / restoring older radios / amps, mostly from the tube era and have worked on, (and own - much to the XYL's chagrin), a fair number. I have worked on a few hybrids, both Kenwood and Yaesu so not totally out of my depth here - I hope. I would consider I have decent troubleshooting skills and a fairly well equipped bench.

So, on to my problem: A TS-820S I'm bringing back to life is now working fine except for an issue with the dgital display. The display works properly on all bands except the four 10 meter band segments. On these segments the display wanders around apparently randomly, showing around 23. xxx or 24.xxx mhz. The receiver is however receiving on the proper frequency, as checked with a SG. Also oddly, once properly loaded up for transmit, the display shows the proper frequency while transmitting, and reverts to random numbers during receive. This is the case on all four 10 meter segments.

I'm hoping someone in the group has come across this or a similar problem before and can give me a shortcut in the right direction.

Thanks for any help.

W7OA

Tom, Reno, NV

46158. Re: [TS-520_820_530_830] D-104 Update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 19:12:13 UTC
From: Mike
Topic: 46156 Message: 46158

The TS-520 specifications, tuning instructions, microphone impedance requirement, and much more important information can be found in the operator's manual. A lot of questions relating to operating the transceiver, the answers can quite often be found in the operator's manual.

73
Mike W5RKL

On 11/29/2013 11:01 AM, kd8hmo_us wrote:
>
> Repaired D-104 seems to be working great with my 530S. I didn't
> realize that my 520S only accepts a high Z microphone. I see in the
> manuals that the 530S accepts a wider range of impedance than the
> 520S. I guess I will be using my MC-50 on the 520S LOL
>
>

46159. Re: [TS-520_820_530_830] TS-820S Digital Display Problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 19:13:44 UTC
From: n6wk@...
Topic: 6105 Message: 46159

I have discovered (too many times) that the spring wire terminals
inside the white connectors go bad.
They lose their Spring and then no longer make contact with the pins
they are pushed onto. some are actually even snapped into two pieces
when you remove the metal terminal from the connector.
Check those closely !!
I can't tell you how many of those I have repaired on the TS-820 radios.

73,
Gordon
N6WK

On 11/29/2013 9:56 AM, Thomas Gugler wrote:
>
> Hi again Guys,
>
> Thanks for all the replies. I removed the counter unit, took the two
> boards out and inspected the solder joints and the connectors. What
> was immediately clear is that a prior owner did exactly what you all
> recommended. It appears that all of the solder joints and particularly
> the through hole component side ones were re-heated and re-done. Not
> to take any chances, I went through the process again, re doing each
> solder joint, (real fun task). Put it all back together, and -- no
> joy. Same problem with no change, (at least I didn't make anything
> worse)! I guess I'll need to bone up and counter and clock circuits
> and start some more in depth troubleshooting.
>
> Regards
>
> Tom
>
> W7OA
>
> *From:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of
> *tghotdogz@...
> *Sent:* Tuesday, November 26, 2013 4:27 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> *Subject:* [TS-520_820_530_830] TS-820S Digital Display Problem
>
> Hello to the group,
>
> Long time member, first time poster.
>
> Some background on me. Licensed about 12 years ago, Call is W7OA, name

> is Tom, and I'm in Reno, NV. I enjoy working on / restoring
> older radios / amps, mostly from the tube era and have worked
> on, (and own - much to the XYL's chagrin), a fair number. I have
> worked on a few hybrids, both Kenwood and Yaesu so not totally out of
> my depth here - I hope. I would consider I have decent troubleshooting
> skills and a fairly well equipped bench.
>
> So, on to my problem: A TS-820S I'm bringing back to life is now
> working fine except for an issue with the dgital display. The display
> works properly on all bands except the four 10 meter band segments. On
> these segments the display wanders around apparently randomly, showing
> around 23. xxx or 24.xxx mhz. The receiver is however receiving on the
> proper frequency, as checked with a SG. Also oddly, once properly
> loaded up for transmit, the display shows the proper frequency while
> transmitting, and reverts to random numbers during receive. This is
> the case on all four 10 meter segments.
>
> I'm hoping someone in the group has come across this or a similar
> problem before and can give me a shortcut in the right direction.
>
> Thanks for any help.
>
> W7OA
>
> Tom, Reno, NV
>
>

--

46160. RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 21:32:47 UTC
From: <adrian@...>
Topic: 46040 Message: 46160

OK am back home so was able to do some signal injecting on the rig with some puzzling results.

First off I need to replace those pi-filter electrolytics, as with a signal fed to antenna input it drops steadily almost immediately from switch on. If I turn off and leave for a few seconds then the signal is nearly at original level when I turn back on, but starts dropping.

But the really odd thing is that I get an S9+ signal when I inject at the gate of Q5, compared with around S3 when I inject at the anode of D11. The only parts in between are the transformer T5 and coupling cap C40.

Trouble shooting slightly complicated by the lead identifications given in service manual for the Q5 2SK19. It's a TO92 package and the leads shown in manual do not match those on datasheet. In the TS520S manual the diagram of Q5 next to x-ray of rf board on p18 shows gate as centre lead, but datasheet shows source as centre and suggests manual has transposed Source and Gate (Drain positions agree).Has anyone come across this problem or did Kenwood use a different version of Q5 with the ledas shown in their manual? I checked datasheet as the board layout didn't seem to agree with circuit diagram, and I got low signal injecting at what manual said should be gate (centre lead) but which is source according to data sheet.

I get a stronger signal injecting at the drain than I do injecting at gate, by a couple of S-points

So could there be problem with C40, or even the transformer? I wouldn't expect passive non-electrolytic to fail but it's the only interpretation I can see for my readings.

73 Adrian G4IQW

---In ts-520_820_530_830@yahoogroups.com, <adrian@...> wrote:

Terry thanks for such a complete answer to my query re the switching diodes, and for more troubleshooting suggestions. It's great to learn more about these rigs as well as get nearer to solving an issue. We'd thanks for measuring voltages at times above and beyond call of duty! I am working away from home now so can't try going down signal chain with sig gen (protected against DC with the cap) - and jumpering diode at Q4 - till weekend now but am looking forward to it with all the great help here. I do have schematics with me on my iPad so can at least get familiar with the path and the RF board x-ray so I'm all set when time comes. Terry I can see on schematic that the marker is injected right at the antenna as you confirmed. 73 guys and I'll report back in a week! Adrian G4IQW

46161. Re: [TS-520_820_530_830] Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 21:06:13 UTC
From: Jim W7RY
Topic: 46150 Message: 46161

The ALC overshoot on the TS-830 (I think other Kenwood hybrids to this too) is when you have the carrier adjusted to 50 watts for CW, then the first dit is at 130 watts. That is ALC overshoot.

It's really hard on an amplifiers and probably really tears up the band.

Ideas?
73
Jim W7RY

On 11/29/2013 6:39 AM, Mark Gilger wrote:
>
> Jim,
>
> I've seen this post several times showing up here. Surprised no one
> has responded. What do you mean by ALC overshoot?
>
> Mark
>
>
> At 11:38 PM 11/28/2013, w7ry_1 wrote:
>
>>
>>
>> I seem to be having issues posting with my Gmail account. Is this a
>> common problem? I have replied to several posts, and have asked the
>> following question 4 times now with no results or any of my postings
>> showing up.
>>
>> Has anyone come up with a solution to the TS-830S transmitter ALC
>> overshoot? A Google search netted no results.
>>
>> Thanks
>> 73
>> Jim W7RY
>>
>
>

46162. Re: [TS-520_820_530_830] RE: TS520S low receive and no RF output or plate current

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-29 21:23:45 UTC
From: Jim W7RY
Topic: 45930 Message: 46162

Paul
Are the filaments actually lit in the tubes? Did the filament lead from the tube socket board get broken off when you replaced the cathode resistors? Do you have plate voltage on the top of the plate choke?

73
Jim W7RY

On 11/29/2013 6:44 AM, lonelyone_64109@yahoo.com mailto:lonelyone_64109@yahoo.com wrote:

I watched the video and here is an update on the rig:
Checked all voltages on the PA board and the driver board with the SG switch in the on position. I was able to get the PA idling current to register and have it set for 60 mA. The receive is still down as well as no output. While listening on a second receiver (Drake TR-4C) I was able to to hear the output of the 520S as I attempted to tune it up (still no output on the power meter). The signal strength was stronger when I switched from TUNE to CW.

In the receive mode with the calibrator on the S meter is only reading S5 to maybe S7. Some bands are not as good as others as far and in the WWV position WWV is not very strong at all. So maybe a quick check of the coil pack tuning will be in order soon. I broke out the RF generator and plan to do some signal injection in the receiver chain to see if there is anything out of the ordinary.

Here are the voltages I get:

HV: 933V
210 Supply: 256V
300 Supply: 344V
14 Supply: 14 V
-6 Supply: -5.9V

---In ts-520_820_530_830@yahoogroups.com mailto:ts-520_820_530_830@yahoogroups.com, mailto:w5rkl@... wrote:

Paul,

You also might want to watch my video on the 520/820 cathode circuit. The video can be found at the following link:

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/TS520%20and%20TS-820%20Cathode%20circuit%20calculations.wmv http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/TS520%20and%20TS-820%20Cathode%20circuit%20calculations.wmv

My video assumes the cathode resistors are 10 ohms each, not 9 or 11 ohms and the meter multiplier resistor is 3.3K. Actual cathode and meter multiplier resistor values will not be exactly 10 ohms and not be exactly 3.3K.

You can use different values of cathode current, such as 60ma for example, to determine what the cathode voltage will be then use the cathode voltage to determine what the voltage applied to the meter will be. Not all meters have the same exact internal resistance. I used the resistance values indicated in the video to keep the math simple, actual resistance values will be slightly different.

73
Mike W5RKL

46163. suitable replacement parts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-30 02:10:29 UTC
From: Joseph Stiles
Topic: 46163 Message: 46163

Greetings Group,

  Hope everyone had a great Thanksgiving.

    Has anyone out there found a suitable replacement for the following:

      TC-1, TC-2, TC-2 on the CAR-2 unit of the TS820? TC-1 & 2 are 10pf trimmers, TC-3 is 20pf
        it's the lead placement/orientation that I am finding hard to match/find.

      Also, looking for suitable replacement for VR-1(S meter zero) & VR-2(S meter S-9 pot) on the IF
      board of TS820.

      Have exhausted my supply from junk boards.

73 Joe
WB7UQU

46164. RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-30 09:32:13 UTC
From: <adrian@...>
Topic: 46040 Message: 46164

On those 2SK19 lead diagrams, I see the pin out for this device shown on main schematic of service manual agrees with data sheet (source centre pin), and differs from the lead description shown on the same device below the x-ray drawing if RF board earlier in manual. I have scribbled correction note! So I'm left wondering if my problem is with C40 or even T5, and also why the signal strength when I inject at gate of WWV RF amp is a couple of s points lower than injecting at the drain? However when I inject at drain I get same s-meter as if I inject at antenna on ham bands with appropriate frequency at same level, so it does seem my problem just with C40/T5 (but looks difficult to replace either component)

46165. Re: [TS-520_820_530_830] suitable replacement parts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-30 11:37:42 UTC
From: Ron
Topic: 46163 Message: 46165

Joe I found the S meter trimmer on amazon

Ron KK4PWF

On Nov 29, 2013, at 9:10 PM, Joseph Stiles <stilesjoseph@...> wrote:

>
>
>
> Greetings Group,
>
> Hope everyone had a great Thanksgiving.
>
> Has anyone out there found a suitable replacement for the following:
>
> TC-1, TC-2, TC-2 on the CAR-2 unit of the TS820? TC-1 & 2 are 10pf trimmers, TC-3 is 20pf
> it's the lead placement/orientation that I am finding hard to match/find.
>
> Also, looking for suitable replacement for VR-1(S meter zero) & VR-2(S meter S-9 pot) on
the IF
> board of TS820.
>
> Have exhausted my supply from junk boards.
>
>
> 73 Joe
> WB7UQU
>
>
>

46166. RE: [TS-520_820_530_830] D-104 Update

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-11-30 18:02:53 UTC
From: Brad Allen
Topic: 46156 Message: 46166

Read more on this. I believe I saw someplace that there is an option jumper for low Z for that radio or obviously one can get a LOW Z mic element for the D104. Have 2 heads and switch between them., but I am sure I read about a way to change the impedance. Brad KB2CHY

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of kd8hmo_us
Sent: Friday, November 29, 2013 12:02 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] D-104 Update

Repaired D-104 seems to be working great with my 530S. I didn't realize that my 520S only accepts a high Z microphone. I see in the manuals that the 530S accepts a wider range of impedance than the 520S. I guess I will be using my MC-50 on the 520S LOL

46167. VFO-820 Causing intermittent display problems

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 01:06:32 UTC
From: <geekorama@...>
Topic: 46167 Message: 46167

I have a VFO-820 that is causing the digital display on my 820S to sometimes act erractic and sometimes disappear altogether. It happens around a couple of the same tuning spots on the VFO-820. When the display disappears, so does the receive. I can bump the VFO-820 knob and bring it back. The internal VFO and display work perfectly without the VFO-820 so I definitely feel this is an issue with the remote VFO. Ideas, fixes??

73 Jim, N7JS

46168. TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 02:14:12 UTC
From: Craig Roberts
Topic: 46167 Message: 46168

My lovely TS-830S has fallen ill. Output is progressively down from 15 - 10 meters (50 watts on 15 down to 7 or 8 on 10).

When I bought the rig -- which was a mess -- I replaced the HV caps, cathode resistors and components in the finals cage among other things and the radio worked perfectly for a year. Today, it went kerflooey. New finals and a new driver have not helped.

Anyway, it could use some REAL expertise. Whaddya think?

Many thanks and 73,

Craig
W3CRR

46169. Re: [TS-520_820_530_830] VFO-820 Causing intermittent display problems

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 05:15:57 UTC
From: Joseph Stiles
Topic: 46167 Message: 46169

Jim,

Check the remote VFO's "wiper." You will have to open the case, remove the screws holding the little side window in place(it's easier to do this than the one on the rig). Look to the rear of the
VFO air variable capacitor and you'll see a "brass colored" piece of spring metal at the end of the shaft. Spray some good contact cleaner here...and operate the VFO's knob through it travel
several times...blow out with "canned air" and repeat. This VFO is the same as the one on the 820 and can suffer from the same problem of "crud" at this location. Before you button it all back up, check for proper operation. It's also possible that you may have a loose connection
at one of the sockets or the plugs at either end. Check for continuity of pins 8 & 9 while wiggling the cable.

73 Joe
WB7UQU

On Saturday, November 30, 2013 5:06 PM, "geekorama@..." <geekorama@yahoo.com> wrote:

>I have a VFO-820 that is causing the digital display on my 820S to sometimes act erractic and sometimes disappear altogether. It happens around a couple of the same tuning spots on the VFO-820. When the display disappears, so does the receive. I can bump the VFO-820 knob and bring it back. The internal VFO and display work perfectly without the VFO-820 so I definitely feel this is an issue with the remote VFO. Ideas, fixes??
>
>
>73 Jim, N7JS
>
>
>

46170. RE: TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 16:27:45 UTC
From: <ke5ftf@...>
Topic: 46167 Message: 46170

Do you have the 60 ma on SSB?
How about the 800 + HV on CW Xmit?
Bob

---In TS-520_820_530_830@yahoogroups.com, <crgrbrts@...> wrote:

My lovely TS-830S has fallen ill. Output is progressively down from 15 - 10 meters (50 watts on 15 down to 7 or 8 on 10).

When I bought the rig -- which was a mess -- I replaced the HV caps, cathode resistors and components in the finals cage among other things and the radio worked perfectly for a year. Today, it went kerflooey. New finals and a new driver have not helped.

Anyway, it could use some REAL expertise. Whaddya think?

Many thanks and 73,

Craig
W3CRR

46171. RE: Re: [TS-520_820_530_830] VFO-820 Causing intermittent display problems

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 20:17:48 UTC
From: <geekorama@...>
Topic: 46167 Message: 46171

I will try this. Thanks.

---In TS-520_820_530_830@yahoogroups.com, <stilesjoseph@...> wrote:

Jim,

Check the remote VFO's "wiper." You will have to open the case, remove the screws holding the little side window in place(it's easier to do this than the one on the rig). Look to the rear of the
VFO air variable capacitor and you'll see a "brass colored" piece of spring metal at the end of the shaft. Spray some good contact cleaner here...and operate the VFO's knob through it travel
several times...blow out with "canned air" and repeat. This VFO is the same as the one on the 820 and can suffer from the same problem of "crud" at this location. Before you button it all back up, check for proper operation. It's also possible that you may have a loose connection
at one of the sockets or the plugs at either end. Check for continuity of pins 8 & 9 while wiggling the cable.

73 Joe
WB7UQU

On Saturday, November 30, 2013 5:06 PM, "geekorama@..." <geekorama@...> wrote:

I have a VFO-820 that is causing the digital display on my 820S to sometimes act erractic and sometimes disappear altogether. It happens around a couple of the same tuning spots on the VFO-820. When the display disappears, so does the receive. I can bump the VFO-820 knob and bring it back. The internal VFO and display work perfectly without the VFO-820 so I definitely feel this is an issue with the remote VFO. Ideas, fixes??

73 Jim, N7JS

46172. Re: [TS-520_820_530_830] TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 20:19:35 UTC
From: Mike
Topic: 46167 Message: 46172

Craig,

When you adjust the DRIVE control in TUNE mode for a peak ALC indication on 10 meters, start to drop back towards zero (leave the xmtr keyed for a few extra seconds while watching the ALC meter)? If it does then the driver is weak.

The driver tube will show up as weak more so on the higher bands then it will on the lower bands.

73
Mike W5RKL

On 11/30/2013 8:14 PM, Craig Roberts wrote:
>
> My lovely TS-830S has fallen ill. Output is progressively down from 15
> - 10 meters (50 watts on 15 down to 7 or 8 on 10).
>
> When I bought the rig -- which was a mess -- I replaced the HV caps,
> cathode resistors and components in the finals cage among other things
> and the radio worked perfectly for a year. Today, it went kerflooey. New
> finals and a new driver have not helped.
>
> Anyway, it could use some REAL expertise. Whaddya think?
>
> Many thanks and 73,
>
> Craig
> W3CRR
>
>

46173. Re: [TS-520_820_530_830] TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 20:25:24 UTC
From: Mike
Topic: 46167 Message: 46173

Some how I made a changed in my response that didn't come out right.
What I meant to say is:

"When you achieve a peak ALC meter indication in TUNE mode on 10 meters, leave the xmtr keyed for a few extra seconds (won't hurt the xmtr), does the ALC peak indication start to drop back towards zero? If it does then the driver tube is weak and is most likely the source of your problem. A weak driver tube will be more evident on the higher bands such as 15 and 10 meters than on the lower bands."

73
Mike W5RKL

On 12/1/2013 2:19 PM, Mike wrote:
>
> Craig,
>
> When you adjust the DRIVE control in TUNE mode for a peak ALC
> indication on 10 meters, start to drop back towards zero (leave the
> xmtr keyed for a few extra seconds while watching the ALC meter)? If
> it does then the driver is weak.
>
> The driver tube will show up as weak more so on the higher bands then
> it will on the lower bands.
>
> 73
> Mike W5RKL
>
>
> On 11/30/2013 8:14 PM, Craig Roberts wrote:
>>
>> My lovely TS-830S has fallen ill. Output is progressively down from 15
>> - 10 meters (50 watts on 15 down to 7 or 8 on 10).
>>
>> When I bought the rig -- which was a mess -- I replaced the HV caps,
>> cathode resistors and components in the finals cage among other things
>> and the radio worked perfectly for a year. Today, it went kerflooey. New
>> finals and a new driver have not helped.
>>
>> Anyway, it could use some REAL expertise. Whaddya think?
>>
>> Many thanks and 73,
>>
>> Craig
>> W3CRR
>>

>
>

46174. Poor TS520SE selectivity on CW!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-01 23:05:04 UTC
From: <adrian@...>
Topic: 46174 Message: 46174

I seem to have had a one step forward, 2 steps back day while troubleshooting a WWV sensitivity issue on my TS520SE.

After doing work with signal generator, I found receiver was behaving bizarrely on CW. Seemed to be no selectivity with injected signal - could hear tone and get high s-reading moving dial + or - 50 kHz from injected frequency on say 14 MHz.

If I just used the rig's 25kHz marker, then this meant I was hearing pretty much continuous tone no matter where main tune dial was, and s-meter was always around S9.

Everything is normal on USB and LSB, and I have also found that the selectivity problem does not exist with the "wide" position selected on CW filter switch, but only when switch is set to "narrow".

Am sure this was not a problem before I was poking around today, so I'm wondering where to look for fault I may have caused. The symptoms suggest CW filter is problem but hard to think how it could have been damaged when I was simply injecting signals on RF board. I have checked that the brown wire to CW terminal is in position too, so the filter is being switched in when "narrow" selected.

Any ideas please?

73 de Adrian G4IQW

46175. Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 00:00:53 UTC
From: Michael George
Topic: 46150 Message: 46175

I have similar problems with Gmail. Have made several posts with no response.

73,

Mike/K3MG

46176. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 00:10:13 UTC
From: Jim W7RY
Topic: 46150 Message: 46176

I re posted my question 3 or 4 days ago. Still haven't seen it on the mailing list.

I'm stumped.

Signed wasted time.
73
Jim W7RY

On 12/1/2013 4:00 PM, Michael George wrote:
> I have similar problems with Gmail. Have made several posts with no
> response.
>
> 73,
>
> Mike/K3MG
>

46177. Kenwood Net Update (December 1, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 02:44:07 UTC
From: Mark Gilger
Topic: 46177 Message: 46177

The Saturday net on 40 meters had 18 check ins
under good band condition. There were 3 new check
ins, K4CEG, VE3RBX, and WB3JQO. We had the
following number of radios checking in.

3 running TS-520(x)
2 running TS-530(x)
4 running TS-820(x)
2 running TS-830S

I was using my TS-940s.

The Sunday□s 20 meter net had 16 stations
checking in under good band conditions. We had 6
stations checking in from California. There were
5 new stations checking in, KG7FWG, KJ4AZA, K6WGY, KC2AYB, N7QZ, and N4JK.

Out of those, there was:

4 running TS-520(x)
1 running TS-530(x)
1 running TS-820(x)
6 running TS-830S

The rest were running non hybrid equipment. I was running my TS-940S.

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54
October 2013, Saturday☐s net total = 61, Sunday☐s total = 55
November 2013, Saturday☐s net total = 94, Sunday☐s total = 85 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

46178. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 02:49:21 UTC
From: Mark Gilger
Topic: 46150 Message: 46178

Jim,
Your post are showing up fine. I've seen the following posted from you:

11/27 = 1
11/28 = 2
11/29 = 2
12/1 = 1

If your hot seeing them, then you might have a
problem with your provider in that they are blocking messages from yahoo.

Regards,
Mark

At 07:10 PM 12/1/2013, Jim W7RY wrote:
>
>
>I re posted my question 3 or 4 days ago. Still
>haven't seen it on the mailing list.
>
>I'm stumped.
>
>Signed wasted time.
>73
>Jim W7RY
>
>
>On 12/1/2013 4:00 PM, Michael George wrote:
>>
>>I have similar problems with Gmail. Have made several posts with no response.
>>
>>73,
>>
>>Mike/K3MG
>
>

46179. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 03:24:53 UTC
From: Joseph Stiles
Topic: 46150 Message: 46179

Jim,

I approved your membership on 11-27-13, since then you have attempted to post
 8 messages...but only 6 seem to have appeared in the record. I have personally
approved your posts to be sent to the groups main message area. As explained earlier,
new members, regardless of who they are, have their posts/messages "moderated" at
first. You may have something wrong with your ISP or browser....I don't know. I have seen
all of your posts with the exception of 2 that were sent by you on 11-29...according to the
record..you sent 4 on that date. What happened to the other two??...don't know.

If there is any doubt...go to the "main" or "home page" of this group, click on
"conversations"
it is on the far left middle of the screen...under the picture...search through and you
will find
that they were indeed "approved" and posted."

I myself have had messages/posts disappear into the "yahoo void" only to appear days later.

73 Joe
WB7UQU
Group Co-owner

On Sunday, December 1, 2013 4:32 PM, Jim W7RY <jimw7ry@gmail.com> wrote:

>I re posted my question 3 or 4 days ago. Still haven't seen it on the mailing list.
>
>I'm stumped.
>
>Signed wasted time.
>73
>Jim W7RY
>
>
>
>On 12/1/2013 4:00 PM, Michael George wrote:
>
>
>>I have similar problems with Gmail. Have made several posts with no response.
>>
>>
73,
>>
>>
Mike/K3MG
>>

>
>
>
>

46180. Re: [TS-520_820_530_830] TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 04:43:46 UTC
From: Craig Roberts
Topic: 46167 Message: 46180

Thanks, Mike.

Actually, the symptoms have gotten worse. Drive on 10 meters is now intermittent -- mostly non-existent -- and output power on all bands above 40 is dropping off. The output is wavering slightly, too., seemingly indicating a weakening component or a bad connection somewhere. I suppose it could be the old band switch problem. I cleaned it several months ago when I first got the radio. (The radio had been almost completely inoperative). Others have noted that band switch cleaning is a temporary solution and that bridging the rivets and contacts with conductive paint or soldered wires is the only way to permanently cure the band switch misbehavior.

The driver tube should be okay. I replaced it with a new 12BY7 and there was no change in the problem. The finals were changed, too. Oh, and I replaced the electrolytics on the rectifier board, too.

What about the electrolytics on the IF board? What happens if they go sour?

73,

Craig
W3CRR

46181. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 05:21:03 UTC
From: Joe - W7RKN
Topic: 46181 Message: 46181

For some unknown reason, yahoogroups will not show any return mail from gmail...that is, I send it, but I won't see it. Happens in all the groups..has for 4-5 years now. I just accepted it and moved on. (It may even be with gmail not forwarding the mail back to the Yahoogroup.......dunno!)

Joe _ W7RKN
----- Original Message -----
From: Mark Gilger
Subject: Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Jim,
Your post are showing up fine. I've seen the following posted from you:

11/27 = 1
11/28 = 2
11/29 = 2
12/1 = 1

If your hot seeing them, then you might have a problem with your provider in that they are blocking messages from yahoo.

Regards,
Mark

At 07:10 PM 12/1/2013, Jim W7RY wrote:

I re posted my question 3 or 4 days ago. Still haven't seen it on the mailing list.

I'm stumped.

Signed wasted time.
73
Jim W7RY

On 12/1/2013 4:00 PM, Michael George wrote:

I have similar problems with Gmail. Have made several posts with no response.

73,

Mike/K3MG

46182. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 05:25:44 UTC
From: Jim W7RY
Topic: 46181 Message: 46182

Thanks all..
I'll change my email address and move away from gmail for my yahoo groups.
73
Jim W7RY

46183. Driver Tube, Keyer, and Tuner question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 03:26:37 UTC
From: <jason.bogstie@...>
Topic: 46183 Message: 46183

Hey Everyone!

I have three quick questions for you, these are regarding a Kenwood TS-520:

1. If I just replace the driver tube and NOT the finals, do I need to perform the neutralizing procedure from the manual? Is there some procedure for the driver tube that I need to be aware of?

2. Do I need to have a morse keyer to fine tune the radio in CW mode or can I just use the send/rec switch? I am aware I don't need to tune the radio in CW necessarily, but the manual recommends it and I'd like to do it.

3. Can I use the AT-230, as a tuner, to tune a mismatched antenna? Do I have anything to worry about since the TS-520 has a pi network? I am worried about tuning the radio, then using the AT-230 and tuning for the antenna mismatch, and then essentially detuning the kenwood in the process. I am now in a rental house and I was specifically told I cannot mount an antenna to anything or have anything really visible hanging around, so I was thinking about throwing up a random wire into the tree next to my window and tuning it with the AT-230. Last time I tried to tune my Kenwood with the AT-230, I blew a whole pack of fuses, so I just wanted to check.

I appreciate your guys' help!

73,

Jason - K7BOG

46184. Re: [TS-520_820_530_830] Driver Tube, Keyer, and Tuner question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 07:08:17 UTC
From: William Houghton
Topic: 46183 Message: 46184

Jason,

1) I'm not sure. It is not uncommon for the driver tube to be in the neutralization path. I'm sure someone with more experience with the hybrids can chime in.

2) No, you don't need a keyer or a code key. In TUNE mode the keying circuit is activated. "... I am aware I don't need to tune the radio in CW necessarily..."

If you follow the instructions in the manual for transmitting in CW, it tells you to tune the radio with the MODE switch in TUN. It also tells you that after switching the MODE to CW, adjust the PLATE and LOAD controls. This is retuning the final amp stage. This should not be considered optional.

3) In general, yes you can use an external tuner. One of the first pieces of gear you should have is a dummy load. If you don't have one, buy or build one. Connect the dummy load to DUMMY connector on the back of the AT-230. Set the switch to the DUM position on the THROUGH side of the ANTENNA switch. This will connect the dummy load to the rig bypassing all the AT-230 tuning circuits.
Tune the rig into this dummy load. Once you have retuned at full power, leave the tuning of the rig alone. What you have now done is tuned the rig to a known 50 ohm load.

Switch the ANTENNA switch to the antenna you will use and follow the instructions in the AT-230 manual. When the manual says to use a minimum of power, they mean pretty low power, just enough to move the meter needle.

here's what is going on.... your tuner has an input side and an output side. The idea is to adjust the input side so that the input impedance of the tuner matches the output impedance of the rig. Then you adjust the output side of the tuner to match the impedance of your antenna. Since the TS-520 has a pi-network we adjust it to a known value which is why you first tune the rig into a 50-ohm dummy load.

73,

Bill

From: "jason.bogstie@..." <jason.bogstie@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 1, 2013 7:26 PM
Subject: [TS-520_820_530_830] Driver Tube, Keyer, and Tuner question

Hey Everyone!

I have three quick questions for you, these are regarding a Kenwood TS-520:

1. If I just replace the driver tube and NOT the finals, do I need to perform the neutralizing procedure from the manual? Is there some procedure for the driver tube that I need to be aware of?

2. Do I need to have a morse keyer to fine tune the radio in CW mode or can I just use the send/rec switch? I am aware I don't need to tune the radio in CW necessarily, but the manual recommends it and I'd like to do it.

3. Can I use the AT-230, as a tuner, to tune a mismatched antenna? Do I have anything to worry about since the TS-520 has a pi network? I am worried about tuning the radio, then using the AT-230 and tuning for the antenna mismatch, and then essentially detuning the kenwood in the process. I am now in a rental house and I was specifically told I cannot mount an antenna to anything or have anything really visible hanging around, so I was thinking about throwing up a random wire into the tree next to my window and tuning it with the AT-230. Last time I tried to tune my Kenwood with the AT-230, I blew a whole pack of fuses, so I just wanted to check.

I appreciate your guys' help!

73,

Jason - K7BOG

46185. Re: [TS-520_820_530_830] Driver Tube, Keyer, and Tuner question

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 12:33:33 UTC
From: Mike
Topic: 46183 Message: 46185

Jason,

Question "1", answer is "No", you do not have to neutralize the final if you only replace the driver tube.

Question "2" (part 1), answer is "No", you do not need a CW key plugged into the rear panel CW key socket in CW mode to produce RF output, in CW mode and flipping the SEND switch "UP". The CW key socket is a "N.C." (Normally Closed) socket.

Question "2" (part 2), answer is "Yes", you need to use CW mode during the transmitter tune up procedure as the manual states. As stated in "Part 1", you do not need a CW key during the "CW Mode" transmitter tune up procedure.

Question "3" (Part 1), answer is "Yes, you can use the AT-230 with the TS-520. However, the TS-520's PI Network cannot and will not tune a "long wire" antenna, you must use a tuner such as an AT-230 between the TS-520 and the "Long wire" antenna. There are other tuners that will also work for long wire antennas. If you do not have a 50 ohm dummy load then I recommend you purchase one and use it when tuning the TS-520 transmitter.

MFJ sells a couple of nice 50 ohm dry dummy loads. You can use a wet (oil based) dummy load but those can be messy. MFJ sells a wet 1.5K dummy load for $69.95 comes with a gal of oil. I never cared for wet dummy loads, didn't like the mess. A couple of dry 50 ohm dummy loads sold by MFJ are as follows:

1. MFJ-260C 300 watts $39.95
2. MFJ-264 1500 watts $74.95

The MFJ-260C has a power limitation you need to observe. The MFJ-260C will accept a constant carrier at 300 watts for only "30 seconds" followed by a "2 minute" cool down period. Based on the graph included in the MFJ-260C manual, the MFJ-260C will accept a constant 100 watt carrier for "1.5 minutes" followed by a "2 minute" cool down period. You must adhere to these power rating specifications otherwise you can permanently damage the dummy load.

You should use a 50 ohm dummy load that has a power rating equal to or higher than the TS-520's 100 watt output and tune the TS-520's transmitter into the dummy load (I recommend a dummy load with at least twice the power rating of the TS-520's 100 watt output).

Once the TS-520 has been tuned properly into the 50 ohm dummy load, by following the TS-520's operator's manual tune up procedures, connect the

TS-520 to the AT-230, reduce the TS-520's power output to approximately 25 watts (CW Mode) using the CAR control and begin adjusting the AT-230 for lowest SWR. Once a low SWR has been achieved, unkey the transmitter to allow the TS-520 final amplifier tubes to cool down a minute or so. Key the TS-520 and increase power output using the CAR control to approximately 50 watts and repeat the AT-230 adjustments for lowest SWR then unkey the TS-520 so the final amplifier can cool down. Repeat this procedure until the AT-230 has achieve the lowest SWR possible. During the AT-230 adjustments, do NOT touch/re-adjust the TS-520's DRIVE, PLATE, and LOAD controls. The only TS-520 control you should adjust during the AT-230 adjustments for lowest SWR is the CAR control to reduce/increase power output to the AT-230 tuner. Depending on the length of wire you use for the antenna, it's possible you will never achieve a low SWR. Wire antennas need to be long. A short wire say approximately 20 feet may not be suitable length for the AT-230 to achieve a low SWR. Again, a "good ground" is a "MUST".

Question "3" (Part 2), You should read the AT-230 manual, page 9, and follow the instructions for "wire antenna" installations. A "good ground" is essential when using the AT-230 with wire antennas. If you do not have the AT-230 operator's manual then I recommend downloading it from the web and read it thoroughly before you attempt to use the AT-230 with a long wire antenna.

73
Mike W5RKL

On 12/1/2013 9:26 PM, jason.bogstie@... wrote:
>
> Hey Everyone!
>
>
> I have three quick questions for you, these are regarding a Kenwood
> TS-520:
>
> 1. If I just replace the driver tube and NOT the finals, do I need to
> perform the neutralizing procedure from the manual? Is there some
> procedure for the driver tube that I need to be aware of?
>
> 2. Do I need to have a morse keyer to fine tune the radio in CW mode
> or can I just use the send/rec switch? I am aware I don't need to tune
> the radio in CW necessarily, but the manual recommends it and I'd like
> to do it.
>
> 3. Can I use the AT-230, as a tuner, to tune a mismatched antenna? Do
> I have anything to worry about since the TS-520 has a pi network? I am
> worried about tuning the radio, then using the AT-230 and tuning for
> the antenna mismatch, and then essentially detuning the kenwood in the
> process. I am now in a rental house and I was specifically told I
> cannot mount an antenna to anything or have anything really visible
> hanging around, so I was thinking about throwing up a random wire into

> the tree next to my window and tuning it with the AT-230. Last time I
> tried to tune my Kenwood with the AT-230, I blew a whole pack of
> fuses, so I just wanted to check.
>
> I appreciate your guys' help!
>
> 73,
>
> Jason - K7BOG
>

46186. Re: [TS-520_820_530_830] TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 13:58:42 UTC
From: Mike
Topic: 46167 Message: 46186

Craig,

Have you read the "Survial Guide" document found on the Group's homepage in the "Files" section? That document discusses various problems with the TS-830 and suggestions you should consider. I recommend you read that document. Also, search through the message archieves, Terry K9TW, has provided some excellent information in previous posts that you should look for.

No, I do not believe a capacitor on the IF board is the source of your problem. You should never replace any component(s) or vacuum tube unless there is clear evidence through proper troubleshooting that points to a component or vacuum tube as the source of your problem. Visual inspections are part of the troubleshooting process. Visual inspections quite often uncover overheated/damaged resistors, final amplifier RF choke (discolored windings), and melted wiring. Loss of transmit RF requires tracing the transmit signals (read the 830's Circuit Description section in the operator/service manuals) through the 830. You will need basic test equipment, scope, frequency counter, etc, to perform these steps.

73
Mike W5RKL

On 12/1/2013 10:43 PM, Craig Roberts wrote:
> Thanks, Mike.
>
> Actually, the symptoms have gotten worse. Drive on 10 meters is now
> intermittent -- mostly non-existent -- and output power on all bands
> above 40 is dropping off. The output is wavering slightly, too.,
> seemingly indicating a weakening component or a bad connection
> somewhere. I suppose it could be the old band switch problem. I
> cleaned it several months ago when I first got the radio. (The radio had
> been almost completely inoperative). Others have noted that band switch
> cleaning is a temporary solution and that bridging the rivets and
> contacts with conductive paint or soldered wires is the only way to
> permanently cure the band switch misbehavior.
>
> The driver tube should be okay. I replaced it with a new 12BY7 and
> there was no change in the problem. The finals were changed, too. Oh,
> and I replaced the electrolytics on the rectifier board, too.
>
> What about the electrolytics on the IF board? What happens if they go sour?
>
> 73,
>

> Craig
> W3CRR
>
>
> ------------------------------------
>
> Yahoo Groups Links
>
>
>
>

46187. Re: [TS-520_820_530_830] TS-830S output fading fast

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 14:47:15 UTC
From: Craig Roberts
Topic: 46167 Message: 46187

True enough, Mike. And thanks again.

I did replace the driver tube and finals since both were "usual suspects" for power dropoff on the higher frequencies. Of course, the effect in my case was nil.

The topic of electrolytic cap replacement is an interesting one encompassing two distinct schools of thought:

1) the "if it ain't broke, don't fix it" approach, and,
2) the "get it before it gets you", prophylactic philosophy.

A common bit of advice, here and elsewhere, is to replace the HV caps as a matter of routine. One Kenwood hybrid specialist advised me to swap out the 'lytics on the rectifier board and the four 22 uF caps on the IF board, too, "as an absolutely necessary step." Another hybrid service specialist favors replacing every electrolytic in the radio, pointing to the caps' age and an exhaustive analysis of the devices' life cycles in support of his thesis. His argument is compelling, I must say.

Others advise to "leave well enough alone" and, like you, Mike, favor replacing components only if there is clear evidence of failure or deterioration since the dangers of "collateral damage" to sensitive circuit boards and other components outweigh the benefits of a "shotgun" repair operation.

Both points of view have merit.

I routinely restore antique radios and boatanchors and, unless the radio is known to be working perfectly at the outset, begin (after a thorough cleaning) by replacing every electrolytic and paper cap in the chassis, then measure resistors and replace them as necessary. Of course, this is much easier to do and less threatening in a radio with point to point wiring. A circuit board based rig with -- in the case of one of our hybrids -- upwards of a hundred electrolytics alone is another matter.

I am curious about others' opinions on this matter.

Thanks and 73,

Craig
W3CRR

46188. Breathing life into TS-520s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 15:04:37 UTC
From: <sm7fyw@...>
Topic: 46188 Message: 46188

Hello everybody
Hope you all had a nice Thanks giving.
Now I have a Q, trying to help a friend with his TS 520s, the audio board was fried, so got a new one, and put it in, now the receiver comes to life, but no sound, till I adjust the 3.3V on the AVR board up to about 6V.....
The 9V is correct, 14V is also there, but as soon as I adjust the voltage lower, the S-meter goes up, and it sounds like you turn up the RF gain, only very strong signal goes through, also, when I turn up to about 6V, so receiver "works" it sounds like its self oscillating if I turn up the drive max......
Only thing I know about the radio, is that it had a 11m mod, so it does not work on 28.0 Mhz, but all other bands seems ok....
Any ideas?
Lars KB3WBT

46189. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 16:40:09 UTC
From: Joseph Stiles
Topic: 46181 Message: 46189

Jim,

  It appears that "gmail" and "yahoo" do not play well with each other. Here on "yahoo", I have a
"yahoo email address," all email, etc. that involves this group goes to that address and NOT my other "private" email address,....maybe they call it "yahoo" for a reason.... hihi

  I will continue to keep an eye out for your post(s)...and get you off "moderate" as soon as possible. The change in email identification may cause a problem...but we can deal with that.

73 Joe
WB7UQU
Group Co-owner

On Sunday, December 1, 2013 9:45 PM, Jim W7RY <jimw7ry@gmail.com> wrote:

>Thanks all..
>I'll change my email address and move away from gmail for my yahoo groups.
>73
>Jim W7RY
>
>
>
>
>

46190. Re: [TS-520_820_530_830] Re: Mailing list issues and TS-830S ALC Overshoot

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-02 17:00:41 UTC
From: Joseph Stiles
Topic: 46181 Message: 46190

Jim,

  check this link out for more info on your "ALC overshoot" question

http://www.w8ji.com/alc_exciter_power_overshoot.htm

73 Joe
WB7UQU

On Monday, December 2, 2013 8:43 AM, Joseph Stiles <stilesjoseph@...> wrote:

>Jim,
>
> It appears that "gmail" and "yahoo" do not play well with each other. Here on "yahoo", I have a
>"yahoo email address," all email, etc. that involves this group goes to that address and NOT my other "private" email address,....maybe they call it "yahoo" for a reason.... hihi
>
> I will continue to keep an eye out for your post(s)...and get you off "moderate" as soon as possible. The change in email identification may cause a problem...but we can deal with that.
>
>
>
>
>73 Joe
>WB7UQU
>Group Co-owner
>
>
>
>
>On Sunday, December 1, 2013 9:45 PM, Jim W7RY <jimw7ry@...> wrote:
>
>
>>Thanks all..
>>I'll change my email address and move away from gmail for my yahoo groups.
>>73
>>Jim W7RY
>>
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>

46191. A "doh" moment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-03 17:55:42 UTC
From: <adrian@...>
Topic: 46191 Message: 46191

First a brief rant - is it just me or is the new format for this group appallingly difficult to use? Doesn't even format correctly on my iPhone/iPad if I want to post/reply via web. Very hard to follow threads and generally fights the user.

Anyway here's a cautionary tale. I had been doing some troubleshooting on my TS520SE, and when testing it on receive was getting terrible "birdies" on 80m and topband. Weird noises like woodpeckers in the rig, and s-meter pegging whistles as you tuned through band. Crackles and pops like crazy.

Was trying to figure out source of problem when I realised that I hadn't replaced one of the metal shields on the RF coil board. It was the one between ANT and MIX coils. I had removed it to make room to desolder a component on the RF board. As soon as I popped the shield back in (held by 2 Philips screws) all was restored to normal on those bands!

73 Adrian G4IQW

46192. RE: Breathing life into TS-520s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-03 18:40:11 UTC
From: <sm7fyw@...>
Topic: 46188 Message: 46192

Well guys, sorry to bother again, have found what is wrong, the AVR board is missing abt 10 components! Should have known, it wasn't just the difference between 520 and 520s....
Boy do I feel stupid! I'm going to upload the picture of what's left on the board....

Lars KB3WBT

46193. RE: Breathing life into TS-520s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-03 19:37:35 UTC
From: <ke5ftf@...>
Topic: 46188 Message: 46193

I have a good clean FIX-CHAN AVR board for $24.00 plus $4.00 to mail...
Part X43-1100-00
If interested just email me off the forum...
ke5ftf "at"mail.com
Bob

46194. Re: [TS-520_820_530_830] A "doh" moment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-03 19:56:08 UTC
From: Joseph Stiles
Topic: 46191 Message: 46194

Adrian,

Good job on figuring out the "shield" problem.

  The "new yahoo" has been a rather pain in the bum. Many group members have complained about the "new yahoo." Messages get "lost" or take several days to turn up. As you may well know....new is NOT always better......cheers mate

73 Joe
WB7UQU

On Tuesday, December 3, 2013 9:56 AM, "adrian@qualitative.co.uk" <adrian@...> wrote:

>First a brief rant - is it just me or is the new format for this group appallingly difficult to use? Doesn't even format correctly on my iPhone/iPad if I want to post/reply via web. Very hard to follow threads and generally fights the user.
>
>Anyway here's a cautionary tale. I had been doing some troubleshooting on my TS520SE, and when testing it on receive was getting terrible "birdies" on 80m and topband. Weird noises like woodpeckers in the rig, and s-meter pegging whistles as you tuned through band. Crackles and pops like crazy.
>
>Was trying to figure out source of problem when I realised that I hadn't replaced one of the metal shields on the RF coil board. It was the one between ANT and MIX coils. I had removed it to make room to desolder a component on the RF board. As soon as I popped the shield back in (held by 2 Philips screws) all was restored to normal on those bands!
>
>73 Adrian G4IQW
>
>
>

46195. Re: [TS-520_820_530_830] A "doh" moment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-03 20:11:43 UTC
From: Joe - W7RKN
Topic: 46191 Message: 46195

Surely you jest! :)

Joe - W7RKN
----- Original Message -----
From: Joseph Stiles
Subject: Re: [TS-520_820_530_830] A "doh" moment

about the "new yahoo." Messages get "lost" or take several days to turn up. As you may well know....new is NOT always better......cheers mate

46196. Re: [TS-520_820_530_830] A "doh" moment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-03 20:48:15 UTC
From: CROOKS David
Topic: 46191 Message: 46196

Hi Adrian,
I set my emails to send plain text and receive plain text.
I don't see the reported problems.
Dave f4eyk

46197. Re: [TS-520_820_530_830] A "doh" moment

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-04 11:00:52 UTC
From: <adrian@...>
Topic: 46191 Message: 46197

Hi Dave

That's a good tip but I send replies via the web interface, as I have a different email registered for this group than the one on my mobile devices. I can't just reply direct from email.

The new web interface is the problem. Used to be very fast and reliable. Now it will often refuse to expand posts, not let me click into a reply box, and when I do type characters not accepted! I have a feeling that the lower level of group activity recently reflects problems people are having using the interface.

If it persists I may have to re-register using address letting me use list via email.

73 de Adrian G4IQW

46198. Mismatch handling capabilities of the TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-04 03:58:28 UTC
From: <jason.bogstie@...>
Topic: 46198 Message: 46198

Hey, Everyone:

I was wondering if someone knew about how much of a mismatch in an antenna a TS-520's pi network can handle?

46199. Re: [TS-520_820_530_830] Mismatch handling capabilities of the TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-04 16:36:24 UTC
From: Ron
Topic: 46198 Message: 46199

What the owners manual says

Ron KK4PWF

On Dec 3, 2013, at 9:58 PM, <jason.bogstie@...> wrote:

>
>
> Hey, Everyone:
>
> I was wondering if someone knew about how much of a mismatch in an antenna a TS-520's pi network can handle?
>
>
>

46200. Re: Mismatch handling capabilities of the TS-520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-04 16:28:02 UTC
From: Barry Sherwood
Topic: 46198 Message: 46200

It is between 15 to 200 ohms resitive.

Barry KF5GC

46201. A humorous TS-520SE story before Christmas.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-04 20:31:52 UTC
From: <cshaw@...>
Topic: 46201 Message: 46201

I have a back-up TS-520SE that I bought about 2 years ago to use in case my favorite 520SE got sick. The back-up would receive but I never got around to running a full "systems check" on it until this past week. Well, everything checked out okay with the exception that relay RL2 would hang and the Band selector was a bear to try and turn. A little contact cleaner took care of the relay problem but why, oh why, was the Band selector being so difficult?
The previous owner must have had the same problem with the Band selector because he took the time and effort to apply liberal amounts of black grease to the selector shaft just behind the face plate. Of course this black goo was of no help and I carefully removed all traces of it.
The tuning shaft appeared straight and there was no evidence of any physical damage but why, oh why, was it so difficult to turn? I have arthritis enough to make me sometime wish that my thumbs would fall off and running the Band selector through its full cycle in its current condition was not a pleasant experience.
I could kick myself, again. While listening to a little chatter on 20 meters it struck me. The solution was right there, staring me in the face all the time. Some previous owner had switched the knobs! He had put the Function knob on the Band selector shaft and the Band selector knob on the Function shaft. Problem identified; problem solved.
Ah, it's not easy being me sometime.
There's no need for a response to this posting. I only wrote it to make people smile a little, nothing more.

73
Charlie
KB3BTO

46202. Re: [TS-520_820_530_830] A humorous TS-520SE story before Christmas.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-04 21:35:26 UTC
From: Joseph Stiles
Topic: 46201 Message: 46202

Charlie,

au contraire, mon frere(on the contrary, my brother) it demands a response:

Many a rig have I seen advertised on..E-pay...the pictures clearly show switched knobs..etc..
but the ad goes...totally original...all original..never "messed with"...etc....right...just take a look at
the "operators manual".....it clearly shows the control/knob identification and where they should be.

Well...as for Arthur Itis...I think he lives down the block from me...and comes over to visit several times a week...

Hope you have a safe and happy Holiday Season...without "Arthur Itis" visiting....hihi

73 Joe
WB7UQU

On Wednesday, December 4, 2013 12:31 PM, "cshaw@..." <cshaw@...> wrote:

> I have a back-up TS-520SE that I bought about 2 years ago to use in case my favorite 520SE got sick. The back-up would receive but I never got around to running a full "systems check" on it until this past week. Well, everything checked out okay with the exception that relay RL2 would hang and the Band selector was a bear to try and turn. A little contact cleaner took care of the relay problem but why, oh why, was the Band selector being so difficult?
> The previous owner must have had the same problem with the Band selector because he took the time and effort to apply liberal amounts of black grease to the selector shaft just behind the face plate. Of course this black goo was of no help and I carefully removed all traces of it.
> The tuning shaft appeared straight and there was no evidence of any physical damage but why, oh why, was it so difficult to turn? I have arthritis enough to make me sometime wish that my thumbs would fall off and running the Band selector through its full cycle in its current condition was not a pleasant experience.
> I could kick myself, again. While listening to a little chatter on 20 meters it struck me. The solution was right there, staring me in the face all the time. Some previous owner had switched the knobs! He had put the Function knob on the Band selector shaft and the Band selector knob on the Function shaft. Problem identified; problem solved.
> Ah, it's not easy being me sometime.
> There's no need for a response to this posting. I only wrote it to make people smile a little, nothing more.
>
> 73
> Charlie

> KB3BTO
>
>
>
>

46203. Re: [TS-520_820_530_830] A humorous TS-520SE story before Christmas.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-05 01:52:55 UTC
From: Michael Sylvester
Topic: 46201 Message: 46203

Hi Charlie,
I'm new here but I enjoyed your story so I thought I would comment.
It's a good incident to remember however. Also a credit to your smarts to deduce the solution.
I wont forget that as I'm refurbishing Kenwoods' and all the knobs come off so I can remove the faceplate and scrub everything. It's fun I'll tell ya.I think alot of hams like to eat their fried chicken while they ragchew.
I could see myself making that mistake with the knobs.

Maybe even getting out the grease gun.

Not really.
Thanks for sharing.
Michael///KD0WSJ

From: "cshaw@..." <cshaw@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, December 4, 2013 2:31 PM
Subject: [TS-520_820_530_830] A humorous TS-520SE story before Christmas.

I have a back-up TS-520SE that I bought about 2 years ago to use in case my favorite 520SE got sick. The back-up would receive but I never got around to running a full "systems check" on it until this past week. Well, everything checked out okay with the exception that relay RL2 would hang and the Band selector was a bear to try and turn. A little contact cleaner took care of the relay problem but why, oh why, was the Band selector being so difficult?

The previous owner must have had the same problem with the Band selector because he took the time and effort to apply liberal amounts of black grease to the selector shaft just behind the face plate. Of course this black goo was of no help and I carefully removed all traces of it.

The tuning shaft appeared straight and there was no evidence of any physical damage but why, oh why, was it so difficult to turn? I have arthritis enough to make me sometime wish that my thumbs would fall off and running the Band selector through its full cycle in its current condition was not a pleasant experience.

I could kick myself, again. While listening to a little chatter on 20 meters it struck me. The solution was right there, staring me in the face all the time. Some previous owner had switched the knobs! He had put the Function knob on the Band selector shaft and the Band selector knob on the Function shaft. Problem identified; problem solved.

Ah, it's not easy being me sometime.

There's no need for a response to this posting. I only wrote it to make people smile a little, nothing more.

73
Charlie

KB3BTO

46204. TS-830S AV board no -6 volts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-05 23:03:15 UTC
From: <dlbowders@...>
Topic: 46204 Message: 46204

Hello All,
After a few months down I am back at the bench with a real stickler.I remember some discussion about this a month or 2 ago but it did not mimmic my particular problem so I need some help. I have beat this problem up and thought it led to a faulty Q18 but after replacement, no joy. This is where I am now. Replaced AV board with new board and rechecked voltages. Still have the following: at Q18 Base= -7.4 v,
Collector= -5.78 v, Emitter= +.5 v. Have stable -115 v at -C post. I cannot find my problem area. I started thinking every whacky thought but figured I needed help. I did inject -6 v on IF board connector 3 pin 1 and receive is good. This rig was a basket case from Ebay but everything is now working except this AV problem. Rig loads on all bands into dummy load but have to supply outside -6 v to receive. This is the first time I have had a receive problem so I do not have experience with the AV section. What say the group?
Thanks in advance, Don K5HFG

46205. RE: TS-830S AV board no -6 volts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-05 23:07:52 UTC
From: <n6wk@...>
Topic: 46204 Message: 46205

I Know the Answer.... LOL

Been down that road a few times on the 830's <Grin>

73,
Gordon
N6WK

46206. RE: TS-830S AV board no -6 volts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-05 23:15:31 UTC
From: <dlbowders@...>
Topic: 46204 Message: 46206

Gordon,

Did it frustrate you to the point of getting up shutting down and walking away from the shack?
I am all ears.....<Grin.....Not!>

46207. Re: [TS-520_820_530_830] RE: TS-830S AV board no -6 volts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-05 23:21:36 UTC
From: n6wk@...
Topic: 46204 Message: 46207

Yes... But ONLY the first time. After that, I knew where to look! LOL

73,
Gordon
N6WK

On 12/5/2013 3:15 PM, dlbowders@... wrote:
>
> Gordon,
>
> Did it frustrate you to the point of getting up shutting down and
> walking away from the shack?
> I am all ears.....<Grin.....Not!>
>
>

--

46208. Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 01:58:31 UTC
From: n5xjt@ymail.com
Topic: 46208 Message: 46208

Any suggestions for the following problem much appreciated: Replaced the cathode and screen resistors including on the rectifier board, rewound RF choke to repair broken copper enameled wire, glued to the ceramic post with clear nail polish and resoldered to the parisitic resistor post, replaced the plate coupling capacitor and turned on the rig to check results. Rig display shows 500 kc below the band switch position, e.g., at 10 mhz shows 9500, at 28 shows 27500. NO sound or signal. Picking up and dropping the rig causes display to return to normal and signal returns but staticky. Shortly reverts to the same problem. Checked for cold solder joint, loose connectors etc but no luck. Rig was working normally but with moderately low output prior to repairs. Any thoughts please!
Thanks, Joe - N5XJT

46209. TS-820 VFO problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 02:12:52 UTC
From: Tom Jones N8NMA
Topic: 46209 Message: 46209

Hello to all new to this group. I own and I am the original owner of a TS-520S. However my question is about a friends TS-820. He just recently moved and when he fired up his 820 it had VFO problems. It doesn't track as you turn the knob. It goes for example from 3.599.9 to 3.715.5 not 3.600.0 and it may even go backwards when it should be going foreward. Any help would be great. Would like to get it back on the air for him.

Thanks

Tom N8NMA

46210. RE: TS-830S AV board no -6 volts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 03:11:48 UTC
From: <dlbowders@...>
Topic: 46204 Message: 46210

Gordon,
Thanks for pointing me back to the counter board. All was fine with the counter so after that it was a no brainer. All I needed was a gentle push away from what I thought just had to be the source of the problem. So, if we got -6 at the counter board but no place else it has to be a broken line. Found it was detached from the notch filter PB switch after a brief consult with the schematic. had to be that. repaired and back to 100%. I cannot believe I spent all that time in the wrong place. It will take an hour or 2 to rebundle all the wires but at least it is fixed. Thanks again and 73. Don K5HFG

46211. Re: [TS-520_820_530_830] TS-820 VFO problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 05:09:17 UTC
From: Mark Gilger
Topic: 46209 Message: 46211

He needs to perform the VFO Servicing located at
the following link or go directly to Gordon's web site.

http://wb4hfn.com/KENWOOD/Kenwood-Articles.htm

http://www.n6wk.com/kenwood/TS-820-VFO--servicing.pdf

Mark, WB0IQK

At 09:12 PM 12/5/2013, Tom Jones N8NMA wrote:
>
>
>Hello to all new to this group. I own and I am
>the original owner of a TS-520S. However my
>question is about a friends TS-820. He just
>recently moved and when he fired up his 820 it
>had VFO problems. It doesn't track as you turn
>the knob. It goes for example from 3.599.9 to
>3.715.5 not 3.600.0 and it may even go backwards
>when it should be going foreward. Any help would
>be great. Would like to get it back on the air for him.
>
>Thanks
>
>Tom N8NMA
>

46212. RE: TS-830S AV board no -6 volts

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 05:33:31 UTC
From: <n6wk@...>
Topic: 46204 Message: 46212

Don,
It makes me feel good to know I am still good for something...LOL
(Lately, with my health, I haven't felt I was worth much anymore)
Congratulations on finding the problem.
Sometimes it is so in front of us, we miss it! LOL
(Can't see the forest, for the trees).. ha ha..

73,
Gordon
N6WK

46213. RE: [TS-520_820_530_830] Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 07:55:42 UTC
From: fpath fpath
Topic: 46208 Message: 46213

Joe,

Does this radio have 11 modification? When on 28, and moving VFO past the 28.000 mark you should only see 27.924 (approx) as lowest freq. Have a look on the PLL board connector 2 to see if purple (from memory) has been cut or is broken. All the other work you have done shouldn't create problems with the VFO\display

73s

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: n5xjt@...
Date: Fri, 6 Dec 2013 01:58:31 +0000
Subject: [TS-520_820_530_830] Help! - TS530 problem

Any suggestions for the following problem much appreciated: Replaced the cathode and screen resistors including on the rectifier board, rewound RF choke to repair broken copper enameled wire, glued to the ceramic post with clear nail polish and resoldered to the parisitic resistor post, replaced the plate coupling capacitor and turned on the rig to check results. Rig display shows 500 kc below the band switch position, e.g., at 10 mhz shows 9500, at 28 shows 27500. NO sound or signal. Picking up and dropping the rig causes display to return to normal and signal returns but staticky. Shortly reverts to the same problem. Checked for cold solder joint, loose connectors etc but no luck. Rig was working normally but with moderately low output prior to repairs. Any thoughts please!
Thanks, Joe - N5XJT

46214. Re: [TS-520_820_530_830] Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 11:31:41 UTC
From: Michael Sylvester
Topic: 46208 Message: 46214

I'm new to the group. Just back in Ham radio after 42 years...
Been studying the Kenwoods'. My first thought on your problem is your bandswitch isn't working real well. "Old and Dirty", like me.
(although I'm older and dirtier)
Especially if jarring the radio helps it or changes what it's doing.
If you use deoxit on the wafers wait until you are sure it's dry before using rig.
Poor guy on eBay bought a nice TS-830S and cleaned it and Deoxit caught fire.
I've bought alot of his parts.....missed out on the RF board, dangit.
You could also use "mass air flow sensor" spray cleaner after Deoxit.
MAFS is a zero residue cleaner, easy on plastics. Less likely to have a fire and destroy your radio, it'll cost you about $8 at auto parts store.
Try some deoxit on your wafers. Be sure to get the 3 or 4 in the HV cage too. Wait long enough for it to dry. Will definately help.
Michael///KD0WSJ

From: fpath fpath <fpath@...>
To: "TS-520_820_530_830@yahoogroups.com" <ts-520_820_530_830@yahoogroups.com>
Sent: Friday, December 6, 2013 1:55 AM
Subject: RE: [TS-520_820_530_830] Help! - TS530 problem

Joe,

Does this radio have 11 modification? When on 28, and moving VFO past the 28.000 mark you should only see 27.924 (approx) as lowest freq. Have a look on the PLL board connector 2 to see if purple (from memory) has been cut or is broken. All the other work you have done shouldn't create problems with the VFO\display

73s
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: n5xjt@...
Date: Fri, 6 Dec 2013 01:58:31 +0000
Subject: [TS-520_820_530_830] Help! - TS530 problem

Any suggestions for the following problem much appreciated: Replaced the cathode and screen resistors including on the rectifier board, rewound RF choke to repair broken copper enameled wire, glued to the ceramic post with clear nail polish and resoldered to the parisitic resistor post, replaced the plate coupling capacitor and turned on the rig to check results. Rig display shows 500 kc below the band switch position, e.g., at 10 mhz shows 9500, at 28 shows 27500. NO sound or signal. Picking up and dropping the rig causes display to return to normal and signal returns but staticky. Shortly reverts to the same problem. Checked for cold solder joint, loose connectors etc but no luck. Rig was working

normally but with moderately low output prior to repairs. Any thoughts please!
Thanks, Joe - N5XJT

46215. No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 14:35:57 UTC
From: <hd13777@...>
Topic: 46215 Message: 46215

Hi, New to ham went through the start up procedure everything went ok until it came time to transmit when i key the mic the needle goes to 0 when i release the key the needle jumps i can hear the relay am i missing something or is the mic bad thanks

46216. Re: [TS-520_820_530_830] TS-820 VFO problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 11:57:49 UTC
From: Michael Sylvester
Topic: 46209 Message: 46216

Thanks for those links Mark. I think I have N6WK already but that other one is a valuable wealth by the looks of it. (it would help if my crap computer and my small internet bandwidth downloaded better).
I concur on the vfo fix, prolly the mechanical elec connections inside the box.
I've got an 820S on the bench right now, RF board is out to detail the wafers and VFO cover is off. Much easier to work on both with it out.
Had to get ready for storm, put up 3 cord of wood. Now with bad weather I can feed the woodburner and work on my radios.
It's a pretty easy fix for most of the VFO problems Tom, you can handle it.
Michael///KD0WSJ

From: Mark Gilger <mgilger@...>
To: TS-520_820_530_830@yahoogroups.com; TS-520_820_530_830@yahoogroups.com
Sent: Thursday, December 5, 2013 11:09 PM
Subject: Re: [TS-520_820_530_830] TS-820 VFO problem

He needs to perform the VFO Servicing located at the following link or go directly to Gordon's web site.

http://wb4hfn.com/KENWOOD/Kenwood-Articles.htm

http://www.n6wk.com/kenwood/TS-820-VFO--servicing.pdf

Mark, WB0IQK

At 09:12 PM 12/5/2013, Tom Jones N8NMA wrote:

>
>Hello to all new to this group. I own and I am the original owner of a TS-520S. However my question is about a friends TS-820. He just recently moved and when he fired up his 820 it had VFO problems. It doesn't track as you turn the knob. It goes for example from 3.599.9 to 3.715.5 not 3.600.0 and it may even go backwards when it should be going foreward. Any help would be great. Would like to get it back on the air for him.
>
>Thanks
>
>Tom N8NMA
>

46217. Re: [TS-520_820_530_830] No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:02:46 UTC
From: W5RKL
Topic: 46215 Message: 46217

You said you performed the start up procedures and everything went well except the meter remained at zero when you pressed the microphone's PTT button. The TS-520SE does not have a HEATER switch, the filament power is applied any time the ON/OFF main power switch is in the ON position.

Did you check the SG switch on the back of the transceiver? It should be set to the "ON" position. Quite often handling/moving the transceiver can result in your hand/fingers accidentally moving the SG switch to the OFF position. If you don't know where the SG switch is, refer to the 520SE operator's manual, pages 12 and 18.

Also, did you check the rear panel's External VFO socket? Either the factory 9 pin plug or a jumper wire connected between pins 8 and 9 is required. If the plug or jumper wire is missing then the internal VFO will not receive it's 9VDC operating voltage. This will result in the 520SE not working in receive and transmit. Note, the rear panel External VFO factory plug or jumper wire has nothing to do the meter's IP 60ma idling current indication (Mode switch set to USB or LSB) with the microphone's PTT button pressed or the SEND switch flipped "UP" (keys the transmitter). If you don't know where the 520SE's rear External VFO socket is then refer to page 7 and 12 in the 520SE's manual.

I also noticed you did not end your message with your name and/or ham call sign (signature). You must end all of your messages posted on the group with a signature which can be either your first name and/or your ham call sign. "Screen names" such as hd13777 are not acceptable signature names. Screen names are only acceptable as part of your email address, not as a signature to your messages. Therefore, ensure all future messages you post on the group have a signature that is either your first name and/or your ham call sign.

73
Mike W5RKL

On 12/6/2013 8:35 AM, hd13777@... wrote:
>
> Hi, New to ham went through the start up
> procedure everything went ok until it came time to transmit when i key
> the mic the needle goes to 0 when i release the key the needle jumps
> i can hear the relay am i missing something or is the mic bad thanks
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46218. Re: [TS-520_820_530_830] No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:13:50 UTC
From: Bob Lazarow
Topic: 46215 Message: 46218

Hi: I know this may sound trite and obvious, but I've seen this in the group several times before: When you keyed the mike, did you actually speak into it? The way SOB works, no audio, no RF. Other than that, make sure the mike CABLE and or connector are in good shape. Of course, a proper Kenwood second mike would make things really easy, if available. God luck with it

Bob /WA2JAJ

On 12/6/2013 9:35 AM, hd13777@... wrote:
>
> Hi, New to ham went through the start up
> procedure everything went ok until it came time to transmit when i key
> the mic the needle goes to 0 when i release the key the needle jumps
> i can hear the relay am i missing something or is the mic bad thanks
>
>

46219. Re: [TS-520_820_530_830] No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:16:37 UTC
From: Bob Lazarow
Topic: 46215 Message: 46219

WHOOPS - sorry - typo - senior moment - make that "SSB" please ! LOL

Bob /WA2JAJ

On 12/6/2013 11:13 AM, Bob Lazarow wrote:
>
> Hi: I know this may sound trite and obvious, but I've seen this in the
> group several times before: When you keyed the mike, did you actually
> speak into it? The way SOB works, no audio, no RF. Other than that,
> make sure the mike CABLE and or connector are in good shape. Of
> course, a proper Kenwood second mike would make things really easy, if
> available. God luck with it
>
> Bob /WA2JAJ
>
>
>
>
> On 12/6/2013 9:35 AM, hd13777@... wrote:
>>
>> Hi, New to ham went through
>> the start up procedure everything went ok until it came time to
>> transmit when i key the mic the needle goes to 0 when i release the
>> key the needle jumps i can hear the relay am i missing something or
>> is the mic bad thanks
>>
>
>

46220. Offtopic, names - was Re: [TS-520_820_530_830] No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:26:15 UTC
From: Gordon JC Pearce
Topic: 46215 Message: 46220

On Fri, Dec 06, 2013 at 10:02:46AM -0600, W5RKL wrote:

> and/or your ham call sign. "Screen names" such as hd13777 are not
> acceptable signature names. Screen names are only acceptable as part
> of your email address, not as a signature to your messages.

I hope I'm not treading on any toes with mine. I'm probably more widely known by my old BBS nick that I've had for the thick end of 30 years than my real name - which is of course readily discernable from the call book or online listing of your choice.

--
Gordonjcp MM0YEQ

46221. TS-520 Series CW Filter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:34:23 UTC
From: k7mks@...
Topic: 46221 Message: 46221

Icom YG-3395C CW filter for the TS-520, -520S, and 520SE. Lightly used in shiney case.
$65 + a pittance for USPS.

Thank you joe k7mks

46222. Re: Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:55:24 UTC
From: n5xjt@ymail.com
Topic: 46208 Message: 46222

No, it has not been modified. Normal VFO operation shows about 27.920 as lowest. I agree the repairs should not have impacted but the problem did not show up until after.
tks,
joe - nfxjt

--- In TS-520_820_530_830@yahoogroups.com, fpath fpath <fpath@...> wrote:
>
> Joe,
>
>
>
> Does this radio have 11 modification? When on 28, and moving VFO past the 28.000 mark you should only see 27.924 (approx) as lowest freq. Have a look on the PLL board connector 2 to see if purple (from memory) has been cut or is broken. All the other work you have done shouldn't create problems with the VFO\display
>
>
>
> 73s
>
> Dave
>
> VK5PDL
>
>
>
>
> To: TS-520_820_530_830@yahoogroups.com
> From: n5xjt@...
> Date: Fri, 6 Dec 2013 01:58:31 +0000
> Subject: [TS-520_820_530_830] Help! - TS530 problem
>
>
>
>
>
>
> Any suggestions for the following problem much appreciated: Replaced the cathode and screen resistors including on the rectifier board, rewound RF choke to repair broken copper enameled wire, glued to the ceramic post with clear nail polish and resoldered to the parisitic resistor post, replaced the plate coupling capacitor and turned on the rig to check results. Rig display shows 500 kc below the band switch position, e.g., at 10 mhz shows 9500, at 28 shows 27500. NO sound or signal. Picking up and dropping the rig causes display to return to normal and signal returns but staticky. Shortly reverts to the same problem. Checked for cold solder joint, loose connectors etc but no luck. Rig was working normally but with moderately low output prior to repairs. Any thoughts please!

> Thanks, Joe - N5XJT
>

46223. Re: Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 17:02:55 UTC
From: n5xjt@ymail.com
Topic: 46208 Message: 46223

This was my first thought too but the band switch changes correctly, and was working fine prior to repairs. Normally a dirty or faulty band switch will only cause problem on certain band or bands. Also, it was cleaned about 12 mos. ago by a very good tech (AVVID). Dont think a dirty band switch would cause the default to drop. No matter what band I select the display shows 500 kc below the band and internal or external Vfo will not change the display. Frustrating!
tks, Joe - n5xjt

--- In TS-520_820_530_830@yahoogroups.com, Michael Sylvester <sylvstrmchl@...> wrote:
>
> I'm new to the group. Just back in Ham radio after 42 years...
> Been studying the Kenwoods'. My first thought on your problem is your bandswitch isn't working real well. "Old and Dirty", like me.
> (although I'm older and dirtier)
> Especially if jarring the radio helps it or changes what it's doing.
> If you use deoxit on the wafers wait until you are sure it's dry before using rig.
> Poor guy on eBay boughtÂ a nice TS-830SÂ and cleaned it and Deoxit caught fire.
> I've bought alot of his parts.....missed out on the RF board, dangit.
> You could also use "mass air flow sensor" spray cleaner after Deoxit.
> MAFS is a zero residue cleaner, easy on plastics. Less likely to have a fire and destroy your radio, it'll cost you about $8 at auto parts store.
> Try some deoxit on your wafers. Be sure to get the 3 or 4 in the HV cage too. Wait long enough for it to dry. Will definately help.
> Michael///KD0WSJ
>
>
> _____
> From: fpath fpath <fpath@...>
> To: "TS-520_820_530_830@yahoogroups.com" <ts-520_820_530_830@yahoogroups.com>
> Sent: Friday, December 6, 2013 1:55 AM
> Subject: RE: [TS-520_820_530_830] Help! - TS530 problem
>
>
>
> Â
> Joe,
> Â
> Does this radio have 11 modification?Â Â When on 28, andÂ moving VFO past the 28.000 mark you should only see 27.924 (approx) as lowest freq.Â Â Â Have a look on the PLL board connector 2 to seeÂ if purple (from memory) has beenÂ cut or is broken.Â All the other work you have done shouldn't create problems with the VFO\display
> Â
> 73s
> Dave
> VK5PDL

> Â
>
>
> _____
> To: TS-520_820_530_830@yahoogroups.com
> From: n5xjt@...
> Date: Fri, 6 Dec 2013 01:58:31 +0000
> Subject: [TS-520_820_530_830] Help! - TS530 problem
>
> Â
> Any suggestions for the following problem much appreciated: Replaced the cathode and screen resistors including on the rectifier board, rewound RF choke to repair broken copper enameled wire, glued to the ceramic post with clear nail polish and resoldered to the parisitic resistor post, replaced the plate coupling capacitor and turned on the rig to check results. Rig display shows 500 kc below the band switch position, e.g., at 10 mhz shows 9500, at 28 shows 27500. NO sound or signal. Picking up and dropping the rig causes display to return to normal and signal returns but staticky. Shortly reverts to the same problem. Checked for cold solder joint, loose connectors etc but no luck. Rig was working normally but with moderately low output prior to repairs. Any thoughts please!
> Thanks, Joe - N5XJT
>

46224. Re: Offtopic, names - was Re: [TS-520_820_530_830] No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 17:07:50 UTC
From: W5RKL
Topic: 46215 Message: 46224

Gordon (MM0YEQ),

You use your call sign as a signature which is acceptable. There are some members who do not use a signature or their signature contains an unacceptable "screen name" as the signature. Joe has sent a couple of reminder messages out to everyone about the signature requirement. It's the responsibility of ALL members to read, understand, and adhere to the signature rule.

Also, every "new" applicant for group membership is sent a "Welcome" message. The Welcome message clearly states the message signature requirement. It's the responsibility of ALL new members to read the Welcome message and adhere to the message signature requirement, it's that simple.

73
Mike W5RKL

On 12/6/2013 10:26 AM, Gordon JC Pearce wrote:
>
> On Fri, Dec 06, 2013 at 10:02:46AM -0600, W5RKL wrote:
>
> > and/or your ham call sign. "Screen names" such as hd13777 are not
> > acceptable signature names. Screen names are only acceptable as part
> > of your email address, not as a signature to your messages.
>
> I hope I'm not treading on any toes with mine. I'm probably more
> widely known by my old BBS nick that I've had for the thick end of 30
> years than my real name - which is of course readily discernable from
> the call book or online listing of your choice.
>
> --
> Gordonjcp MM0YEQ
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46225. RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 16:12:12 UTC
From: <hd13777@...>
Topic: 46215 Message: 46225

perhaps i didn't explain my self very good everything works receive is good when i key the mic its as if it grounds out no output not very good at typing hope this helps jim KC1AOB thanks 73's

46226. RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 17:16:49 UTC
From: <w5rkl@...>
Topic: 46215 Message: 46226

Jim,

What do you mean when you say there is "no output"? No "RF output, No audio output? You need to explain in more detail what steps you took to come to the conclusion there is "no output" and what you mean by "No output"

73
Mike W5RKL

46227. Re: [TS-520_820_530_830] RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 18:31:42 UTC
From: james bertrand
Topic: 46215 Message: 46227

mike thanks for the help when i key the mic no reading on the inline power meter or on the radio i'm using a dummy load witch mc-50 mic i checked mic switch and base switch plugs all looks ok when i key the mic everything goes dead i talk in to mic no deflection on meter what so ever

On Friday, December 6, 2013 12:16 PM, "w5rkl@..." <w5rkl@...> wrote:

Jim,

What do you mean when you say there is "no output"? No "RF output, No audio output? You need to explain in more detail what steps you took to come to the conclusion there is "no output" and what you mean by "No output"

73
Mike W5RKL

46228. TS 820 HV readings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 21:42:05 UTC
From: <greg.anders@...>
Topic: 46228 Message: 46228

I have a TS 820S that has slightly low power output. I have already checked the tubes and other such basic stuff including screen voltage, etc.

I always saw about 900V no load on the HV on previously owned 830's but I am seeing only 800V no-load on this 820....

Can anyone tell me if this is a "red-herring" or if my HV is low with no load?

I already installed new HV caps/resistors....

Thanks,

Greg

46229. Re: [TS-520_820_530_830] TS 820 HV readings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 21:48:14 UTC
From: K5MYJ
Topic: 46228 Message: 46229

How much power are you getting?

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: greg.anders@synopsys.com
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 06, 2013 1:42 PM
Subject: [TS-520_820_530_830] TS 820 HV readings

I have a TS 820S that has slightly low power output. I have already checked the tubes and other such basic stuff including screen voltage, etc.

I always saw about 900V no load on the HV on previously owned 830's but I am seeing only 800V no-load on this 820....

Can anyone tell me if this is a "red-herring" or if my HV is low with no load?

I already installed new HV caps/resistors....

Thanks,

Greg

46230. RE: [TS-520_820_530_830] RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 22:26:12 UTC
From: Gene Henderson
Topic: 46215 Message: 46230

Jim Do you have a Amateur call sign?

Gene WB9HLA

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of james bertrand
Sent: Friday, December 06, 2013 1:32 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: No transmit ts-520se

mike thanks for the help when i key the mic no reading on the inline power meter or on the radio i'm using a dummy load witch mc-50 mic i checked mic switch and base switch plugs all looks ok when i key the mic everything goes dead i talk in to mic no deflection on meter what so ever

On Friday, December 6, 2013 12:16 PM, "w5rkl@..." <w5rkl@yahoo.com> wrote:

Jim,

What do you mean when you say there is "no output"? No "RF output, No audio output? You need to explain in more detail what steps you took to come to the conclusion there is "no output" and what you mean by "No output"

73

Mike W5RKL

46231. Re: [TS-520_820_530_830] TS 820 HV readings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 22:34:48 UTC
From: W5RKL
Topic: 46228 Message: 46231

Greg,

Are you using the 820's "HV" meter indication to determine whether the HV is low? If you suspect the HV is low, you should measure the HV at the TS-820 Rectifier Unit's 800 terminal. Use caution because the HV is present on the plates of the final tubes and at the Rectifier Unit's 800 terminal regardless whether the TS-820 is in receive or transmit. None of the TS-820 meter switch settings are enabled in receive.

If you are reluctant to measure HV then I recommend you find a local ham who is experienced in measuring high voltage. The DC volt meter should have a maximum DC voltage rating of at least 1KV. Do not attempt to measure the HV if your DC meter has a maximum DC voltage rating of 700VDC.

73
Mike W5RKL

On 12/6/2013 3:42 PM, greg.anders@... wrote:
> I have a TS 820S that has slightly low power output. I have already
> checked the tubes and other such basic stuff including screen voltage,
> etc.
>
> I always saw about 900V no load on the HV on previously owned 830's
> but I am seeing only 800V no-load on this 820....
>
> Can anyone tell me if this is a "red-herring" or if my HV is low with
> no load?
>
> I already installed new HV caps/resistors....
>
>
> Thanks,
>
> Greg
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46232. Message Signatures

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 22:41:35 UTC
From: W5RKL
Topic: 46232 Message: 46232

I still see members that are not adding a signature at the end of their messages. All members are required to include a signature at the end of any message they post on this group! The signature can be either your first name, your ham call sign, or both. Screen names are not acceptable names used as signatures!

73
Mike W5RKL

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46233. Re: Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 23:32:11 UTC
From: <paw_paw44036@...>
Topic: 46208 Message: 46233

Well it might be the 10 MHz crystal is off frequency. When I first got my 530 it would read 400 hz. lower than where I wanted to be. Turned out the 10 MHz crystal had changed. Got a new crystal and reset it and everything was fine after that. There is a test point on the PLL board to check and adjust this. it is step 6 on page 36 of the alignment instructions. You will need a frequency counter on TP2 and adjust TC1.You will find these test points on page 44 of the service manual.
Also I might mention, is the RIT and XIT buttons out as this is the off position. The RIT can change the rec freq. and the XIT will change the transmit freq. Those adjustments are on page 34 step 5.
Let me know how you make out. Compared to my 830 the 530 is much easier to repair. The 830 is a little more complex.
Bill WD8OSJ

46234. Re: [TS-520_820_530_830] RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 22:35:21 UTC
From: james bertrand
Topic: 46215 Message: 46234

forgot to ad KC1AOB thanks jim

On Friday, December 6, 2013 5:26 PM, Gene Henderson <wb9hla@...> wrote:

Jim Do you have a Amateur call sign?

Gene WB9HLA

From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of james bertrand
Sent: Friday, December 06, 2013 1:32 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: No transmit ts-520se

mike thanks for the help when i key the mic no reading on the inline power meter or on the radio i'm using a dummy load witch mc-50 mic i checked mic switch and base switch plugs all looks ok when i key the mic everything goes dead i talk in to mic no deflection on meter what so ever

On Friday, December 6, 2013 12:16 PM, "w5rkl@..." <w5rkl@...> wrote:

Jim,

What do you mean when you say there is "no output"? No "RF output, No audio output? You need to explain in more detail what steps you took to come to the conclusion there is "no output" and what you mean by "No output"

73
Mike W5RKL

46235. Re: [TS-520_820_530_830] RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-06 23:45:58 UTC
From: K5MYJ
Topic: 46215 Message: 46235

Have you tried tuning into a dummy load in CW mode?

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----
From: james bertrand
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 06, 2013 2:35 PM
Subject: Re: [TS-520_820_530_830] RE: No transmit ts-520se

forgot to ad KC1AOB thanks jim

On Friday, December 6, 2013 5:26 PM, Gene Henderson <wb9hla@...> wrote:

Jim Do you have a Amateur call sign?

Gene WB9HLA

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of james bertrand
Sent: Friday, December 06, 2013 1:32 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] RE: No transmit ts-520se

mike thanks for the help when i key the mic no reading on the inline power meter or on the radio i'm using a dummy load witch mc-50 mic i checked mic switch and base switch plugs all looks ok when i key the mic everything goes dead i talk in to mic no deflection on meter what so ever

On Friday, December 6, 2013 12:16 PM, "w5rkl@..." <w5rkl@yahoo.com> wrote:

Jim,

What do you mean when you say there is "no output"? No "RF output, No audio output? You need to explain in more detail what steps you took to come to the conclusion there is "no output" and what you mean by "No output"

73
Mike W5RKL

46236. RE: Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 00:17:16 UTC
From: <dlbowders@...>
Topic: 46208 Message: 46236

Hello Joe,
I have not been able to get a post in here till now but I have been following your problem and yhe several responses. I do not think it is a bandswitch problem. Dave, VK5PDL, is on the correct track. I have a 830 here with the same problem. I had to put a new molex connector on connector no. 2 on the counter board. It seems, and I was not aware of this until Joe and a few others clued me in, that some unscrupulous radio operators institute a mod known as free banding. The purple wire is removed on connector 2 pin no.9 and viola! you got the high end of 11 meters. exactly 500 Kc's down from 28 Mc's. On my 830 the wire was just pulled out willy nilly and left hanging. I put it back in the connector but soon began to experience the same symptoms you describe. Do not bang your rig around to check for this connection being loose in the socket. Use a plastic slug adjustment tool and move the wires around and see if it results in the problem reappearing. If the wires inside the connectors are showing age or brittle or corroded this intermittent problem can be one of many to show up. Keep us updated on your findings. This may not be your problem but I thought I would give you the benefit of knowing it could be. Check this first before doing any major teardown. I do not think you will have to go that far. You may want to find some spare molex connectors to keep in your parts box or bench. They will become one of many parts you may need to keep this fine rig going. If I have misspoke on any of this detail someone will correct me but I think your problem is an easy fix.
73, Don K5HFG

46237. Re: [TS-520_820_530_830] RE: No transmit ts-520se

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 01:13:20 UTC
From: John Davidson
Topic: 46215 Message: 46237

In SSB mode there is zero RF out unless you speak into the mic with the mic gain turned up.

On Friday, December 6, 2013 6:46 PM, K5MYJ <macklinbob@gmail.com> wrote:

☐
Have you tried tuning into a dummy load in CW
mode?

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In
The Dark"

----- Original Message -----
>From: james bertrand
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Friday, December 06, 2013 2:35 PM
>Subject: Re: [TS-520_820_530_830] RE: No transmit ts-520se
>
>
>forgot to ad KC1AOB thanks jim
>
>
>
>On Friday, December 6, 2013 5:26 PM, Gene Henderson <wb9hla@...> wrote:
>
>
>Jim Do you have a Amateur call sign?
>
>Gene WB9HLA
>
>From:TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of james bertrand
>Sent: Friday, December 06, 2013 1:32 PM
>To: TS-520_820_530_830@yahoogroups.com
>Subject: Re: [TS-520_820_530_830] RE: No transmit ts-520se
>
>mike thanks for the help when i key the mic no reading on the inline power meter or on the radio i'm using a dummy load witch mc-50 mic i checked mic switch and base switch plugs all looks ok when i key the mic everything goes dead i talk in to mic no deflection on meter what so ever
>
>On Friday, December 6, 2013 12:16 PM, "w5rkl@..." <w5rkl@...> wrote:
>
>Jim,

>
>What do you mean when you say there is "no output"? No "RF output, No audio output? You need to explain in more detail what steps you took to come to the conclusion there is "no output" and what you mean by "No output"
>
>
>73
>Mike W5RKL
>
>
>
>

46238. Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 02:04:28 UTC
From: rkersey tds.net
Topic: 46238 Message: 46238

Hi All,

I just got a nice 100W dummy load kit off ebay. It is a project of the Muskegon Area Amateur Radio council, W8ZHO. Comes with 20 resistors and fittings and a quart paint can. Also some test ratings. In the oil filled can this dummy load will take a 2 minute key down at 100W, conservatively.

The price was $14.95 plus $4 shipping or you can make an offer. If you want one completely assembled, it is $5 more. Lazy me got the assembled version and it was well soldered. One bolt needed a little tightening, o/w very well done.

I thought it was a good price on a useful unit for a good cause. You will have to get your own mineral oil. I am using some out of a gallon of horse laxative I got from Tractor Supply to use in my rock saw, which goes for about $12/gal.

There seem to be about ten or more of these available. use "dummy loads MAARC" to search for the listing.

HTH,
Roy Kersey
KI4HAG

46239. Re: [TS-520_820_530_830] TS 820 HV readings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 02:35:42 UTC
From: <greg.anders@...>
Topic: 46228 Message: 46239

Thanks Mike, I'll check it out. So far I am just looking at the HV on the front panel meter....

Greg

46240. RE: Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 02:33:54 UTC
From: <andrew@...>
Topic: 46238 Message: 46240

Thank you for the tip
N7EBG Andy

46241. Re: [TS-520_820_530_830] Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 12:13:51 UTC
From: Gordon JC Pearce
Topic: 46238 Message: 46241

On Fri, Dec 06, 2013 at 09:04:28PM -0500, rkersey tds.net wrote:

> I thought it was a good price on a useful unit for a good cause. You will
> have to get your own mineral oil. I am using some out of a gallon of horse
> laxative I got from Tractor Supply to use in my rock saw, which goes for
> about $12/gal.

I wonder if they ship to the UK?

Many years ago I'm sure I remember my dad filling an oil-immersed dummy load with automotive hydraulic fluid (LHM) left over from changing the suspension oil on his Citro?n GSA. It's a bit thinner than ATF and bright green with a slightly sweet smell, and not particularly inclined to be inflammable.

Having just changed the hydraulic oil in my CX these days I'd be inclined to use something much cheaper, like 18-year-old single malt.

--
Gordonjcp MM0YEQ

46242. Re: [TS-520_820_530_830] Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 14:54:41 UTC
From: W5RKL
Topic: 46238 Message: 46242

The website for W8ZHO's 100 watt wet dummy load appears to be "under construction". The "cached" link, however, indicates W8ZHO's 100 watt wet dummy load is priced at "$25" and there's no indication the dummy load comes as a "kit".

I don't mean to sound disrespectful but something doesn't seem right.

Lets look at a few dummy loads, focusing ONLY on each manufacturer's statement of where each dummy load can "safely" accept "full rated power" for a specific period of time. We are NOT concerned with the difference between 1KW and 100 watts, only the "period of time" the wet dummy load can 'safely" accept "full rated power", nothing more!

Heathkit and MFJ both state that their wet dummy loads, when filled with Mineral Oil, can "safely" accept "full rated power" for only "10 minutes".

W8ZHO states his wet dummy load, when filled with Mineral Oil, can accept "full rated power" for an "indefinite" period of time.

If Heathkit and MFJ test results state their wet dummy loads can "safely" accept "full rated power" for 10 minutes, what makes W8ZHO's wet dummy load be capable of "safely" handling "full rated power" for an "indefinite" period of time? Again, focus on the "period of time" the dummy loads can "safely" accept "full rated power".

It's entirely up to you as to the type (wet or dry) and power rated dummy load you use. Personally, I would not use any 50 ohm dummy load, wet or dry, that has a power rating that's less than 300 watt when used with an exciter that has a power output rating of 100 watts.

73
Mike W5RKL

On 12/6/2013 8:04 PM, rkersey tds.net wrote:
> Hi All,
>
> I just got a nice 100W dummy load kit off ebay. It is a project of the
> Muskegon Area Amateur Radio council, W8ZHO. Comes with 20 resistors
> and fittings and a quart paint can. Also some test ratings. In the oil
> filled can this dummy load will take a 2 minute key down at 100W,
> conservatively.
>
> The price was $14.95 plus $4 shipping or you can make an offer. If you
> want one completely assembled, it is $5 more. Lazy me got the
> assembled version and it was well soldered. One bolt needed a little
> tightening, o/w very well done.
>

> I thought it was a good price on a useful unit for a good cause. You
> will have to get your own mineral oil. I am using some out of a gallon
> of horse laxative I got from Tractor Supply to use in my rock saw,
> which goes for about $12/gal.
>
> There seem to be about ten or more of these available. use "dummy
> loads MAARC" to search for the listing.
>
> HTH,
> Roy Kersey
> KI4HAG
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46243. Re: [TS-520_820_530_830] TS 820 HV readings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 15:20:26 UTC
From: Gordon JC Pearce
Topic: 46228 Message: 46243

On Fri, Dec 06, 2013 at 06:35:42PM -0800, greg.anders@... wrote:
> Thanks Mike, I'll check it out. So far I am just looking at the HV on the front panel meter....

Don't take its readings as gospel. It's not particularly calibrated, and is more of a go/no-go indicator.

I wouldn't expect 800V to make much of a difference - maybe you'd see 80-90W instead of 100W output. The variation between individual radios is more than that, and it won't affect how well others hear you.

--
Gordonjcp MM0YEQ

46244. RE: Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 15:29:28 UTC
From: <paw_paw44036@...>
Topic: 46238 Message: 46244

I bought my kit from Ken K4EAA and it was easy to build. I think Ken said 120w for 5 minutes and a 20 minute cool down. I could be wrong on that, but I have dumped 150 watts into it for a short time and it still reads 49.8 ohms and it is over a year old. Great little dummy.

Bill WD8OSJ

46245. Re: Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 18:21:56 UTC
From: Jim Goldring
Topic: 46238 Message: 46245

For a (usually) free source of oil for these paint can dummy loads, try the local power company. When I lived in Las Vegas many years ago I got a gallon of transformer oil (the kind without PCBs) from Nevada Power for free. Just ask for one of the technicians & they will probably be glad to give you some.

73, Jim, AK7R

46246. RE: RE: Very low sensitivity on WWV

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 19:43:11 UTC
From: <adrian@...>
Topic: 46040 Message: 46246

All fixed - the WWV RF amp FET Q5 was blown. Replaced with another 2SK19GR and can now copy the time signal. S-meter with marker signal on that band is now way over 9. Really pleased to have rig back on air - plugged antenna in to test and first QSO was on a still working 15m band with a station in Minnesota

73 Adrian G4IQW

46247. Re: Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 21:16:45 UTC
From: n5xjt@ymail.com
Topic: 46208 Message: 46247

Don,
Thank you for your reply, it is much appreciated. Fortunately my rig has not been modified. I did however locate the problem using your suggestion and moving all the wires/connections around with a plastic alignment wand. Took about 20 min. but I found it. In laymans terms it was the long gray wire on the PLL board, X-50. Wiggling it restores correct frequency read out and signal reception. Fix is in progress.
Thanks for your help,
Joe - N5XJT
--- In TS-520_820_530_830@yahoogroups.com, <dlbowders@...> wrote:
>
> Hello Joe,
> I have not been able to get a post in here till now but I have been following your problem and yhe several responses. I do not think it is a bandswitch problem. Dave, VK5PDL, is on the correct track. I have a 830 here with the same problem. I had to put a new molex connector on connector no. 2 on the counter board. It seems, and I was not aware of this until Joe and a few others clued me in, that some unscrupulous radio operators institute a mod known as free banding. The purple wire is removed on connector 2 pin no.9 and viola! you got the high end of 11 meters. exactly 500 Kc's down from 28 Mc's. On my 830 the wire was just pulled out willy nilly and left hanging. I put it back in the connector but soon began to experience the same symptoms you describe. Do not bang your rig around to check for this connection being loose in the socket. Use a plastic slug adjustment tool and move the wires around and see if it results in the problem reappearing. If the wires inside the connectors are showing age or brittle or corroded this intermittent problem can be one of many to show up. Keep us updated on your findings. This may not be your problem but I thought I would give you the benefit of knowing it could be. Check this first before doing any major teardown. I do not think you will have to go that far. You may want to find some spare molex connectors to keep in your parts box or bench. They will become one of many parts you may need to keep this fine rig going. If I have misspoke on any of this detail someone will correct me but I think your problem is an easy fix.
> 73, Don K5HFG
>

46248. Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 22:31:10 UTC
From: <paw_paw44036@...>
Topic: 46248 Message: 46248

I know this doesn't pertain to Kenwood rigs, but it is important.
We lost another Ham Radio Operator this morning about 8:30 am EST. I stopped by this morning to see if he was ok and I found him in his chair where he slept most of the time. He was cold and no pulse. I called 911 and got the police and ambulance there. They called the coroner, His name was David Kuenzel. WB8TMR. He was my Elmer and got me started into ham radio 35 years ago. He fought Prostate cancer for 6 years. In fact He gave me my first TS-530s which I still have. I talked to his niece and Dave wanted me to have his radios and antennas. I will take them an use the well in memory of Dave.
Bill WD8OSJ

46249. Re: [TS-520_820_530_830] Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 23:03:02 UTC
From: Mike
Topic: 46248 Message: 46249

Bill,

I'm sorry to hear about the loss of your friend, David. May he rest in peace.

73
Mike W5RKL

On 12/7/2013 4:31 PM, paw_paw44036@... wrote:
>
> I know this doesn't pertain to Kenwood rigs, but it is important.
>
> We lost another Ham Radio Operator this morning about 8:30 am EST. I stopped by this morning to see if he was ok and I found him in his chair where he slept most of the time. He was cold and no pulse. I called 911 and got the police and ambulance there. They called the coroner, His name was David Kuenzel. WB8TMR. He was my Elmer and got me started into ham radio 35 years ago. He fought Prostate cancer for 6 years. In fact He gave me my first TS-530s which I still have. I talked to his niece and Dave wanted me to have his radios and antennas. I will take them an use the well in memory of Dave.
>
> Bill WD8OSJ
>
>

46250. Re: Help! - TS530 problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 23:15:01 UTC
From: <dlbowders@...>
Topic: 46208 Message: 46250

Joe,
Outstanding! Glad you got it solved. Now enjoy.....73 Don K5HFG

46251. RE: Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 23:17:49 UTC
From: <dlbowders@...>
Topic: 46248 Message: 46251

Bill,
My condolences on the loss of your Friend and Elmer. Cherish the memories.
73, Don K5HFG

46252. Re: [TS-520_820_530_830] Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 23:46:37 UTC
From: Jim Lamanteer
Topic: 46248 Message: 46252

:
BILL SORRY TO HEAR ABOUT YOUR FRIEND DAVE BUT A LEAST YOU WILL ALLWAYS HAVE THE GOOD THOUGHTS AND TEACHINGS HE GAVE YOU TO REMEMBER HIM BY. THANKS FOR SHARING THIS WITH US. MY THOUGHTS AND PRAYERS ARE WITH YOU.JIMMY WB2KNR

Subject: [TS-520_820_530_830] Ham Radio Silent Key
To: TS-520_820_530_830@yahoogroups.com
Date: Saturday, December 7, 2013, 2:31 PM

I know this doesn't pertain to
Kenwood rigs, but it is important.We lost another Ham
Radio Operator this morning about 8:30 am EST. I stopped by
this morning to see if he was ok and I found him in his
chair where he slept most of the time. He was cold and no
pulse. I called 911 and got the police and ambulance there.
They called the coroner, His name was David
Kuenzel. WB8TMR. He was my Elmer and got me started into ham
radio 35 years ago. He fought Prostate cancer for 6 years.
In fact He gave me my first TS-530s which I still have. I
talked to his niece and Dave wanted me to have his radios
and antennas. I will take them an use the well in memory of
Dave.Bill WD8OSJ

46253. Re: [TS-520_820_530_830] Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 00:03:02 UTC
From: Jim
Topic: 46248 Message: 46253

My sympathy goes out to you and Dave's family. It's always hard to lose a friend.
Jim
WA8SDF
Sent via BlackBerry from T-Mobile

-----Original Message-----
From: Jim Lamanteer <jimlamanteer@yahoo.com>
Sender: TS-520_820_530_830@yahoogroups.com
Date: Sat, 7 Dec 2013 15:46:37
To: <TS-520_820_530_830@yahoogroups.com>
Reply-To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] Ham Radio Silent Key

:
BILL SORRY TO HEAR ABOUT YOUR FRIEND DAVE BUT A LEAST YOU WILL ALLWAYS HAVE THE GOOD THOUGHTS AND TEACHINGS HE GAVE YOU TO REMEMBER HIM BY. THANKS FOR SHARING THIS WITH US. MY THOUGHTS AND PRAYERS ARE WITH YOU.JIMMY WB2KNR

Subject: [TS-520_820_530_830] Ham Radio Silent Key
To: TS-520_820_530_830@yahoogroups.com
Date: Saturday, December 7, 2013, 2:31 PM

I know this doesn't pertain to
Kenwood rigs, but it is important.We lost another Ham
Radio Operator this morning about 8:30 am EST. I stopped by
this morning to see if he was ok and I found him in his
chair where he slept most of the time. He was cold and no
pulse. I called 911 and got the police and ambulance there.
They called the coroner, His name was David
Kuenzel. WB8TMR. He was my Elmer and got me started into ham
radio 35 years ago. He fought Prostate cancer for 6 years.
In fact He gave me my first TS-530s which I still have. I
talked to his niece and Dave wanted me to have his radios
and antennas. I will take them an use the well in memory of
Dave.Bill WD8OSJ

46254. Re: Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 00:10:32 UTC
From: M. J. Synowiec
Topic: 46248 Message: 46254

Bill,

Sorry to hear about your (and our) loss. Please accept my condolences to you & his family. A great way to honor his memory will be to mentor others as he did for you. The Scouts are always looking for merit badge couselors for the tech badges. You can change a life as your mentor did for you.

Vy 73 and condolences,

Mike
K8SYN

46255. Re:Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 01:22:18 UTC
From: rkersey tds.net
Topic: 46238 Message: 46255

Mike:

IDK about any website or whether it is selling the same kit. If you investigate the ebay listing, which was what I wrote about, there is a picture of part of the instructions which come with the kit, describing a test on the dummy load without oil filling. The dummy was loaded up and the resistor temperature checked after each 15 seconds of power application. The resistors tolerated about two minutes of key down at 100 watts. This is without the oil filling. Obviously with oil filling it would work fine for longer than two minutes.

I don't really have a dog in this fight and anyone can buy it or not as they see fit. It just seemed like a reasonable price to benefit a ham organization and a decent product which would work with one of the 100 watt (nominal) Kenwoods if used in any reasonable fashion. I myself would not hold down the key to wait to see whether my dummy load would explode .. .

Best,
Roy Kersey
KI4HAG

46256. RE: Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 01:50:26 UTC
From: <paw_paw44036@...>
Topic: 46248 Message: 46256

Thank you all for your kind words. Bill WD8OSJ

46257. TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 08:15:02 UTC
From: ravnpeter@ymail.com
Topic: 46257 Message: 46257

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

46258. Calling K9TW

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 08:43:13 UTC
From: <adrian@...>
Topic: 46258 Message: 46258

I am a little concerned not to have seen Terry's invariably wise, patient and courteous contributions for couple of weeks now. Can anyone confirm that he's otherwise OK? 73 Adrian G4IQW

46259. RE: [TS-520_820_530_830] Calling K9TW

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 09:40:44 UTC
From: fpath fpath
Topic: 46258 Message: 46259

Re Terry, I had an email last week and saw him active on another forum

73's
Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: adrian@qualitative.co.uk
Date: Sun, 8 Dec 2013 00:43:13 -0800
Subject: [TS-520_820_530_830] Calling K9TW

I am a little concerned not to have seen Terry's invariably wise, patient and courteous contributions for couple of weeks now. Can anyone confirm that he's otherwise OK?

73 Adrian G4IQW

46260. RE: [TS-520_820_530_830] Calling K9TW

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 11:19:46 UTC
From: <adrian@...>
Topic: 46258 Message: 46260

Thanks Dave that's reassuring!

73 Adrian G4IQW

46261. TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 13:32:34 UTC
From: <adrian@...>
Topic: 46261 Message: 46261

I guess I'm proving the adage that if you fix one thing on these rigs, you risk introducing problems elsewhere!

Have had my TS520SE on bench to replace the WWV RF amp FET which had blown. RX working perfectly now on WWV and is fine on all other bands all modes.

But now the transmit side has gone weird. It was fine before with 100W or so on all bands and a bit less on 10m and Ip 200mA.

Here are the symptoms I'm seeing. They are so erratic that methodical troubleshooting will be difficult so I'm hoping someone spots something simple I can check.

First off idle current is adjusted to 60mA.

The ALC seems much "livelier" than before when I am in June position and peaking it. Before I had to wind carrier up to full to get full scale ALC on 10m, now only need carrier halfway on that band and on lower bands I get full scale FSD with lower carrier drive than before (around the indicated 3 position).

Having peaked ALC with Drive, I can't get the plate to dip. When I switch to CW I see over 200W on external RF meter when I peak load and the plate current is only about 120mA. Something very weird going on so grateful for where to look!

Adrian G4IQW

46262. Re: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 14:24:18 UTC
From: Mike
Topic: 46257 Message: 46262

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:
>
> There is no current in TUNE position on my TS830s. In SEND position
> there is no deflection on the meter and no noise from the t/r relay.
> The heater and SG switch are naturally on.
>
> I checked R15 in the rectifier, and it was okay. So were the cathode
> and plate resistors in the final unit. I then checked the bias and
> found no bias at all. Adjusting the the BIAS control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
>
>

46263. TS-180V Info

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-07 19:48:52 UTC
From: Byron
Topic: 46263 Message: 46263

Hello-I have a TS-180S that had a fried PA board, so I am operating it as a 10 watt radio. I was wanting to locate any technical info on the TS-180V in order to set-up my TS-180S output circuits identical to the lower power version TS-180V.
Thanks, Byron WA5THJ

46264. RE: [TS-520_820_530_830] Ha m Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 01:24:44 UTC
From: <andrew@...>
Topic: 46264 Message: 46264

Sounds like you have been a good friend

Andy

Andrew Schneider, N7EBG
andrew@...
wmsinc.org (http://wmsinc.org)

-------- Original Message --------
Subject: [TS-520_820_530_830] Ham Radio Silent Key
From: <paw_paw44036@...>
Date: Sat, December 07, 2013 3:31 pm
To: <TS-520_820_530_830@yahoogroups.com>

?

I know this doesn't pertain to Kenwood rigs, but it is important.
We lost another Ham Radio Operator this morning about 8:30 am EST. I stopped by this morning?to see if he was ok and I found him in his chair where he slept most of the time. He was cold and no pulse. I called 911 and got the police and ambulance there. They called the coroner,??His name was David Kuenzel. WB8TMR. He was my Elmer and got me started into ham radio 35 years ago. He fought Prostate cancer for 6 years. In fact He gave me my first TS-530s which I still have. I talked to his niece and Dave wanted me to have his radios and antennas. I will take them an use the well in memory of Dave.
Bill WD8OSJ

46265. RE: [TS-520_820_530_830] Re :Nice dummy load kit

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 01:29:25 UTC
From: <andrew@...>
Topic: 46265 Message: 46265

Roy I agree with you.? Do not let some people rain on your parade.

For an old catenna style dummy it is great and I agree benefits a good organization.

If a person had more money they would buy something? higher end.

Some people like me...are on a very tight budget and I thought it was a great tip.

thank you

Andy

Andrew Schneider, N7EBG
andrew@...
wmsinc.org (http://wmsinc.org)

-------- Original Message --------
Subject: [TS-520_820_530_830] Re:Nice dummy load kit
From: "rkersey tds.net (http://tds.net)"
Date: Sat, December 07, 2013 6:22 pm
To: TS-520_820_530_830@yahoogroups.com

?

Mike:

IDK about any website or whether it is selling the same kit. If you investigate the ebay listing, which was what I wrote about, there is a picture of part of the instructions which come with the kit, describing a test on the dummy load without oil filling. The dummy was loaded up and the resistor temperature checked after each 15 seconds of power application. The resistors tolerated about two minutes of key down at 100 watts. This is without the oil filling. Obviously with oil filling it would work fine for longer than two minutes.

I don't really have a dog in this fight and anyone can buy it or not as they see fit. It just seemed like a reasonable price to benefit a ham organization and a decent product which would work with one of the 100 watt (nominal) Kenwoods if used in any reasonable fashion. I myself would not hold down the key to wait to see whether my dummy load would explode .. .?

Best,
Roy Kersey
KI4HAG

46266. Dummy Load

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 12:05:20 UTC
From: Ray Bancroft
Topic: 12473 Message: 46266

Hi Folks,

I am a new member of this group having just purchased a TS 830s transceiver.

The radio is working well on receive on all bands and after studying videos
and reading
Lots of instruction on the tuning procedure, I am preparing myself to take
the plunge and
Make an attempt at tuning it up.

My question to the group is as follows.

Will this dummy load be suitable for the tuning up process?

Toyo Meter wide band dummy load, model T-100.
3.5 MHz - 500MHz. Impedance 50ohm.
Maximum power 100w.

My thanks in advance.

Ray B. GW4XXP.

[Non-text portions of this message have been removed]

46267. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 14:13:58 UTC
From: Michael Sylvester
Topic: 46261 Message: 46267

I'll be honest and admit that I start with uneducated geusses.
My first? Check tubes.
You just had that RF board out, check wiring plugs to that board. Did you take the time to brush and coat those plug pins while the board was out?
I have learned that I can use little stainless brushes lightly sprayed with Deoxit to brush and REALLY clean those pins. I feel safer about doing it with the boards out of the radio. Occasionaly the brushes will drop a wire, you darn sure don't want those floating around inside your radio.
Those dang plugs are the most common problems in the TS radios.
Pull a board, clean them.
I'm now using CorrosionX applied with an artists' small brush. The 2 bottles I bought should last me 372 years...
Hope that helps,
Michael///KD0WSJ

From: "adrian@....uk" <adrian@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 8, 2013 7:32 AM
Subject: [TS-520_820_530_830] TX problem on TS520SE

I guess I'm proving the adage that if you fix one thing on these rigs, you risk introducing problems elsewhere!

Have had my TS520SE on bench to replace the WWV RF amp FET which had blown. RX working perfectly now on WWV and is fine on all other bands all modes.

But now the transmit side has gone weird. It was fine before with 100W or so on all bands and a bit less on 10m and Ip 200mA.

Here are the symptoms I'm seeing. They are so erratic that methodical troubleshooting will be difficult so I'm hoping someone spots something simple I can check.

First off idle current is adjusted to 60mA.

The ALC seems much "livelier" than before when I am in June position and peaking it. Before I had to wind carrier up to full to get full scale ALC on 10m, now only need carrier halfway on that band and on lower bands I get full scale FSD with lower carrier drive than before (around the indicated 3 position).

Having peaked ALC with Drive, I can't get the plate to dip. When I switch to CW I see over 200W on external RF meter when I peak load and the plate current is only about 120mA. Something very weird going on so grateful for where to look!

Adrian G4IQW

46268. Re: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 10:19:13 UTC
From: Michael Sylvester
Topic: 46257 Message: 46268

Of course primarily, how are your tubes, then, you did check the plate bias potentiometer on the back bottom corner, right?
Dumb questions I know but I gotta ask.

My first geuss, and it is just a geuss without poking, prodding and metering around it myself, is dirty wafer switches and or switches, pots or plugs.
(Narrowed it down quite a bit for you, didn't I?)
The wafers in the HV cage is my #1 geuss. Discharge your tube plates before you get in there.
Other major players are the plugs that are everywhere, spray on Deoxit
(low pressure, Deoxit has a variable nozzle) Work each plug in and out a couple times.
A new technique I'm doing is to use a little spray on tiny brushes (less waste of expensive spray and less mess), scrub the prongs of plugs gently, then I apply "CorrosionX" with a small artists' paint brush (again less waste of expensive chemicals), then push plug back on, pull off, push on. I don't pull on the wires though, I grab hold with a 6" hemostat at the middle of each plug taking care not to damage any wires. On some I may also push each individual wire clip down further with a 1/32" blunt tip tool I've made (bastardized dental tools are your freinds!), getting it down to pin metal that hasn't been touched before. I'm using 2.25 power reading glasses and a magnifying lamp like the one on K4EAA's bench when doing this kind of work. (I should have been a microsurgeon). If you use any wire type brushes BE SURE YOU DON'T LEAVE ANY BRUSH WIRES IN THE CIRQUIT!!!
Nylon brushes would be safer, an old toothbrush or your XYL's makeup brush (snicker, snicker, somebody is going to get a rolling pin over the head for doing just that) they won't clean as well but they won't create shorts either.
I'm researching tiny brushes, I'll be making my own for certain appications. I searched Grainger Ind. supply yesterday for an hour to no avail.

Study up at KE4EAA.com and over at Hybrid Restorers site and you'll get some ideas where to start to fix your rigs' problems.
If using Deoxit take care to wait till boards are no longer wet. I just bought half of a TS-530S on eBay that had a fire on the RF board after using it.
I hope I'm helping, new to the game.
Michael///KD0WSJ

From: "ravnpeter@..." <fasan5@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 8, 2013 2:15 AM
Subject: [TS-520_820_530_830] TS830S no bias

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

46269. TS-830S band switch rebuild -- which method?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 14:55:03 UTC
From: Craig Roberts
Topic: 46257 Message: 46269

For those who have rejuvenated their band switches, how did YOU do it and what have been the results??

The good news is that my thoroughly rebuilt TS-830S is again transmitting with full output on all bands. The bad news is that the culprit in its recent difficulties was the same one the radio arrived with a year ago -- dirty band switch. The symptoms were little or no output on 10 meters with intermittent low drive and output on 12, 15, 17 and -- sometimes -- 20. The power output increased progressively on the lower bands and 30, 40, 80 and 160 acted normally (at least for a while). With the classic low power on higher frequencies behavior I, of course, began by substituting a new driver. No joy. Then, new finals. Still no joy.

It was then that I first suspected the band switch, but the sudden onset of the symptoms led me away from that conclusion until later -- much later.

At any rate, all is well now -- for the time being. When I originally got the rig and cleaned the band switch, I was advised that, sooner or later, that pesky component would become problematical again. Well, here we are. While DeoxIT may have done the trick this time, I really should go to the trouble of removing the RF Board, disassemble the switch and service it using Ken's conductive paint or Jim Showker's wire bridge method.

Which do you prefer?

73 and Happy Holidays,

Craig
W3CRR

46270. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 15:08:37 UTC
From: <adrian@...>
Topic: 46261 Message: 46270

Hi Michael,

Thanks for suggestions.

Board was left in place during work, and TS520 has wire wrap not molex connectors.

But I'll open her up again and look for any stray wires - I was soldering and cutting leads so piece of wire may well have got where it shouldn't.

73 Adrian G4IQW

46271. SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 15:15:07 UTC
From: Peter Ravn
Topic: 46257 Message: 46271

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

46272. Re: [TS-520_820_530_830] Dummy Load

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 15:27:39 UTC
From: Ron
Topic: 12473 Message: 46272

Yes that will work

Ron KK4PWF

On Dec 8, 2013, at 6:05 AM, "Ray Bancroft" <raybanky@...> wrote:

> Hi Folks,
>
> I am a new member of this group having just purchased a TS 830s transceiver.
>
> The radio is working well on receive on all bands and after studying videos
> and reading
> Lots of instruction on the tuning procedure, I am preparing myself to take
> the plunge and
> Make an attempt at tuning it up.
>
> My question to the group is as follows.
>
> Will this dummy load be suitable for the tuning up process?
>
> Toyo Meter wide band dummy load, model T-100.
> 3.5 MHz - 500MHz. Impedance 50ohm.
> Maximum power 100w.
>
> My thanks in advance.
>
> Ray B. GW4XXP.
>
> [Non-text portions of this message have been removed]
>
>
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> ------------------------------------
>
> Yahoo Groups Links
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>
>

46273. Re: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 15:38:43 UTC
From: Mike
Topic: 46257 Message: 46273

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>
> I followed the standard procedure. I turned the POWER and HEATER
> switches on, placed the MODE switch to SSB, the METER switch to lp,
> pushed the SEND button and adjusted the BIAS control, but there was no
> reading at all. I then measured pin 5 in in the finals and saw no
> voltages in STAND-BY or SEND position. The only deflection on the TS
> meter is in HV in SEND position with voltages about 820 DVC.
>
> A correction to my first mail. I /do/ hear the t/r antenna relay when
> I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and found none. If I may ask,
> did you measure the bias voltage at the final tube grids, pin 5, and
> that is where you found no bias voltage?
>
>

> 73
> Mike W5RKL
>
> On 12/8/2013 2:15 AM, ravnpeter@... <mailto:ravnpeter@...>
> wrote:
>
> There is no current in TUNE position on my TS830s. In SEND
> position there is no deflection on the meter and no noise from the
> t/r relay. The heater and SG switch are naturally on.
>
> I checked R15 in the rectifier, and it was okay. So were the
> cathode and plate resistors in the final unit. I then checked the
> bias and found no bias at all. Adjusting the the BIAS control had
> no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
>
>
>
>
>
>

46274. Re: [TS-520_820_530_830] TS-180V Info

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 16:03:20 UTC
From: Mark Gilger
Topic: 46263 Message: 46274

I don't know if this will help, but on page 39 of
the service manual shows the final and filter
units for both the 'S' and 'V' units.

Mark, WB0IQK

At 02:48 PM 12/7/2013, Byron wrote:
>
>
>Hello-I have a TS-180S that had a fried PA
>board, so I am operating it as a 10 watt radio.
>I was wanting to locate any technical info on
>the TS-180V in order to set-up my TS-180S output
>circuits identical to the lower power version TS-180V.
>Thanks, Byron WA5THJ
>
>

46275. SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 16:29:09 UTC
From: Peter Ravn
Topic: 46257 Message: 46275

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

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Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

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A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike

Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

46276. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 16:43:02 UTC
From: <adrian@...>
Topic: 46261 Message: 46276

A little more detail on symptoms - I'm seeing well over 50W RF output when peaking ALC in Tune position! Have substituted a new 6146 for each output valve in turn but made no difference. What would cause output to go off the scale on a 200W meter in the CW position? ALC is definitely much higher than in past. On 40m I can peak it for full scale with Carrier below 2 on dial. 73 Adrian G4IQW

46277. RE: [TS-520_820_530_830] Calling K9TW

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 17:17:54 UTC
From: <paw_paw44036@...>
Topic: 46258 Message: 46277

Just talked with him via e-mail and he has been extremely busy. He is doing good. Amen.
Bill WD8OSJ

46278. Re: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 18:48:44 UTC
From: CROOKS David
Topic: 46257 Message: 46278

Michael,
"CorrosionX" sounds scary to me. What does it do that Deoxit D5 won't?
Dave f4eyk

46279. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 19:06:58 UTC
From: <adrian@...>
Topic: 46261 Message: 46279

Getting closer to nailing this. I wanted to set the HV to recommended 2/3 scale, and found the adjust pot had no effect on the indicated 760V. I did detach the bracket on which pots sit to examine filter board before having problem. Have checked and wires to volt adjust are ok so I will follow on circuit diagram in case one of those wires fractured or some other problem with HV adjust. 73 Adrian G4IQW

46280. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 21:02:12 UTC
From: <w5rkl@...>
Topic: 46261 Message: 46280

Adrian,

You said you wanted to "set the HV to recommended 2/3 scale"..

How did you determine the "HV" can be adjusted or is adjustable?

73
Mike W5RKL

46281. Build your own PIC based Frequency Counter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 15:30:45 UTC
From: John
Topic: 46281 Message: 46281

Below is a link detailing my adventures in building a PIC microcontoller based frequency counter.

http://jbdkz.squidoo.com/build-your-own-pic-based-frequency-counter

John

46282. Adding a digital display to your Kenwood TS-520S Transceiver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 15:34:09 UTC
From: John
Topic: 46282 Message: 46282

Below is a link detailing my adventures in connecting the PIC microcontroller based frequency counter I built to my TS-520S Transceiver.

http://jbdkz.squidoo.com/add-a-digital-display-to-your-kenwood-ts-520s-transceiver

46283. Re: [TS-520_820_530_830] TS-830S band switch rebuild -- which method?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 17:04:05 UTC
From: Byron Tatum
Topic: 46257 Message: 46283

Regarding the bandswitch issue:
  I have been repairing some TS-530S / TS-830S RF Modules lately. I have been desoldering the switch sections off of the board, cleaning them with a mild solvent to remove traces of old cleaners/lubricants that had been applied, cleaning them with detergent, then next cleaning them with Tarn-Ex (a silver cleaner).
   After that I polish (with a tiny wire wheel on my Dremel) the exposed copper and the switch terminal (in the area around the rivet) and very carefully solder the two together. This is the neatest way and the quickest, however you need to be careful that solder does not flow up the switch contact area.
   I have done it using short pieces of tiny silver plate wire, by scraping the solder mask away from the PC board trace and soldering the small wires from the switch terminal to the PC board trace. This is a good method, but takes longer and is more tedious.
    The results are well worth the trouble, whatever method you use.
             Byron WA5THJ

46284. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 21:28:47 UTC
From: <adrian@...>
Topic: 46261 Message: 46284

Hi Mike I was just about to log in to correct my error having had head deep in schematic, and saw your post. Had somehow got into my head that the pot adjusted HV, not indicated RF power, so am now not surprised it had no bearing on power measured externally! I'm really puzzled. The rig looks like it's magically producing 200+ W, but that's forward power and there is 100W reflected power from dummy load. Something must be very awry with the final tuner so that it's badly matched to 50ohm dummy load, but I can't figure out what. Ditto the apparent high output (60W) in tune position looks more like the 30W or so I usually get in Rune when you subtract the reflected power. Do you know how I can isolate the problem in the final output stage? 73 Adrian G4IQW

46285. SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 21:59:44 UTC
From: Peter Ravn
Topic: 46257 Message: 46285

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the

final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

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Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

46286. Re: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 22:18:58 UTC
From: Mark Gilger
Topic: 46257 Message: 46286

It's nothing like Deoxit D5. More of a lubricant
and as such should never be used near the band
switch wafers. Looking for trouble if you do.

Mark, WB0IQK

At 01:48 PM 12/8/2013, CROOKS David wrote:
>
>
>ï»¿
>Michael,
>"CorrosionX" sounds scary to me. What does it do that Deoxit D5 won't?
>Dave f4eyk
>
>

46287. Re: [TS-520_820_530_830] TX problem on TS520SE

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 22:21:00 UTC
From: <adrian@...>
Topic: 46261 Message: 46287

And now I feel very stupid... Realised the high reflected power with dummy load could be problem in rig final tuning or the load and the feed cable. The patch lead to dummy load had broken off from centre conductor. It was open circuit! Hope haven't fried valves from all that tuning up into effectively nothing. Spent most of day on this. When au put a knot in patch cable to remind me it was no good the centre conductor of coax actually pulled out of plug! 73 Adrian G4IQW

46288. Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 22:41:19 UTC
From: Mike
Topic: 46257 Message: 46288

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

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On 12/8/2013 3:59 PM, Peter Ravn wrote:
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> Mike,

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> On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1
> and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages
> on all other terminals on the rectifier board are ok, including the
> bias voltage which is -- 110 DVC. R15 was checked and found ok. The
> preliminary conclusion is that the finals are getting no screen
> voltage from the rectifier.
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> alive. Voltages on the filaments are according to specs. There are --
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> cathode. Screen and cathode resistors were checked and found ok, so
> the problem must be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
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> control had no effect.
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> Thanks.
>
> Peter, OZ8CTH
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46289. Re: [TS-520_820_530_830] Adding a digital display to your Kenwood TS-520S Transceiver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 23:18:58 UTC
From: Jan Servaites
Topic: 46282 Message: 46289

That's very good, I would like a digital display on my TS820 external
VFO, and I'm sure something could be developed along the same lines.
Jan N8CBX

John wrote:

>
>
> Below is a link detailing my adventures in connecting the PIC
> microcontroller based frequency counter I built to my TS-520S Transceiver.
>
> http://jbdkz.squidoo.com/add-a-digital-display-to-your-kenwood-ts-520s-transceiver
>
>

46290. Link: Adding a digital display to your Kenwood TS-520S Transceiver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-08 22:05:32 UTC
From: John
Topic: 46282 Message: 46290

For some reason the link was wrong in my original post:

http://jbdkz.squidoo.com/add-a-digital-display-to-your-kenwood-ts-520s-transceiver

--- In TS-520_820_530_830@yahoogroups.com, "John" <jbdkz@...> wrote:
>
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46291. SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 07:49:27 UTC
From: Peter Ravn
Topic: 46257 Message: 46291

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

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Date: 2013-12-09 12:48:39 UTC
From: Mike
Topic: 46257 Message: 46292

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

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Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:
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> rectifier there are 263 DVC, but zero on 210B, so where does that
> leave us?
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> Peter, OZ8CTH
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> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
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> Peter,
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> The Rectifier Unit's HV supply is a "Voltage Doubling" supply.
> Therefore, you will not see 800VAC on the transformer's "800AC"

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> doubling supplies work. The ARRL handbook has a section that covers
> different types of power supplies, including voltage doubling supplies.
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> screen voltage to the driver and both final tubes.
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> those tubes "down", no conduction in the tubes will occur. That means
> you will not see any drive from the driver tube to the final
> amplifier, no final tube IP current indication of any kind in any
> mode, and the final amplifier's cathode voltage will be zero.
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> there is no current flowing in the final tubes. This is part of vacuum
> tube theory which is discussed in the ARRL handbook, early editions
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> the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at
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> likely "open" resulting in zero voltage at 210A and 210B, hence zero
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> the positive terminals of C180 and C181 which are on the IF Unit.
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> <mailto:ravnpeter@...> wrote:
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46293. SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 13:14:38 UTC
From: Peter Ravn
Topic: 46257 Message: 46293

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

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Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

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Thanks.

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46294. Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 14:16:25 UTC
From: Mike
Topic: 46257 Message: 46294

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

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>
> Mike,
>
> I followed the standard procedure. I turned the POWER and
> HEATER switches on, placed the MODE switch to SSB, the
> METER switch to lp, pushed the SEND button and adjusted
> the BIAS control, but there was no reading at all. I then
> measured pin 5 in in the finals and saw no voltages in
> STAND-BY or SEND position. The only deflection on the TS
> meter is in HV in SEND position with voltages about 820 DVC.
>
> A correction to my first mail. I /do/ hear the t/r antenna
> relay when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
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>
>

> Peter,
>
> You said you checked for bias voltage and found none. If I
> may ask, did you measure the bias voltage at the final
> tube grids, pin 5, and that is where you found no bias
> voltage?
>
>
> 73
> Mike W5RKL
>
>
>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my TS830s. In
> SEND position there is no deflection on the meter and
> no noise from the t/r relay. The heater and SG switch
> are naturally on.
>
> I checked R15 in the rectifier, and it was okay. So
> were the cathode and plate resistors in the final
> unit. I then checked the bias and found no bias at
> all. Adjusting the the BIAS control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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46295. Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 15:27:51 UTC
From: Mike
Topic: 46257 Message: 46295

Peter,

What is the final Cathode voltage if the IP meter, in transmit,
indicates "60ma"? If you do not how then I recommend you watch my video
about the final tube cathode circuit and metering circuit. The video can
be viewed at the following link:

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/

As I say at the end of the video, you can change the IP meter current
value to any value you want, for example, 60ma in this case. You will
need a calculator to perform the "simple" math calculations.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the
> rectifier there are 263 DVC, but zero on 210B, so where does that
> leave us?
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> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
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>
>
> Peter,
>
> The Rectifier Unit's HV supply is a "Voltage Doubling" supply.
> Therefore, you will not see 800VAC on the transformer's "800AC"
> terminal. I recommend you spend some time studying how voltage
> doubling supplies work. The ARRL handbook has a section that covers
> different types of power supplies, including voltage doubling supplies.
>
> Your problem does not appear to be a bias problem but rather a loss of
> screen voltage to the driver and both final tubes.

>
> Loss of screen voltage to the driver and both final tubes will shut
> those tubes "down", no conduction in the tubes will occur. That means
> you will not see any drive from the driver tube to the final
> amplifier, no final tube IP current indication of any kind in any
> mode, and the final amplifier's cathode voltage will be zero.
>
> The reason the final tube cathode voltage is zero is simply because
> there is no current flowing in the final tubes. This is part of vacuum
> tube theory which is discussed in the ARRL handbook, early editions
> are the best or you can study the same theory in John T. Fryes, Basic
> Radio Course which is available in CD form from a seller on eBay.
>
> Since you have already checked the final tube's screens for voltage
> and found it to be zero, now check the RF Unit plug 9 pin 2 (210A).
> This is the driver tube's screen voltage from the Rectifier Unit's
> 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check
> the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at
> 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most
> likely "open" resulting in zero voltage at 210A and 210B, hence zero
> screen voltage to the driver and both final tubes. Visually inspect
> R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is
> physically located on the Rectifier Unit but R11 is connected between
> the positive terminals of C180 and C181 which are on the IF Unit.
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> If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial
> lead" capacitors on the IF unit, they are the filter capacitors for
> the Rectifier Unit's 210A and 210B supply, one or both could be
> shorted which would take out D6 resulting in zero Rectifier Unit 210A
> and 210B voltage, hence no screen voltage to the driver and both final
> tubes.
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> Mike,
>
> Here is an update on my latest findings.
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> On the rectifier board there are no voltages on TUNE, SG1, SG2,
> PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC.
> Voltages on all other terminals on the rectifier board are ok,
> including the bias voltage which is -- 110 DVC. R15 was checked
> and found ok. The preliminary conclusion is that the finals are
> getting no screen voltage from the rectifier.
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> In TUNE/SEND the panel meter shows 900 DVC.
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> When the HEATER is switched on, the filaments in the finals come
> alive. Voltages on the filaments are according to specs. There are
> -- 103 DVC on the grids (pins 5), and with the bias potentiometer
> on the rear the voltages can be adjusted from -- 93 to -103 VDC.
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> screen or on the cathode. Screen and cathode resistors were
> checked and found ok, so the problem must be somewhere else.
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> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830] TS830S no bias
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> A new careful measurement gave another result. On the rectifier
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> *Sendt:* 8. december 2013 16:39
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
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> Peter,
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> Loss of bias voltage to the final tubes will result in the final
> tubes conducting to saturation levels even in receive. Loss of

> bias voltage to the final tubes may have permanently damaged your
> final tubes.
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> Have you checked/measured the bias voltage at the Rectifier Unit's
> "-C" terminal?
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> I recommend you troubleshoot the bias supply from the Rectifier
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46296. Kenwood Net Update (December 9, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 15:45:21 UTC
From: Mark Gilger
Topic: 46296 Message: 46296

The Saturday net on 40 meters had 13 check ins
under good band condition. There were 1 new check
ins, . We had the following number of radios checking in.

4 running TS-520(x)
1 running TS-530(x)
4 running TS-820(x)
2 running TS-830S

I was using my TS-830s.

The Sunday□s 20 meter net had 20 stations
checking in under good band conditions. There
were 5 new stations checking in, WB6KVD, N7GIV, VE5HWH, KD0TKJ, and W5KAW,

Out of those, there was:

4 running TS-520(x)
2 running TS-530(x)
0 running TS-820(x)
2 running TS-830S
1 running 599D twins

I was running my 820 twins, TS-820s + R-820.

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a
net control station, please send me an email.
Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins

November 2012, Saturday☐s, net total = 47, Sundays total = 20
December 2012, Saturday☐s, net total = 74, Sunday☐s total = 70
January 2013, Saturday☐s, net total = 93, Sunday☐s total = 87
February 2013, Saturday☐s net total = 103, Sundays total = 87
March 2013, Saturday☐s, net total = 112, Sunday☐s total =39
April 2013, Saturday☐s net total = 52, Sunday☐s total = 29
May 2013, Saturday☐s net total = 45, Sunday☐s total = 50
June 2013, Saturday☐s net total = 30, Sunday☐s total = 27
July 2013, Saturday☐s net total = 63, Sunday☐s total = 41
August 2013, Saturday☐s net total = 82, Sunday☐s total = 50
September 2013, Saturday☐s net total = 66, Sunday☐s total = 54
October 2013, Saturday☐s net total = 61, Sunday☐s total = 55
November 2013, Saturday☐s net total = 94, Sunday☐s total = 85
December 2013, Saturday☐s net total = 13, Sunday☐s total = 20 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

46297. SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 16:26:57 UTC
From: Peter Ravn
Topic: 46257 Message: 46297

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend

you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@...m
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

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Til: TS-520_820_530_830@yahoogroups.com
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Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

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I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND

position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

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Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

46298. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 16:35:10 UTC
From: Mike
Topic: 46257 Message: 46298

Peter,

After replacing R11, measure the voltage at the RF Unit plug 9 pin 2 (210A) and the final unit "SG" terminal. You should see +265VDC on those 2 places. If you do then perform the normal bias setting steps to ensure the final tube's idling current is 60ma. If all goes well then go through the normal transmitter tune up procedures and you should see normal RF output on your dummy load's watt meter.

Did you get the email I sent you about watching the video? I recommend you watch the video so you will see how this works.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the rectifier. On terminal 210A there
> are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the
> open R11, I get 263 DVC on terminal 210A. No wonder that I see no
> voltages on plug 9, pin 2 on the RF unit.
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> Time to replace the open R11?
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> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
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> above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC".
> You initially said the voltage on the Rectifier Unit's "210B" terminal
> was "0VDC" which I didn't believe you and so I asked you to recheck
> your voltages. What is the voltage on the Rectifier Unit's "210B"
> terminal?
>
> 73
> Mike W5RKL
>
>
>
>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>
> Thanks to your patience and conscise instruction I found the
> culprit: R11 is open. I checked all the other diodes on the
> rectifier board, including the D6 you mentioned, and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad one, but
> before doing so I should like to know what made R11 open. What
> else to check before firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You measured +263VDC at 210A but zero VDC at 210B? That doesn't
> make sense. I think you have the voltage measurements at the
> Rectifier Unit's 210A and 210B "backwards". I think the Rectifier
> Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's
> "210B" terminal voltage is "+263VDC". You need to "recheck" the
> voltages on the Rectifier Unit's "210A" and "210B" terminals.
>

> You also did not comment on the condition of "R11" (470 ohm) on
> the Rectifier Unit I asked you to do. Did you visual inspect R11?
> Did you measure the resistance of R11? If R11 is "open" then the
> Rectifier Unit's "210A" terminal voltage will be "0VDC" which will
> results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on
> SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final
> tube's screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot this problem?
> You need to do that.
>
> 73
> Mike W5RKL
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> On 12/9/2013 1:49 AM, Peter Ravn wrote:
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> Mike,
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> There is no voltage on RF unit plug 9 pin2 (210A). On 210A on
> the rectifier there are 263 DVC, but zero on 210B, so where
> does that leave us?
>
> 73
>
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> *Fra:*TS-520_820_530_830@yahoogroups.com
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> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> The Rectifier Unit's HV supply is a "Voltage Doubling" supply.
> Therefore, you will not see 800VAC on the transformer's
> "800AC" terminal. I recommend you spend some time studying how
> voltage doubling supplies work. The ARRL handbook has a
> section that covers different types of power supplies,
> including voltage doubling supplies.
>
> Your problem does not appear to be a bias problem but rather a
> loss of screen voltage to the driver and both final tubes.

>
> Loss of screen voltage to the driver and both final tubes will
> shut those tubes "down", no conduction in the tubes will
> occur. That means you will not see any drive from the driver
> tube to the final amplifier, no final tube IP current
> indication of any kind in any mode, and the final amplifier's
> cathode voltage will be zero.
>
> The reason the final tube cathode voltage is zero is simply
> because there is no current flowing in the final tubes. This
> is part of vacuum tube theory which is discussed in the ARRL
> handbook, early editions are the best or you can study the
> same theory in John T. Fryes, Basic Radio Course which is
> available in CD form from a seller on eBay.
>
> Since you have already checked the final tube's screens for
> voltage and found it to be zero, now check the RF Unit plug 9
> pin 2 (210A). This is the driver tube's screen voltage from
> the Rectifier Unit's 210A source. If voltage is zero at RF
> Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A"
> and "210B" supply outputs. If voltage at 210A "and" 210B are
> zero, check Rectifier Unit diode D6, it's most likely "open"
> resulting in zero voltage at 210A and 210B, hence zero screen
> voltage to the driver and both final tubes. Visually inspect
> R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is
> physically located on the Rectifier Unit but R11 is connected
> between the positive terminals of C180 and C181 which are on
> the IF Unit.
>
> If D6 is open, check C180 and C181, both are 22ufd 350VDC
> "Radial lead" capacitors on the IF unit, they are the filter
> capacitors for the Rectifier Unit's 210A and 210B supply, one
> or both could be shorted which would take out D6 resulting in
> zero Rectifier Unit 210A and 210B voltage, hence no screen
> voltage to the driver and both final tubes.
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>
> 73
> Mike W5RKL
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> On 12/8/2013 3:59 PM, Peter Ravn wrote:
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> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no voltages on TUNE, SG1,

> SG2, PD1 and PD2. On AC800 there are only 324 VAC instead
> of 800 VAC. Voltages on all other terminals on the
> rectifier board are ok, including the bias voltage which
> is -- 110 DVC. R15 was checked and found ok. The
> preliminary conclusion is that the finals are getting no
> screen voltage from the rectifier.
>
> In TUNE/SEND the panel meter shows 900 DVC.
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> When the HEATER is switched on, the filaments in the
> finals come alive. Voltages on the filaments are according
> to specs. There are -- 103 DVC on the grids (pins 5), and
> with the bias potentiometer on the rear the voltages can
> be adjusted from -- 93 to -103 VDC. So this part seems to
> work . But there are no voltages on the screen or on the
> cathode. Screen and cathode resistors were checked and
> found ok, so the problem must be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af
> *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830] TS830S no bias
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> Mike,
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> A new careful measurement gave another result. On the
> rectifier there are -- 109 DVC in STAND-BY and -- 107 DVC
> in TUNE. On pins 5 of the final unit there are -- 96 DVC
> in STAND-BY and -- 57 DVC in TUNE. So apparently there is
> a loss, but not a complete loss of bias voltage, which
> might prove fatal.
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> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
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> Peter,
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> Loss of bias voltage to the final tubes will result in the
> final tubes conducting to saturation levels even in
> receive. Loss of bias voltage to the final tubes may have
> permanently damaged your final tubes.
>
> Have you checked/measured the bias voltage at the
> Rectifier Unit's "-C" terminal?
>
> I recommend you troubleshoot the bias supply from the
> Rectifier Unit "-C" to the final tubes to find where the
> loss of bias voltage is occurring.
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> Mike W5RKL
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> On 12/8/2013 9:15 AM, Peter Ravn wrote:
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> Mike,
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> I followed the standard procedure. I turned the POWER
> and HEATER switches on, placed the MODE switch to SSB,
> the METER switch to lp, pushed the SEND button and
> adjusted the BIAS control, but there was no reading at
> all. I then measured pin 5 in in the finals and saw no
> voltages in STAND-BY or SEND position. The only
> deflection on the TS meter is in HV in SEND position
> with voltages about 820 DVC.
>
> A correction to my first mail. I /do/ hear the t/r
> antenna relay when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>

> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and found none.
> If I may ask, did you measure the bias voltage at the
> final tube grids, pin 5, and that is where you found
> no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my TS830s.
> In SEND position there is no deflection on the
> meter and no noise from the t/r relay. The heater
> and SG switch are naturally on.
>
> I checked R15 in the rectifier, and it was okay.
> So were the cathode and plate resistors in the
> final unit. I then checked the bias and found no
> bias at all. Adjusting the the BIAS control had no
> effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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46299. Re: [TS-520_820_530_830] Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 18:07:43 UTC
From: Joseph Stiles
Topic: 46264 Message: 46299

Bill,

Been under the WX here...sorry to hear about the loss of another ham and your friend. Quite possible that's he's eyeball qso'ing my SK father-in-law Donald-wa7fum.

73 Joe
WB7UQU
Group Co-owner

On Sunday, December 8, 2013 6:27 AM, "andrew@..." <andrew@...> wrote:

>Sounds like you have been a good friend
>
>
>Andy
>
>
>
>Andrew Schneider, N7EBG
>andrew@...
>wmsinc.org
>
>
>
>-------- Original Message --------
>>Subject: [TS-520_820_530_830] Ham Radio Silent Key
>>From: <paw_paw44036@...>
>>Date: Sat, December 07, 2013 3:31 pm
>>To: <TS-520_820_530_830@yahoogroups.com>
>>
>>
>>I know this doesn't pertain to Kenwood rigs, but it is important.
>>We lost another Ham Radio Operator this morning about 8:30 am EST. I stopped by this morning to see if he was ok and I found him in his chair where he slept most of the time. He was cold and no pulse. I called 911 and got the police and ambulance there. They called the coroner, His name was David Kuenzel. WB8TMR. He was my Elmer and got me started into ham radio 35 years ago. He fought Prostate cancer for 6 years. In fact He gave me my first TS-530s which I still have. I talked to his niece and Dave wanted me to have his radios and antennas. I will take them an use the well in memory of Dave.
>>Bill WD8OSJ
>
>
>

46300. Re: [TS-520_820_530_830] Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 18:15:21 UTC
From: Joe - W7RKN
Topic: 46248 Message: 46300

I dunno Joe...Up there, they are probably *winging* it! :)
----- Original Message -----
From: Joseph Stiles
Subject: Re: [TS-520_820_530_830] Ham Radio Silent Key

Bill,

Been under the WX here...sorry to hear about the loss of another ham and your friend. Quite possible that's he's eyeball qso'ing my SK father-in-law Donald-wa7fum.

46301. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 18:56:49 UTC
From: W5RKL
Topic: 46257 Message: 46301

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the rectifier. On terminal 210A there
> are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the
> open R11, I get 263 DVC on terminal 210A. No wonder that I see no
> voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will result in 210A voltage to be
> "0VDC" just as I said it would.
>

> I said you should recheck your voltages on the Rectifier Unit's 210A
> and 210B terminals, it appeared you had them "backwards". Once you
> found R11 was open, did you recheck the 210A and 210B voltages as I
> asked you do to? Since you say R11 is "open" then, as I indicated
> above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC".
> You initially said the voltage on the Rectifier Unit's "210B" terminal
> was "0VDC" which I didn't believe you and so I asked you to recheck
> your voltages. What is the voltage on the Rectifier Unit's "210B"
> terminal?
>
> 73
> Mike W5RKL
>
>
>
>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>
> Thanks to your patience and conscise instruction I found the
> culprit: R11 is open. I checked all the other diodes on the
> rectifier board, including the D6 you mentioned, and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad one, but
> before doing so I should like to know what made R11 open. What
> else to check before firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
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> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
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> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
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> Peter,
>
> You measured +263VDC at 210A but zero VDC at 210B? That doesn't
> make sense. I think you have the voltage measurements at the
> Rectifier Unit's 210A and 210B "backwards". I think the Rectifier
> Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's

> "210B" terminal voltage is "+263VDC". You need to "recheck" the
> voltages on the Rectifier Unit's "210A" and "210B" terminals.
>
> You also did not comment on the condition of "R11" (470 ohm) on
> the Rectifier Unit I asked you to do. Did you visual inspect R11?
> Did you measure the resistance of R11? If R11 is "open" then the
> Rectifier Unit's "210A" terminal voltage will be "0VDC" which will
> results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on
> SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final
> tube's screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot this problem?
> You need to do that.
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> Peter,
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> The Rectifier Unit's HV supply is a "Voltage Doubling" supply.
> Therefore, you will not see 800VAC on the transformer's
> "800AC" terminal. I recommend you spend some time studying how
> voltage doubling supplies work. The ARRL handbook has a
> section that covers different types of power supplies,
> including voltage doubling supplies.

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> Your problem does not appear to be a bias problem but rather a
> loss of screen voltage to the driver and both final tubes.
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> Loss of screen voltage to the driver and both final tubes will
> shut those tubes "down", no conduction in the tubes will
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> voltage and found it to be zero, now check the RF Unit plug 9
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> the Rectifier Unit's 210A source. If voltage is zero at RF
> Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A"
> and "210B" supply outputs. If voltage at 210A "and" 210B are
> zero, check Rectifier Unit diode D6, it's most likely "open"
> resulting in zero voltage at 210A and 210B, hence zero screen
> voltage to the driver and both final tubes. Visually inspect
> R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is
> physically located on the Rectifier Unit but R11 is connected
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> If D6 is open, check C180 and C181, both are 22ufd 350VDC
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>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my TS830s.
> In SEND position there is no deflection on the
> meter and no noise from the t/r relay. The heater
> and SG switch are naturally on.
>
> I checked R15 in the rectifier, and it was okay.
> So were the cathode and plate resistors in the
> final unit. I then checked the bias and found no
> bias at all. Adjusting the the BIAS control had no
> effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46302. SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 22:29:03 UTC
From: Peter Ravn
Topic: 46257 Message: 46302

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9,

pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn

Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com

Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

46303. RE: [TS-520_820_530_830] Ham Radio Silent Key

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-09 22:47:17 UTC
From: Les Zwiebel WB6ORZ
Topic: 46248 Message: 46303

Bill, sorry to hear about your Elmer becoming an SK. It's heartbreaking.
   Keep those filaments lit.
   (((73)))
   Les

-------- Original message --------
From: paw_paw44036@yahoo.com
Date: 12/07/2013 2:31 PM (GMT-08:00)
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] Ham Radio Silent Key

I know this doesn't pertain to Kenwood rigs, but it is important.

We lost another Ham Radio Operator this morning about 8:30 am EST. I stopped by this morning to see if he was ok and I found him in his chair where he slept most of the time. He was cold and no pulse. I called 911 and got the police and ambulance there. They called the coroner, His name was David Kuenzel. WB8TMR. He was my Elmer and got me started into ham radio 35 years ago. He fought Prostate cancer for 6 years. In fact He gave me my first TS-530s which I still have. I talked to his niece and Dave wanted me to have his radios and antennas. I will take them an use the well in memory of Dave.

Bill WD8OSJ

46304. Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 00:55:33 UTC
From: Mike
Topic: 46257 Message: 46304

Peter,

I'm sorry to hear of the additional problems you are experiencing with your 830.

I would not use those final tubes, even if they test GOOD in a tube tester! Replace them with "known good tubes".

It's possible the bias supply has failed which can lead to the final tubes conducting to saturation levels causing the plates of the final tubes to turn RED.

It's possible the source of the smoke you saw are the 4 final tube cathode resistors, they overheated due to the high current flowing in the cathode circuit.

Before you power up the 830 again, assuming you have thoroughly troubleshot the 830 and found the source of the failures and replaced defective components, set the rear panel's SG switch to OFF. This will prevent the final tubes from conducting in receive and transmit. This will allow you to perform additional troubleshooting with power applied. If the fuse blows again, do NOT power up the 830 after you replace the fuse!! You should never do that because there are obviously some additional problems you need to find and fix.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit terminal, on
> terminals 210A and 210B on the rectifier and on SG on the final unit.
> After some time I managed to get 60 mA idle current and started tuning
> up. The transmitter seemed somewhat unstable, and the panel meter
> would not zero in STAND-BY. A scary noise was suddenly heard,
> whereupon the finals turned deadly red and the fuse on the rear blew.
> When I replaced the fuse and turned on the radio again, smoke came
> from somewhere between the AF and the RF unit. End of today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>

> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
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> Peter,
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> You also might check the RF Unit's voltage divider resistors, R36
> (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some
> times changed to "hot rod" the hybrids. I wasn't aware those resistors
> were changed to "hot rod" the hybrids so check them.
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> Also, check the final unit's R7 and R8, both 100 ohms. They are the
> final unit's "screen resistors". If they both measure within tolerance
> you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and R37 on the RF unit and
> R7 and R8 on the Final Unit board. Also let me know if you can tune
> your 830 up to full power into your dummy load.
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> Mike W5RKL
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> there are zero VDC, and on terminal 210B there are 264 DVC. If I
> bypass the open R11, I get 263 DVC on terminal 210A. No wonder
> that I see no voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
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> Peter, OZ8CTH
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> *Fra:*TS-520_820_530_830@yahoogroups.com
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> be "0VDC" just as I said it would.
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> I said you should recheck your voltages on the Rectifier Unit's
> 210A and 210B terminals, it appeared you had them "backwards".
> Once you found R11 was open, did you recheck the 210A and 210B
> voltages as I asked you do to? Since you say R11 is "open" then,
> as I indicated above, the voltage on the Rectifier Unit's "210A"
> terminal is "0VDC". You initially said the voltage on the
> Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe
> you and so I asked you to recheck your voltages. What is the
> voltage on the Rectifier Unit's "210B" terminal?
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> Mike W5RKL
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> Mike,
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> Thanks to your patience and conscise instruction I found the
> culprit: R11 is open. I checked all the other diodes on the
> rectifier board, including the D6 you mentioned, and they are
> all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad one, but
> before doing so I should like to know what made R11 open. What
> else to check before firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
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> Peter, OZ8CTH
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> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
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> doesn't make sense. I think you have the voltage measurements
> at the Rectifier Unit's 210A and 210B "backwards". I think the
> Rectifier Unit's "210A" terminal voltage is "0VDC" and the
> Rectifier Unit's "210B" terminal voltage is "+263VDC". You
> need to "recheck" the voltages on the Rectifier Unit's "210A"
> and "210B" terminals.
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> You also did not comment on the condition of "R11" (470 ohm)
> on the Rectifier Unit I asked you to do. Did you visual
> inspect R11? Did you measure the resistance of R11? If R11 is
> "open" then the Rectifier Unit's "210A" terminal voltage will
> be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin
> 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG"
> terminal and the final tube's screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot this
> problem? You need to do that.
>
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>
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>
> Peter,
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> The Rectifier Unit's HV supply is a "Voltage Doubling"
> supply. Therefore, you will not see 800VAC on the
> transformer's "800AC" terminal. I recommend you spend some
> time studying how voltage doubling supplies work. The ARRL
> handbook has a section that covers different types of
> power supplies, including voltage doubling supplies.
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> Your problem does not appear to be a bias problem but
> rather a loss of screen voltage to the driver and both
> final tubes.
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> Loss of screen voltage to the driver and both final tubes
> will shut those tubes "down", no conduction in the tubes
> will occur. That means you will not see any drive from the
> driver tube to the final amplifier, no final tube IP
> current indication of any kind in any mode, and the final
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> Since you have already checked the final tube's screens
> for voltage and found it to be zero, now check the RF Unit
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> voltage from the Rectifier Unit's 210A source. If voltage
> is zero at RF Unit plug 9 pin 2, is zero check the
> Rectifier Unit's "210A" and "210B" supply outputs. If
> voltage at 210A "and" 210B are zero, check Rectifier Unit
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> voltage at 210A and 210B, hence zero screen voltage to the
> driver and both final tubes. Visually inspect R11, 470 ohm
> resistor on the Rectifier Unit. Resistor R11 is physically
> located on the Rectifier Unit but R11 is connected between
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> filter capacitors for the Rectifier Unit's 210A and 210B
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> the rectifier board are ok, including the bias voltage
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> preliminary conclusion is that the finals are getting
> no screen voltage from the rectifier.
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> apparently there is a loss, but not a complete loss of
> bias voltage, which might prove fatal.
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> 73 Peter, OZ8CTH
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> Loss of bias voltage to the final tubes will result in
> the final tubes conducting to saturation levels even
> in receive. Loss of bias voltage to the final tubes
> may have permanently damaged your final tubes.
>
> Have you checked/measured the bias voltage at the
> Rectifier Unit's "-C" terminal?
>
> I recommend you troubleshoot the bias supply from the
> Rectifier Unit "-C" to the final tubes to find where
> the loss of bias voltage is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>

> I followed the standard procedure. I turned the
> POWER and HEATER switches on, placed the MODE
> switch to SSB, the METER switch to lp, pushed the
> SEND button and adjusted the BIAS control, but
> there was no reading at all. I then measured pin 5
> in in the finals and saw no voltages in STAND-BY
> or SEND position. The only deflection on the TS
> meter is in HV in SEND position with voltages
> about 820 DVC.
>
> A correction to my first mail. I /do/ hear the t/r
> antenna relay when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and found
> none. If I may ask, did you measure the bias
> voltage at the final tube grids, pin 5, and that
> is where you found no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my
> TS830s. In SEND position there is no
> deflection on the meter and no noise from the
> t/r relay. The heater and SG switch are
> naturally on.
>

> I checked R15 in the rectifier, and it was
> okay. So were the cathode and plate resistors
> in the final unit. I then checked the bias and
> found no bias at all. Adjusting the the BIAS
> control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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> This email is free from viruses and malware because avast! Antivirus
> <http://www.avast.com/> protection is active.
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46305. Re: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 01:33:26 UTC
From: Joe - W7RKN
Topic: 46257 Message: 46305

----- Original Message -----
From: Mike
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 09, 2013 4:55 PM
Subject: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I'm sorry to hear of the additional problems you are experiencing with your 830.

I would not use those final tubes, even if they test GOOD in a tube tester! Replace them with "known good tubes".

It's possible the bias supply has failed which can lead to the final tubes conducting to saturation levels causing the plates of the final tubes to turn RED.

It's possible the source of the smoke you saw are the 4 final tube cathode resistors, they overheated due to the high current flowing in the cathode circuit.

Before you power up the 830 again, assuming you have thoroughly troubleshot the 830 and found the source of the failures and replaced defective components, set the rear panel's SG switch to OFF. This will prevent the final tubes from conducting in receive and transmit. This will allow you to perform additional troubleshooting with power applied. If the fuse blows again, do NOT power up the 830 after you replace the fuse!! You should never do that because there are obviously some additional problems you need to find and fix.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL

Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is - 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are - 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from - 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are - 109 DVC in STAND-BY and - 107 DVC in TUNE. On pins 5 of the final unit there are - 96 DVC in STAND-BY and - 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND

position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

This email is free from viruses and malware because avast! Antivirus protection is active.

46306. RE: TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 01:18:34 UTC
From: <glene77is@...>
Topic: 46257 Message: 46306

Peter,
You are not in the woods ..... alone.

I understand that you are in Denmark.
Surely there is someone on your side of the world to help , directly.

http://www.oldhamdave.com/ http://www.oldhamdave.com/

Old Ham Dave is David Lyndon, professional electrical engineer and extra class amateur AK4AA, well-qualified to repair, align, and refurbish amateur radio equipment using laboratory quality test equipment. Dave's specialty is the Kenwood series of "hybrid" transceivers, the TS-520 through TS-830S. He also services most solid state Kenwood transceivers and other amateur equipment for which documentation is available.

Glen Ellis, KK4LPG

46307. Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 12:55:08 UTC
From: Mike
Topic: 46257 Message: 46307

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs,

move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit terminal, on
> terminals 210A and 210B on the rectifier and on SG on the final unit.
> After some time I managed to get 60 mA idle current and started tuning
> up. The transmitter seemed somewhat unstable, and the panel meter
> would not zero in STAND-BY. A scary noise was suddenly heard,
> whereupon the finals turned deadly red and the fuse on the rear blew.
> When I replaced the fuse and turned on the radio again, smoke came
> from somewhere between the AF and the RF unit. End of today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
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> Peter,
>
> You also might check the RF Unit's voltage divider resistors, R36
> (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some

> times changed to "hot rod" the hybrids. I wasn't aware those resistors
> were changed to "hot rod" the hybrids so check them.
>
> Also, check the final unit's R7 and R8, both 100 ohms. They are the
> final unit's "screen resistors". If they both measure within tolerance
> you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and R37 on the RF unit and
> R7 and R8 on the Final Unit board. Also let me know if you can tune
> your 830 up to full power into your dummy load.
>
> 73
> Mike W5RKL
>
>
> On 12/9/2013 10:26 AM, Peter Ravn wrote:
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> Mike,
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> I have rechecked the voltages on the rectifier. On terminal 210A
> there are zero VDC, and on terminal 210B there are 264 DVC. If I
> bypass the open R11, I get 263 DVC on terminal 210A. No wonder
> that I see no voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
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> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
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> Peter,
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> You say that R11 is OPEN. Okay that will result in 210A voltage to
> be "0VDC" just as I said it would.
>
> I said you should recheck your voltages on the Rectifier Unit's
> 210A and 210B terminals, it appeared you had them "backwards".
> Once you found R11 was open, did you recheck the 210A and 210B
> voltages as I asked you do to? Since you say R11 is "open" then,
> as I indicated above, the voltage on the Rectifier Unit's "210A"

> terminal is "0VDC". You initially said the voltage on the
> Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe
> you and so I asked you to recheck your voltages. What is the
> voltage on the Rectifier Unit's "210B" terminal?
>
> 73
> Mike W5RKL
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> On 12/9/2013 7:14 AM, Peter Ravn wrote:
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> Mike,
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> Thanks to your patience and conscise instruction I found the
> culprit: R11 is open. I checked all the other diodes on the
> rectifier board, including the D6 you mentioned, and they are
> all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad one, but
> before doing so I should like to know what made R11 open. What
> else to check before firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
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> Peter, OZ8CTH
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> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
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> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
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>
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> doesn't make sense. I think you have the voltage measurements
> at the Rectifier Unit's 210A and 210B "backwards". I think the
> Rectifier Unit's "210A" terminal voltage is "0VDC" and the
> Rectifier Unit's "210B" terminal voltage is "+263VDC". You
> need to "recheck" the voltages on the Rectifier Unit's "210A"
> and "210B" terminals.

>
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> on the Rectifier Unit I asked you to do. Did you visual
> inspect R11? Did you measure the resistance of R11? If R11 is
> "open" then the Rectifier Unit's "210A" terminal voltage will
> be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin
> 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG"
> terminal and the final tube's screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot this
> problem? You need to do that.
>
> 73
> Mike W5RKL
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> On 12/9/2013 1:49 AM, Peter Ravn wrote:
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> Mike,
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> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
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>
> Peter,
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> The Rectifier Unit's HV supply is a "Voltage Doubling"
> supply. Therefore, you will not see 800VAC on the
> transformer's "800AC" terminal. I recommend you spend some
> time studying how voltage doubling supplies work. The ARRL
> handbook has a section that covers different types of
> power supplies, including voltage doubling supplies.
>

> Your problem does not appear to be a bias problem but
> rather a loss of screen voltage to the driver and both
> final tubes.
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> Loss of screen voltage to the driver and both final tubes
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> will occur. That means you will not see any drive from the
> driver tube to the final amplifier, no final tube IP
> current indication of any kind in any mode, and the final
> amplifier's cathode voltage will be zero.
>
> The reason the final tube cathode voltage is zero is
> simply because there is no current flowing in the final
> tubes. This is part of vacuum tube theory which is
> discussed in the ARRL handbook, early editions are the
> best or you can study the same theory in John T. Fryes,
> Basic Radio Course which is available in CD form from a
> seller on eBay.
>
> Since you have already checked the final tube's screens
> for voltage and found it to be zero, now check the RF Unit
> plug 9 pin 2 (210A). This is the driver tube's screen
> voltage from the Rectifier Unit's 210A source. If voltage
> is zero at RF Unit plug 9 pin 2, is zero check the
> Rectifier Unit's "210A" and "210B" supply outputs. If
> voltage at 210A "and" 210B are zero, check Rectifier Unit
> diode D6, it's most likely "open" resulting in zero
> voltage at 210A and 210B, hence zero screen voltage to the
> driver and both final tubes. Visually inspect R11, 470 ohm
> resistor on the Rectifier Unit. Resistor R11 is physically
> located on the Rectifier Unit but R11 is connected between
> the positive terminals of C180 and C181 which are on the
> IF Unit.
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> If D6 is open, check C180 and C181, both are 22ufd 350VDC
> "Radial lead" capacitors on the IF unit, they are the
> filter capacitors for the Rectifier Unit's 210A and 210B
> supply, one or both could be shorted which would take out
> D6 resulting in zero Rectifier Unit 210A and 210B voltage,
> hence no screen voltage to the driver and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:

>
> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no voltages on TUNE,
> SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC
> instead of 800 VAC. Voltages on all other terminals on
> the rectifier board are ok, including the bias voltage
> which is -- 110 DVC. R15 was checked and found ok. The
> preliminary conclusion is that the finals are getting
> no screen voltage from the rectifier.
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> In TUNE/SEND the panel meter shows 900 DVC.
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> When the HEATER is switched on, the filaments in the
> finals come alive. Voltages on the filaments are
> according to specs. There are -- 103 DVC on the grids
> (pins 5), and with the bias potentiometer on the rear
> the voltages can be adjusted from -- 93 to -103 VDC.
> So this part seems to work . But there are no voltages
> on the screen or on the cathode. Screen and cathode
> resistors were checked and found ok, so the problem
> must be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
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> *Emne:* SV: SV: [TS-520_820_530_830] TS830S no bias
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> Mike,
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> A new careful measurement gave another result. On the
> rectifier there are -- 109 DVC in STAND-BY and -- 107
> DVC in TUNE. On pins 5 of the final unit there are --

> 96 DVC in STAND-BY and -- 57 DVC in TUNE. So
> apparently there is a loss, but not a complete loss of
> bias voltage, which might prove fatal.
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> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
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>
> Loss of bias voltage to the final tubes will result in
> the final tubes conducting to saturation levels even
> in receive. Loss of bias voltage to the final tubes
> may have permanently damaged your final tubes.
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> Have you checked/measured the bias voltage at the
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>
> I recommend you troubleshoot the bias supply from the
> Rectifier Unit "-C" to the final tubes to find where
> the loss of bias voltage is occurring.
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> Mike W5RKL
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> I followed the standard procedure. I turned the
> POWER and HEATER switches on, placed the MODE
> switch to SSB, the METER switch to lp, pushed the
> SEND button and adjusted the BIAS control, but
> there was no reading at all. I then measured pin 5
> in in the finals and saw no voltages in STAND-BY
> or SEND position. The only deflection on the TS
> meter is in HV in SEND position with voltages
> about 820 DVC.
>
> A correction to my first mail. I /do/ hear the t/r
> antenna relay when I key the transmitter.

>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
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> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and found
> none. If I may ask, did you measure the bias
> voltage at the final tube grids, pin 5, and that
> is where you found no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my
> TS830s. In SEND position there is no
> deflection on the meter and no noise from the
> t/r relay. The heater and SG switch are
> naturally on.
>
> I checked R15 in the rectifier, and it was
> okay. So were the cathode and plate resistors
> in the final unit. I then checked the bias and
> found no bias at all. Adjusting the the BIAS
> control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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> This email is free from viruses and malware because avast! Antivirus
> <http://www.avast.com/> protection is active.
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46308. AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 05:49:42 UTC
From: <jason.bogstie@...>
Topic: 6938 Message: 46308

Hi, guys.

I am pretty new still to the HF stuff, so I apologize for the quality of questions I have been asking recently.

I have an AT-230 and I was wondering if it is considered a 'balanced tuner'? I tried reading the manual, and it isn't clear to me. What I am trying to do is run ladder line from my dipole into the tuner and I am wondering if I need a balun or if this tuner will be okay without one? Can I use banana clips to clip each end of the ladder line to the antenna connector in the back?

Thank You,

Jason - K7BOG

46309. Fwd: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 13:21:38 UTC
From: Mike
Topic: 46309 Message: 46309

Yahoo had a hiccup this morning so this message is being resent so it appears on the group's server.

73
Mike W5RKL

-------- Original Message --------
Subject: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
Date: Tue, 10 Dec 2013 07:19:29 -0600
From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com

I said to connect the analog DC volt meter "RED" lead to the "FG" terminal and the final tube socket pin 5 and "BLACK" lead to the chassis. Reverse the lead connections I mentioned, meaning RED lead to the chassis and the BLACK lead to the FG terminal and final tube socket pin 5.

A VTVM is best suited for the bias volt test I mentioned, it has a "negative" DC voltage measurement setting. If you have an analog VTVM, use it and set the switch to DC voltage measurement switch setting to measure "Negative" voltage then connect the leads as I said in my initial response this morning. However, if all you have is a simple analog DC volt meter then connect the meter leads as I said above, BLACK lead to the FG and pin 5 socket terminals and RED to the chassis.

73
Mike W5RKL

On 12/10/2013 6:55 AM, Mike wrote:
>
> Peter,
>
> It appears the bias pot is the source of instability when setting the
> 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled down to zero
> before you attempt any of the following checks and cleaning steps.
>
> Before you perform the following cleaning and testing process,
> thoroughly check the Final Unit's Cathode and Screen resistors. If
> there is evidence the resistors are damaged (overheated) or any of the
> resistors are out of tolerance, replace all of them. For example, if
> you find 2 of the 4 cathode resistors have overheated, replace all 4
> of them with new resistors. The same for the screen resistors, if one

> if bad or out of tolerance then replace both with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner. Exercise the pot
> throughout it's travel, many times, during the cleaning process. I use
> DeoXit F5 Fader cleaner for pots then I use canned air to remove all
> cleaner residue and any dirt from the pot. I then test the pot using
> an ohm meter connected between the pot's wiper (center terminal) and
> any of the outside terminals. I rotate the pot slowly watching the ohm
> meter to see if any position results in erratic behavior. If I see
> erratic behavior I clean the pot again, thoroughly then retest the
> pot. Once the pot exhibits smooth resistance changes I consider the
> pot clean.
>
> Remove the Driver and both Final tubes and make sure the plate caps
> cannot touch anything or short to the chassis etc.
>
> You should use an analog DC volt meter for the following test. The
> meter should have a low voltage setting of approximately 200 to
> 250VDC. Set the meter to either low voltage setting, which ever your
> analog meter has.
>
> Connect the analog DC volt meter to the Final Unit's "FG" terminal and
> ground (RED lead to FG terminal and BLACK lead to the Chassis). With
> you finger on the main power switch, power up the 830. If you see
> smoke or hear unusual sounds turn the 830 off immediately and find
> what is causing the smoke and/or unusual sounds and eliminate the
> problem before proceeding. If there is no smoke and no unusual sounds,
> continue on to the next step.
>
> Set the mode switch to USB or LSB and set the SEND switch UP. Again,
> any unusual sounds or you see smoke, unkey the 830 and turn it off
> immediate. If all is okay so far then adjust the bias pot while
> watching the analog DC volt meter. The meter indication should rise
> and fall, depending on the direction you are rotating the bias pot
> indicating a smooth change in voltage as you rotate the bias pot. If
> this occurs, move the analog DC volt meter RED lead to pin 5 on the
> final tube socket foil side of the Final Unit PC board and repeat the
> bias pot adjustment, watching the meter closely, especially noting the
> volt meter movement at the low negative level of bias voltage, i.e.,
> around the -50 to -70 VDC range. You should see the same results, a
> smooth increase and decrease of the bias voltage. If this test
> indicates a smooth change in bias voltage, no instability in the bias
> pot voltage indicated on your analog DC volt meter, then the bias
> circuit is working properly. The test results should be achieved using
> the analog DC volt meter connected to the AF Unit's "FG" terminal. The
> AF Unit and Final Unit "FG" terminals are connected together with a
> wire in the wiring harness. You can see this on the 830 schematic.
>
> Do not reuse the same 6146 tubes, obtain known good 6146Bs.
>

> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>>
>> Mike,
>>
>> After replacing R11 I had 264 DVC on the RF unit terminal, on
>> terminals 210A and 210B on the rectifier and on SG on the final unit.
>> After some time I managed to get 60 mA idle current and started
>> tuning up. The transmitter seemed somewhat unstable, and the panel
>> meter would not zero in STAND-BY. A scary noise was suddenly heard,
>> whereupon the finals turned deadly red and the fuse on the rear blew.
>> When I replaced the fuse and turned on the radio again, smoke came
>> from somewhere between the AF and the RF unit. End of today.
>>
>> Good night and good luck.
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
>> *Sendt:* 9. december 2013 19:57
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> You also might check the RF Unit's voltage divider resistors, R36
>> (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some
>> times changed to "hot rod" the hybrids. I wasn't aware those
>> resistors were changed to "hot rod" the hybrids so check them.
>>
>> Also, check the final unit's R7 and R8, both 100 ohms. They are the
>> final unit's "screen resistors". If they both measure within
>> tolerance you do NOT have to replace them!!!!
>>
>> Let me know what you find when checking R36 and R37 on the RF unit
>> and R7 and R8 on the Final Unit board. Also let me know if you can

>> tune your 830 up to full power into your dummy load.
>>
>> 73
>> Mike W5RKL
>>
>>
>> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> I have rechecked the voltages on the rectifier. On terminal 210A
>> there are zero VDC, and on terminal 210B there are 264 DVC. If I
>> bypass the open R11, I get 263 DVC on terminal 210A. No wonder
>> that I see no voltages on plug 9, pin 2 on the RF unit.
>>
>> Time to replace the open R11?
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
>> *Sendt:* 9. december 2013 15:16
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> You say that R11 is OPEN. Okay that will result in 210A voltage
>> to be "0VDC" just as I said it would.
>>
>> I said you should recheck your voltages on the Rectifier Unit's
>> 210A and 210B terminals, it appeared you had them "backwards".
>> Once you found R11 was open, did you recheck the 210A and 210B
>> voltages as I asked you do to? Since you say R11 is "open" then,
>> as I indicated above, the voltage on the Rectifier Unit's "210A"
>> terminal is "0VDC". You initially said the voltage on the
>> Rectifier Unit's "210B" terminal was "0VDC" which I didn't
>> believe you and so I asked you to recheck your voltages. What is
>> the voltage on the Rectifier Unit's "210B" terminal?
>>
>> 73
>> Mike W5RKL
>>
>>

>>
>>
>>
>> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> Thanks to your patience and conscise instruction I found the
>> culprit: R11 is open. I checked all the other diodes on the
>> rectifier board, including the D6 you mentioned, and they are
>> all ok.
>>
>> I have a new 470 ohms 1W resistor to replace the bad one, but
>> before doing so I should like to know what made R11 open.
>> What else to check before firing up my TS830S?
>>
>> Once again thanks for your help. It is outstanding.
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
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>> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> You measured +263VDC at 210A but zero VDC at 210B? That
>> doesn't make sense. I think you have the voltage measurements
>> at the Rectifier Unit's 210A and 210B "backwards". I think
>> the Rectifier Unit's "210A" terminal voltage is "0VDC" and
>> the Rectifier Unit's "210B" terminal voltage is "+263VDC".
>> You need to "recheck" the voltages on the Rectifier Unit's
>> "210A" and "210B" terminals.
>>
>> You also did not comment on the condition of "R11" (470 ohm)
>> on the Rectifier Unit I asked you to do. Did you visual
>> inspect R11? Did you measure the resistance of R11? If R11 is
>> "open" then the Rectifier Unit's "210A" terminal voltage will
>> be "0VDC" which will results in 0VDC on the RF Unit plug 9
>> pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's
>> "SG" terminal and the final tube's screen, pin 3.
>>

>> Are you using the TS-830 schematic to troubleshoot this
>> problem? You need to do that.
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>>
>>
>> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> There is no voltage on RF unit plug 9 pin2 (210A). On
>> 210A on the rectifier there are 263 DVC, but zero on
>> 210B, so where does that leave us?
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af
>> *Mike
>> *Sendt:* 8. december 2013 23:41
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> The Rectifier Unit's HV supply is a "Voltage Doubling"
>> supply. Therefore, you will not see 800VAC on the
>> transformer's "800AC" terminal. I recommend you spend
>> some time studying how voltage doubling supplies work.
>> The ARRL handbook has a section that covers different
>> types of power supplies, including voltage doubling supplies.
>>
>> Your problem does not appear to be a bias problem but
>> rather a loss of screen voltage to the driver and both
>> final tubes.
>>
>> Loss of screen voltage to the driver and both final tubes
>> will shut those tubes "down", no conduction in the tubes
>> will occur. That means you will not see any drive from
>> the driver tube to the final amplifier, no final tube IP

>> current indication of any kind in any mode, and the final
>> amplifier's cathode voltage will be zero.
>>
>> The reason the final tube cathode voltage is zero is
>> simply because there is no current flowing in the final
>> tubes. This is part of vacuum tube theory which is
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>> best or you can study the same theory in John T. Fryes,
>> Basic Radio Course which is available in CD form from a
>> seller on eBay.
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>> Since you have already checked the final tube's screens
>> for voltage and found it to be zero, now check the RF
>> Unit plug 9 pin 2 (210A). This is the driver tube's
>> screen voltage from the Rectifier Unit's 210A source. If
>> voltage is zero at RF Unit plug 9 pin 2, is zero check
>> the Rectifier Unit's "210A" and "210B" supply outputs.
>> If voltage at 210A "and" 210B are zero, check Rectifier
>> Unit diode D6, it's most likely "open" resulting in zero
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>> Peter,
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>> Have you checked/measured the bias voltage at the
>> Rectifier Unit's "-C" terminal?
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>> SEND button and adjusted the BIAS control, but
>> there was no reading at all. I then measured pin
>> 5 in in the finals and saw no voltages in
>> STAND-BY or SEND position. The only deflection on
>> the TS meter is in HV in SEND position with
>> voltages about 820 DVC.
>>
>> A correction to my first mail. I /do/ hear the
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>>
>> 73 Peter, OZ8CTH
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>> *Sendt:* 8. december 2013 15:24
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> You said you checked for bias voltage and found
>> none. If I may ask, did you measure the bias
>> voltage at the final tube grids, pin 5, and that
>> is where you found no bias voltage?
>>
>>
>> 73
>> Mike W5RKL
>>
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>>
>> On 12/8/2013 2:15 AM, ravnpeter@...
>> <mailto:ravnpeter@...> wrote:
>>
>> There is no current in TUNE position on my
>> TS830s. In SEND position there is no
>> deflection on the meter and no noise from the
>> t/r relay. The heater and SG switch are
>> naturally on.
>>
>> I checked R15 in the rectifier, and it was
>> okay. So were the cathode and plate resistors
>> in the final unit. I then checked the bias
>> and found no bias at all. Adjusting the the
>> BIAS control had no effect.
>>
>> Any advice will be appreciated.
>> Thanks.
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>> Peter, OZ8CTH
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>> <http://www.avast.com/>
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>> This email is free from viruses and malware because avast! Antivirus
>> <http://www.avast.com/> protection is active.
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46310. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 13:39:28 UTC
From: Mike
Topic: 6938 Message: 46310

Jason,

The Kenwood AT-230 is not a "balanced tuner". The AT-230 is designed to work with both "wire" antennas such as long wire and inverted L type antennas, as well as unbalanced "coax" fed antennas.

When the AT-230 is used with a "long wire" or "inverted L" antenna connected to antenna "3" on the rear panel, a good ground counter poise is required (see the AT-230's manual, page 8).

73
Mike W5RKL

On 12/9/2013 11:49 PM, jason.bogstie@... wrote:
> Hi, guys.
>
>
> I am pretty new still to the HF stuff, so I apologize for the quality
> of questions I have been asking recently.
>
> I have an AT-230 and I was wondering if it is considered a 'balanced
> tuner'? I tried reading the manual, and it isn't clear to me. What I
> am trying to do is run ladder line from my dipole into the tuner and I
> am wondering if I need a balun or if this tuner will be okay without
> one? Can I use banana clips to clip each end of the ladder line to the
> antenna connector in the back?
>
> Thank You,
>
> Jason - K7BOG
>

46311. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 14:04:23 UTC
From: Craig Roberts
Topic: 6938 Message: 46311

Hi Jason,

The At-230 is NOT a balanced tuner, although I did use mine for a time on my ladder line fed doublet with a 4:1 balun at the output of the tuner. Results were okay, but a 1:1 match was difficult if not impossible on many frequencies. Still, it worked after a fashion on 40, 20 and 17 meters.

I now use a homebrew "Balanced Balanced Antenna Tuner" designed by Rich Measures that utilizes a choke balun at its INPUT, a pair of matched roller inductors and a 250 pF variable cap. It employs just two controls and matches my 55 foot doublet perfectly on almost all frequencies 40 -10 meters. My AT-230 is still in line in bypass mode simply to utilize its SWR bridge and dummy load switch position -- and to keep my Kenwood lineup symmetrical :-).

If you are an ARRL member, you can download Rich Measures' original article from their online QST archives. It's also in Joel Hallas' book on antenna tuners from ARRL. (Nice book and good guy). The article is online elsewhere without illustrations. Just Google "Balanced Balanced Antenna Tuner." If you'd like, I can send you photos of my version and some more information on construction. It's very simple to build and very effective. I found the bits for it on eBay and at McMaster Carr for a total cost of about $75.00. The Palstar equivalent is literally ten times that much. (It is a lot prettier, though). Then there's a guy in the Netherlands who builds exquisitely crafted balanced tuners utilizing the very same circuit for around $1,800!

I like mine.

73,

Craig
W3CRR

46312. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 17:31:27 UTC
From: <hanson1448@...>
Topic: 6938 Message: 46312

I have the AT230, and use a 135'dipole, fed with ladder-line, (450 ohm window line), into a 4-1 balun...and have for abt 10 years. I get close to 1 to 1 SWR on 80, 40,30, 20...and less than 2-1 on 10 and 160. It works well with my 520, 830, 820, and my ts950.

de ke1lg
Steve in Maine

46313. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 16:56:34 UTC
From: <jason.bogstie@...>
Topic: 6938 Message: 46313

Craig,

I found that article. I am very interested in building this. If you have more information please send it my way!

Thank You!

Jason - K7BOG (k7bog@arrl.net)

46314. SV: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 18:03:45 UTC
From: Peter Ravn
Topic: 46257 Message: 46314

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms,
R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either,
so there was no need to replace them. But the screen resistors looked
somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I
carefully inspected the board and found no smoking gun. Finally I cleaned
the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you
mention. After a careful cleaning the pot now shows smooth change of
resistance when rotated. The resistance is now also identical on both
terminals.

I opened the final cage and removed the final tubes. In the cage there was
no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of
overheating.

This is status until now. I will continue the troubleshooting as soon as I
find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma
idling current.

Unplug the main power, make sure the HV caps have bled down to zero before
you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly
check the Final Unit's Cathode and Screen resistors. If there is evidence
the resistors are damaged (overheated) or any of the resistors are out of
tolerance, replace all of them. For example, if you find 2 of the 4 cathode
resistors have overheated, replace all 4 of them with new resistors. The

same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@...m
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You

need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is

available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

46315. Re: SV: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 19:05:53 UTC
From: W5RKL
Topic: 46257 Message: 46315

Peter,

That's good to hear.

Let us know what happens when you power up the 830 (driver and both final tubes removed) and you monitor the final tube grid voltage, "FG" terminal on the Final Unit, with you DC volt meter (DC volt meter's BLACK lead to the FG terminal and RED lead to chassis and voltage switch set to 200VDC or higher) while adjusting the bias pot in transmit (USB or LSB mode).

73
Mike "Grid Leak" W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:
>
> Mike,
>
> I carefully followed your instructions, and this is what I have found:
>
> All four cathode resistors in the final unit are within specs: R2 22
> ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn't look
> overheated either, so there was no need to replace them. But the
> screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109
> ohms, so they were replaced. I carefully inspected the board and found
> no smoking gun. Finally I cleaned the board on both sides and
> replugged it.
>
> With my ohm meter I spotted the erratic behavior of the bias pot you
> mention. After a careful cleaning the pot now shows smooth change of
> resistance when rotated. The resistance is now also identical on both
> terminals.
>
> I opened the final cage and removed the final tubes. In the cage there
> was no sign of overheating. I also removed the driver tube.
>
> On the reticifier R11 survived the battle, but with clear traces of
> overheating.
>
> This is status until now. I will continue the troubleshooting as soon
> as I find time.
>
> 73
>
> Peter, OZ8CTH

>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 10. december 2013 13:55
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> It appears the bias pot is the source of instability when setting the
> 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled down to zero
> before you attempt any of the following checks and cleaning steps.
>
> Before you perform the following cleaning and testing process,
> thoroughly check the Final Unit's Cathode and Screen resistors. If
> there is evidence the resistors are damaged (overheated) or any of the
> resistors are out of tolerance, replace all of them. For example, if
> you find 2 of the 4 cathode resistors have overheated, replace all 4
> of them with new resistors. The same for the screen resistors, if one
> if bad or out of tolerance then replace both with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner. Exercise the pot
> throughout it's travel, many times, during the cleaning process. I use
> DeoXit F5 Fader cleaner for pots then I use canned air to remove all
> cleaner residue and any dirt from the pot. I then test the pot using
> an ohm meter connected between the pot's wiper (center terminal) and
> any of the outside terminals. I rotate the pot slowly watching the ohm
> meter to see if any position results in erratic behavior. If I see
> erratic behavior I clean the pot again, thoroughly then retest the
> pot. Once the pot exhibits smooth resistance changes I consider the
> pot clean.
>
> Remove the Driver and both Final tubes and make sure the plate caps
> cannot touch anything or short to the chassis etc.
>
> You should use an analog DC volt meter for the following test. The
> meter should have a low voltage setting of approximately 200 to
> 250VDC. Set the meter to either low voltage setting, which ever your
> analog meter has.
>
> Connect the analog DC volt meter to the Final Unit's "FG" terminal and
> ground (RED lead to FG terminal and BLACK lead to the Chassis). With
> you finger on the main power switch, power up the 830. If you see
> smoke or hear unusual sounds turn the 830 off immediately and find
> what is causing the smoke and/or unusual sounds and eliminate the
> problem before proceeding. If there is no smoke and no unusual sounds,

> continue on to the next step.
>
> Set the mode switch to USB or LSB and set the SEND switch UP. Again,
> any unusual sounds or you see smoke, unkey the 830 and turn it off
> immediate. If all is okay so far then adjust the bias pot while
> watching the analog DC volt meter. The meter indication should rise
> and fall, depending on the direction you are rotating the bias pot
> indicating a smooth change in voltage as you rotate the bias pot. If
> this occurs, move the analog DC volt meter RED lead to pin 5 on the
> final tube socket foil side of the Final Unit PC board and repeat the
> bias pot adjustment, watching the meter closely, especially noting the
> volt meter movement at the low negative level of bias voltage, i.e.,
> around the -50 to -70 VDC range. You should see the same results, a
> smooth increase and decrease of the bias voltage. If this test
> indicates a smooth change in bias voltage, no instability in the bias
> pot voltage indicated on your analog DC volt meter, then the bias
> circuit is working properly. The test results should be achieved using
> the analog DC volt meter connected to the AF Unit's "FG" terminal. The
> AF Unit and Final Unit "FG" terminals are connected together with a
> wire in the wiring harness. You can see this on the 830 schematic.
>
> Do not reuse the same 6146 tubes, obtain known good 6146Bs.
>
> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit terminal, on
> terminals 210A and 210B on the rectifier and on SG on the final
> unit. After some time I managed to get 60 mA idle current and
> started tuning up. The transmitter seemed somewhat unstable, and
> the panel meter would not zero in STAND-BY. A scary noise was
> suddenly heard, whereupon the finals turned deadly red and the
> fuse on the rear blew. When I replaced the fuse and turned on the
> radio again, smoke came from somewhere between the AF and the RF
> unit. End of today.
>
> Good night and good luck.
>
> 73
>

> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You also might check the RF Unit's voltage divider resistors, R36
> (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are
> some times changed to "hot rod" the hybrids. I wasn't aware those
> resistors were changed to "hot rod" the hybrids so check them.
>
> Also, check the final unit's R7 and R8, both 100 ohms. They are
> the final unit's "screen resistors". If they both measure within
> tolerance you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and R37 on the RF unit
> and R7 and R8 on the Final Unit board. Also let me know if you can
> tune your 830 up to full power into your dummy load.
>
> 73
> Mike W5RKL
>
>
>
> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the rectifier. On terminal
> 210A there are zero VDC, and on terminal 210B there are 264
> DVC. If I bypass the open R11, I get 263 DVC on terminal 210A.
> No wonder that I see no voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike

> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will result in 210A
> voltage to be "0VDC" just as I said it would.
>
> I said you should recheck your voltages on the Rectifier
> Unit's 210A and 210B terminals, it appeared you had them
> "backwards". Once you found R11 was open, did you recheck the
> 210A and 210B voltages as I asked you do to? Since you say R11
> is "open" then, as I indicated above, the voltage on the
> Rectifier Unit's "210A" terminal is "0VDC". You initially said
> the voltage on the Rectifier Unit's "210B" terminal was "0VDC"
> which I didn't believe you and so I asked you to recheck your
> voltages. What is the voltage on the Rectifier Unit's "210B"
> terminal?
>
> 73
> Mike W5RKL
>
>
>
>
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>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>
> Thanks to your patience and conscise instruction I found
> the culprit: R11 is open. I checked all the other diodes
> on the rectifier board, including the D6 you mentioned,
> and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad one,
> but before doing so I should like to know what made R11
> open. What else to check before firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
>
> Peter, OZ8CTH
>

> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You measured +263VDC at 210A but zero VDC at 210B? That
> doesn't make sense. I think you have the voltage
> measurements at the Rectifier Unit's 210A and 210B
> "backwards". I think the Rectifier Unit's "210A" terminal
> voltage is "0VDC" and the Rectifier Unit's "210B" terminal
> voltage is "+263VDC". You need to "recheck" the voltages
> on the Rectifier Unit's "210A" and "210B" terminals.
>
> You also did not comment on the condition of "R11" (470
> ohm) on the Rectifier Unit I asked you to do. Did you
> visual inspect R11? Did you measure the resistance of R11?
> If R11 is "open" then the Rectifier Unit's "210A" terminal
> voltage will be "0VDC" which will results in 0VDC on the
> RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and
> the Final Unit's "SG" terminal and the final tube's
> screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot this
> problem? You need to do that.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9 pin2 (210A). On
> 210A on the rectifier there are 263 DVC, but zero on
> 210B, so where does that leave us?
>
> 73
>

> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> The Rectifier Unit's HV supply is a "Voltage Doubling"
> supply. Therefore, you will not see 800VAC on the
> transformer's "800AC" terminal. I recommend you spend
> some time studying how voltage doubling supplies work.
> The ARRL handbook has a section that covers different
> types of power supplies, including voltage doubling
> supplies.
>
> Your problem does not appear to be a bias problem but
> rather a loss of screen voltage to the driver and both
> final tubes.
>
> Loss of screen voltage to the driver and both final
> tubes will shut those tubes "down", no conduction in
> the tubes will occur. That means you will not see any
> drive from the driver tube to the final amplifier, no
> final tube IP current indication of any kind in any
> mode, and the final amplifier's cathode voltage will
> be zero.
>
> The reason the final tube cathode voltage is zero is
> simply because there is no current flowing in the
> final tubes. This is part of vacuum tube theory which
> is discussed in the ARRL handbook, early editions are
> the best or you can study the same theory in John T.
> Fryes, Basic Radio Course which is available in CD
> form from a seller on eBay.
>
> Since you have already checked the final tube's
> screens for voltage and found it to be zero, now check
> the RF Unit plug 9 pin 2 (210A). This is the driver
> tube's screen voltage from the Rectifier Unit's 210A
> source. If voltage is zero at RF Unit plug 9 pin 2, is
> zero check the Rectifier Unit's "210A" and "210B"
> supply outputs. If voltage at 210A "and" 210B are

> zero, check Rectifier Unit diode D6, it's most likely
> "open" resulting in zero voltage at 210A and 210B,
> hence zero screen voltage to the driver and both final
> tubes. Visually inspect R11, 470 ohm resistor on the
> Rectifier Unit. Resistor R11 is physically located on
> the Rectifier Unit but R11 is connected between the
> positive terminals of C180 and C181 which are on the
> IF Unit.
>
> If D6 is open, check C180 and C181, both are 22ufd
> 350VDC "Radial lead" capacitors on the IF unit, they
> are the filter capacitors for the Rectifier Unit's
> 210A and 210B supply, one or both could be shorted
> which would take out D6 resulting in zero Rectifier
> Unit 210A and 210B voltage, hence no screen voltage to
> the driver and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
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>
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>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>
> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no voltages on
> TUNE, SG1, SG2, PD1 and PD2. On AC800 there are
> only 324 VAC instead of 800 VAC. Voltages on all
> other terminals on the rectifier board are ok,
> including the bias voltage which is -- 110 DVC.
> R15 was checked and found ok. The preliminary
> conclusion is that the finals are getting no
> screen voltage from the rectifier.
>
> In TUNE/SEND the panel meter shows 900 DVC.
>
> When the HEATER is switched on, the filaments in
> the finals come alive. Voltages on the filaments
> are according to specs. There are -- 103 DVC on
> the grids (pins 5), and with the bias
> potentiometer on the rear the voltages can be
> adjusted from -- 93 to -103 VDC. So this part
> seems to work . But there are no voltages on the

> screen or on the cathode. Screen and cathode
> resistors were checked and found ok, so the
> problem must be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830] TS830S no bias
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>
> Mike,
>
> A new careful measurement gave another result. On
> the rectifier there are -- 109 DVC in STAND-BY and
> -- 107 DVC in TUNE. On pins 5 of the final unit
> there are -- 96 DVC in STAND-BY and -- 57 DVC in
> TUNE. So apparently there is a loss, but not a
> complete loss of bias voltage, which might prove
> fatal.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>

> Loss of bias voltage to the final tubes will
> result in the final tubes conducting to saturation
> levels even in receive. Loss of bias voltage to
> the final tubes may have permanently damaged your
> final tubes.
>
> Have you checked/measured the bias voltage at the
> Rectifier Unit's "-C" terminal?
>
> I recommend you troubleshoot the bias supply from
> the Rectifier Unit "-C" to the final tubes to find
> where the loss of bias voltage is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>
> I followed the standard procedure. I turned
> the POWER and HEATER switches on, placed the
> MODE switch to SSB, the METER switch to lp,
> pushed the SEND button and adjusted the BIAS
> control, but there was no reading at all. I
> then measured pin 5 in in the finals and saw
> no voltages in STAND-BY or SEND position. The
> only deflection on the TS meter is in HV in
> SEND position with voltages about 820 DVC.
>
> A correction to my first mail. I /do/ hear the
> t/r antenna relay when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and
> found none. If I may ask, did you measure the

> bias voltage at the final tube grids, pin 5,
> and that is where you found no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my
> TS830s. In SEND position there is no
> deflection on the meter and no noise from
> the t/r relay. The heater and SG switch
> are naturally on.
>
> I checked R15 in the rectifier, and it was
> okay. So were the cathode and plate
> resistors in the final unit. I then
> checked the bias and found no bias at all.
> Adjusting the the BIAS control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
>
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> <http://www.avast.com/>
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46316. Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 19:16:25 UTC
From: n8nma@...
Topic: 46316 Message: 46316

Well got the digital readout working. Seems one of the pins on the digital readout board was loose. Now there is no drive level and so no output. Any idea where to start. Tried a new 12by7a and that did nothing.

Thanks

Tom Jones N8NMA

Sent from my iPad

46317. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 20:56:28 UTC
From: John Davidson
Topic: 6938 Message: 46317

Hi Steve, the Best "Balanced tuner" I have seen (and I bought one) is the MFJ 974. The old Johnson matchbox tuners were also good but are now collectors items and pricey. Many tuners that have a "balanced" input have a fixed ratio balun transformer inside and that is not my Idea of vertatile for a variety of X and Z that you may have at the end of your feedline.
My 974 has a better way of working with the balanced feedline tuning. I put up a 90 ft dipole as an experiment and still use it over a year later on 60, 40, 30 and 20M with good signal reports.

On Tuesday, December 10, 2013 12:37 PM, "hanson1448@..." <hanson1448@roadrunner.com> wrote:

I have the AT230, and use a 135'dipole, fed with ladder-line, (450 ohm window line), into a 4-1 balun...and have for abt 10 years. I get close to 1 to 1 SWR on 80, 40,30, 20...and less than 2-1 on 10 and 160. It works well with my 520, 830, 820, and my ts950.

de ke1lg
Steve in Maine

46318. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-10 21:54:02 UTC
From: KB1TCD
Topic: 6938 Message: 46318

I just built a 135' Off Center Dipole w/a 4:1 balun.
It works fine on 80, 40, 20, 17, 15, 12, 10 and 6m without a tuner.
Your dipole should work fine w/o a tuner.
Also use a G5RV Jr on 40, 20, 17, 15, 12, 10 and 6m again w/o a tuner.
The trick is to keep antennas way away from the shack, as in 100 feet or
more away.
The amt of coax I use is obviously making a diff as well.
Since a tuner doesn't actually tune anything, just fakes out your radio, and
if using a hybrid you "tune" the radio anyway, I do not use tuners.

73 from Maine de Jose KB1TCD

On 12/10/2013 12:31 PM, hanson1448@... wrote:
>
> I have the AT230, and use a 135'dipole, fed with ladder-line, (450 ohm
> window line), into a 4-1 balun...and have for abt 10 years. I get
> close to 1 to 1 SWR on 80, 40,30, 20...and less than 2-1 on 10 and
> 160. It works well with my 520, 830, 820, and my ts950.
>
> de ke1lg
>
> Steve in Maine
>

46319. Kenwood R-2000 Paint Color

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 05:13:14 UTC
From: kd8hmo_us
Topic: 46319 Message: 46319

Anyone know where I can find matching paint for the covers on my R-2000? Its different from my other Kenwoods. I havnt seen any references to paint for it on the net so far...

Thanks

46320. Re: [TS-520_820_530_830] Kenwood R-2000 Paint Color

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 11:10:56 UTC
From: W5RKL
Topic: 46319 Message: 46320

You can take the cabinet/top to a local paint store and could possibly
use their computer and come up with the color mix for you.

73
Mike W5RKL

On 12/10/2013 11:13 PM, kd8hmo_us wrote:
>
> Anyone know where I can find matching paint for the covers on my
> R-2000? Its different from my other Kenwoods. I havnt seen any
> references to paint for it on the net so far...
>
> Thanks
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46321. RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 14:42:26 UTC
From: <wagstw46@...>
Topic: 46316 Message: 46321

Tom:

I did not see a response to your TS820 issues? If someone is working with you on this problem let me know as you dont need too many cooks.

Couple of clarifying points:
1. By No Drive am I correct in assuming you have no ALC meter indication in Tune mode when you are adjusting the Drive Control and this is true for all bands?
2. By No RF Output power am I correct in assuming you see nothing with the panel meter in the RF relative power position or on an external Wattmeter?
3. Did the radio previously load properly? Did you have good ALC indication?
4. I assume you are experienced at loading the TS820?

With no ALC indication and no RF output it would appear that it is not just an ALC indication problem. It is possible to have no ALC indication and still have good RF output, but that does not occur often.

Try this:

1. Power and heaters on.
2. SG switch off
3. Meter in ALC, VFO approx 200, Drive control 1200
4. CAR level pot full CW
5. Tune mode
6. Flip to Send and adjust the Drive Control for a peak in ALC indication. If no indication then try in CW mode. If meter pegs full scale at any time simply reduce the CAR Level pot to get it off the peg. Adjust the Drive control thru its range and not just around 1200.
7. Perform this test on all bands.
8. Good rig should produce full scale ALC indication with CAR Level pot advanced below 1200 or position 5.

For good ALC indication (RF drive) you need couple of things:
1. 6146 tubes with good filaments and heater power on so you have cathode emission.
2. RF voltage swing at the control grids of 6146 finals that is in excess of the operating bias offset voltage. For a TS-820 that is approx 47rms rf volts at Pin 5.

Do you have an RF probe and VTVM? If not, then an O-scope? Needed to troubleshoot loss of RF drive. With either of these instruments and the TX Level Diagram relatively easy to find where RF drive is weak or missing.

Terry K9TW

46322. Re: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 16:01:47 UTC
From: Mike
Topic: 46257 Message: 46322

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then

install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:
>
> Mike,
>
> I carefully followed your instructions, and this is what I have found:
>
> All four cathode resistors in the final unit are within specs: R2 22
> ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn't look
> overheated either, so there was no need to replace them. But the
> screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109
> ohms, so they were replaced. I carefully inspected the board and found
> no smoking gun. Finally I cleaned the board on both sides and
> replugged it.
>
> With my ohm meter I spotted the erratic behavior of the bias pot you
> mention. After a careful cleaning the pot now shows smooth change of
> resistance when rotated. The resistance is now also identical on both

> terminals.
>
> I opened the final cage and removed the final tubes. In the cage there
> was no sign of overheating. I also removed the driver tube.
>
> On the reticifier R11 survived the battle, but with clear traces of
> overheating.
>
> This is status until now. I will continue the troubleshooting as soon
> as I find time.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 10. december 2013 13:55
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> It appears the bias pot is the source of instability when setting the
> 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled down to zero
> before you attempt any of the following checks and cleaning steps.
>
> Before you perform the following cleaning and testing process,
> thoroughly check the Final Unit's Cathode and Screen resistors. If
> there is evidence the resistors are damaged (overheated) or any of the
> resistors are out of tolerance, replace all of them. For example, if
> you find 2 of the 4 cathode resistors have overheated, replace all 4
> of them with new resistors. The same for the screen resistors, if one
> if bad or out of tolerance then replace both with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner. Exercise the pot
> throughout it's travel, many times, during the cleaning process. I use
> DeoXit F5 Fader cleaner for pots then I use canned air to remove all
> cleaner residue and any dirt from the pot. I then test the pot using
> an ohm meter connected between the pot's wiper (center terminal) and
> any of the outside terminals. I rotate the pot slowly watching the ohm
> meter to see if any position results in erratic behavior. If I see
> erratic behavior I clean the pot again, thoroughly then retest the
> pot. Once the pot exhibits smooth resistance changes I consider the
> pot clean.
>

> Remove the Driver and both Final tubes and make sure the plate caps
> cannot touch anything or short to the chassis etc.
>
> You should use an analog DC volt meter for the following test. The
> meter should have a low voltage setting of approximately 200 to
> 250VDC. Set the meter to either low voltage setting, which ever your
> analog meter has.
>
> Connect the analog DC volt meter to the Final Unit's "FG" terminal and
> ground (RED lead to FG terminal and BLACK lead to the Chassis). With
> you finger on the main power switch, power up the 830. If you see
> smoke or hear unusual sounds turn the 830 off immediately and find
> what is causing the smoke and/or unusual sounds and eliminate the
> problem before proceeding. If there is no smoke and no unusual sounds,
> continue on to the next step.
>
> Set the mode switch to USB or LSB and set the SEND switch UP. Again,
> any unusual sounds or you see smoke, unkey the 830 and turn it off
> immediate. If all is okay so far then adjust the bias pot while
> watching the analog DC volt meter. The meter indication should rise
> and fall, depending on the direction you are rotating the bias pot
> indicating a smooth change in voltage as you rotate the bias pot. If
> this occurs, move the analog DC volt meter RED lead to pin 5 on the
> final tube socket foil side of the Final Unit PC board and repeat the
> bias pot adjustment, watching the meter closely, especially noting the
> volt meter movement at the low negative level of bias voltage, i.e.,
> around the -50 to -70 VDC range. You should see the same results, a
> smooth increase and decrease of the bias voltage. If this test
> indicates a smooth change in bias voltage, no instability in the bias
> pot voltage indicated on your analog DC volt meter, then the bias
> circuit is working properly. The test results should be achieved using
> the analog DC volt meter connected to the AF Unit's "FG" terminal. The
> AF Unit and Final Unit "FG" terminals are connected together with a
> wire in the wiring harness. You can see this on the 830 schematic.
>
> Do not reuse the same 6146 tubes, obtain known good 6146Bs.
>
> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>

> After replacing R11 I had 264 DVC on the RF unit terminal, on
> terminals 210A and 210B on the rectifier and on SG on the final
> unit. After some time I managed to get 60 mA idle current and
> started tuning up. The transmitter seemed somewhat unstable, and
> the panel meter would not zero in STAND-BY. A scary noise was
> suddenly heard, whereupon the finals turned deadly red and the
> fuse on the rear blew. When I replaced the fuse and turned on the
> radio again, smoke came from somewhere between the AF and the RF
> unit. End of today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You also might check the RF Unit's voltage divider resistors, R36
> (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are
> some times changed to "hot rod" the hybrids. I wasn't aware those
> resistors were changed to "hot rod" the hybrids so check them.
>
> Also, check the final unit's R7 and R8, both 100 ohms. They are
> the final unit's "screen resistors". If they both measure within
> tolerance you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and R37 on the RF unit
> and R7 and R8 on the Final Unit board. Also let me know if you can
> tune your 830 up to full power into your dummy load.
>
> 73
> Mike W5RKL
>
>
>
> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>

> I have rechecked the voltages on the rectifier. On terminal
> 210A there are zero VDC, and on terminal 210B there are 264
> DVC. If I bypass the open R11, I get 263 DVC on terminal 210A.
> No wonder that I see no voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will result in 210A
> voltage to be "0VDC" just as I said it would.
>
> I said you should recheck your voltages on the Rectifier
> Unit's 210A and 210B terminals, it appeared you had them
> "backwards". Once you found R11 was open, did you recheck the
> 210A and 210B voltages as I asked you do to? Since you say R11
> is "open" then, as I indicated above, the voltage on the
> Rectifier Unit's "210A" terminal is "0VDC". You initially said
> the voltage on the Rectifier Unit's "210B" terminal was "0VDC"
> which I didn't believe you and so I asked you to recheck your
> voltages. What is the voltage on the Rectifier Unit's "210B"
> terminal?
>
> 73
> Mike W5RKL
>
>
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>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>
> Thanks to your patience and conscise instruction I found

> the culprit: R11 is open. I checked all the other diodes
> on the rectifier board, including the D6 you mentioned,
> and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad one,
> but before doing so I should like to know what made R11
> open. What else to check before firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You measured +263VDC at 210A but zero VDC at 210B? That
> doesn't make sense. I think you have the voltage
> measurements at the Rectifier Unit's 210A and 210B
> "backwards". I think the Rectifier Unit's "210A" terminal
> voltage is "0VDC" and the Rectifier Unit's "210B" terminal
> voltage is "+263VDC". You need to "recheck" the voltages
> on the Rectifier Unit's "210A" and "210B" terminals.
>
> You also did not comment on the condition of "R11" (470
> ohm) on the Rectifier Unit I asked you to do. Did you
> visual inspect R11? Did you measure the resistance of R11?
> If R11 is "open" then the Rectifier Unit's "210A" terminal
> voltage will be "0VDC" which will results in 0VDC on the
> RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and
> the Final Unit's "SG" terminal and the final tube's
> screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot this
> problem? You need to do that.
>
> 73
> Mike W5RKL
>
>

>
>
>
>
> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9 pin2 (210A). On
> 210A on the rectifier there are 263 DVC, but zero on
> 210B, so where does that leave us?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> The Rectifier Unit's HV supply is a "Voltage Doubling"
> supply. Therefore, you will not see 800VAC on the
> transformer's "800AC" terminal. I recommend you spend
> some time studying how voltage doubling supplies work.
> The ARRL handbook has a section that covers different
> types of power supplies, including voltage doubling
> supplies.
>
> Your problem does not appear to be a bias problem but
> rather a loss of screen voltage to the driver and both
> final tubes.
>
> Loss of screen voltage to the driver and both final
> tubes will shut those tubes "down", no conduction in
> the tubes will occur. That means you will not see any
> drive from the driver tube to the final amplifier, no
> final tube IP current indication of any kind in any
> mode, and the final amplifier's cathode voltage will
> be zero.
>
> The reason the final tube cathode voltage is zero is

> simply because there is no current flowing in the
> final tubes. This is part of vacuum tube theory which
> is discussed in the ARRL handbook, early editions are
> the best or you can study the same theory in John T.
> Fryes, Basic Radio Course which is available in CD
> form from a seller on eBay.
>
> Since you have already checked the final tube's
> screens for voltage and found it to be zero, now check
> the RF Unit plug 9 pin 2 (210A). This is the driver
> tube's screen voltage from the Rectifier Unit's 210A
> source. If voltage is zero at RF Unit plug 9 pin 2, is
> zero check the Rectifier Unit's "210A" and "210B"
> supply outputs. If voltage at 210A "and" 210B are
> zero, check Rectifier Unit diode D6, it's most likely
> "open" resulting in zero voltage at 210A and 210B,
> hence zero screen voltage to the driver and both final
> tubes. Visually inspect R11, 470 ohm resistor on the
> Rectifier Unit. Resistor R11 is physically located on
> the Rectifier Unit but R11 is connected between the
> positive terminals of C180 and C181 which are on the
> IF Unit.
>
> If D6 is open, check C180 and C181, both are 22ufd
> 350VDC "Radial lead" capacitors on the IF unit, they
> are the filter capacitors for the Rectifier Unit's
> 210A and 210B supply, one or both could be shorted
> which would take out D6 resulting in zero Rectifier
> Unit 210A and 210B voltage, hence no screen voltage to
> the driver and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
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>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>
> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no voltages on
> TUNE, SG1, SG2, PD1 and PD2. On AC800 there are
> only 324 VAC instead of 800 VAC. Voltages on all
> other terminals on the rectifier board are ok,

> including the bias voltage which is -- 110 DVC.
> R15 was checked and found ok. The preliminary
> conclusion is that the finals are getting no
> screen voltage from the rectifier.
>
> In TUNE/SEND the panel meter shows 900 DVC.
>
> When the HEATER is switched on, the filaments in
> the finals come alive. Voltages on the filaments
> are according to specs. There are -- 103 DVC on
> the grids (pins 5), and with the bias
> potentiometer on the rear the voltages can be
> adjusted from -- 93 to -103 VDC. So this part
> seems to work . But there are no voltages on the
> screen or on the cathode. Screen and cathode
> resistors were checked and found ok, so the
> problem must be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830] TS830S no bias
>
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> Mike,
>
> A new careful measurement gave another result. On
> the rectifier there are -- 109 DVC in STAND-BY and
> -- 107 DVC in TUNE. On pins 5 of the final unit
> there are -- 96 DVC in STAND-BY and -- 57 DVC in
> TUNE. So apparently there is a loss, but not a
> complete loss of bias voltage, which might prove
> fatal.
>
> 73 Peter, OZ8CTH

>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> Loss of bias voltage to the final tubes will
> result in the final tubes conducting to saturation
> levels even in receive. Loss of bias voltage to
> the final tubes may have permanently damaged your
> final tubes.
>
> Have you checked/measured the bias voltage at the
> Rectifier Unit's "-C" terminal?
>
> I recommend you troubleshoot the bias supply from
> the Rectifier Unit "-C" to the final tubes to find
> where the loss of bias voltage is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>
> I followed the standard procedure. I turned
> the POWER and HEATER switches on, placed the
> MODE switch to SSB, the METER switch to lp,
> pushed the SEND button and adjusted the BIAS
> control, but there was no reading at all. I
> then measured pin 5 in in the finals and saw
> no voltages in STAND-BY or SEND position. The
> only deflection on the TS meter is in HV in
> SEND position with voltages about 820 DVC.
>
> A correction to my first mail. I /do/ hear the
> t/r antenna relay when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com

> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and
> found none. If I may ask, did you measure the
> bias voltage at the final tube grids, pin 5,
> and that is where you found no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
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>
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>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position on my
> TS830s. In SEND position there is no
> deflection on the meter and no noise from
> the t/r relay. The heater and SG switch
> are naturally on.
>
> I checked R15 in the rectifier, and it was
> okay. So were the cathode and plate
> resistors in the final unit. I then
> checked the bias and found no bias at all.
> Adjusting the the BIAS control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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> This email is free from viruses and malware because avast!
> Antivirus <http://www.avast.com/> protection is active.
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46323. SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 18:30:16 UTC
From: Peter Ravn
Topic: 46257 Message: 46323

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the

DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to

perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either, so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode

resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You

need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is

available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

46324. Re: [TS-520_820_530_830] AT-230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 19:40:28 UTC
From: <hanson1448@...>
Topic: 6938 Message: 46324

Jose...Mine is center-fed, with 450 ohm window line.

46325. Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 21:15:12 UTC
From: W5RKL
Topic: 46257 Message: 46325

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices, www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:
>
> Mike,
>
> This is what I found today. I rechecked the inside of the final
> amplifier and found no obvious signs of overheating. I measured the
> big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the
> small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of
> 470 uH. To be absolutely sure I repeated the measurement five or six
> times. So apparently L1 has gone bad and should be replaced. The thing
> is how to get it.
>
> In the RF unit I checked resistors R6 and R7, and they are ok. I also
> checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF,
> so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They
> should be 57 K and will be replaced together with the infamous R11,
> which suddenly looked overheated though not open.
>
> To be continued...
>
> 73
>
> Peter, OZ8CTH
>

> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 11. december 2013 17:02
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Hi Peter,
>
> You said you checked the inside the final amplifier. Did you visually
> inspect the 2 RF chokes in the final amplifier? There are 2, the large
> vertical choke between the 2 final tubes and small choke on the
> chassis near the final tube sockets, it looks like a resistor. It's on
> the top of the final amplifier section of the chassis.
>
> Also, do you have a known good pair of 6146Bs? I wouldn't trust the
> ones that were in the 830 when the smoke and RED plates occurred. If
> not then obtain a known good pair of 6146Bs to replace the old 6146Bs.
>
> I recommend you leave the driver and both finals out of the 830. Make
> sure the final plate caps can't touch/short to anything, then connect
> a DC volt meter's Black lead to the Final Unit's "FG" terminal and the
> meter's Red lead to the chassis. Set the DC volt meter to measure a
> minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the
> 830. If any abnormal noise are heard or you see smoke, turn the 830
> off immediately and locate the source of the noise/smoke and fix it
> before proceeding. If everything appears normal then flip the SEND
> switch UP and note the bias voltage on the DC volt meter. Rotate the
> bias pot either side of center rotation, you should see a smooth
> increase and decrease of the bias voltage. Unkey the transmitter.
>
> Repeat the test except this time you will be measuring the final
> tube's screen voltage on pin 5 of the final tube socket. You should
> see approximately +265VDC. The screen voltage will not change much, if
> at all, when you switch from receive to transmit then back to receive.
> This is because there are no final tubes in the final amplifier so
> screen current will flow in the screen circuit. Unkey the 830 and
> power the 830 OFF.
>
> If there are no problems encountered during the above test, proceed to
> the next test. However, as I said above, if there are any problems
> encountered do NOT proceed with the next test, determine the cause of
> the problem and fix it before you proceed.
>
> Set the SG switch to "OFF", power up the 830, and note the final tube
> screen voltage, pin 5 on the tube socket and "SG" terminal on the
> Final Unit. The voltage should be approximately "-100VDC" and the
> Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF
> and set the SG Switch to ON and repeat the final tube screen voltage

> check, it should be approximately +265VDC and Relay RL1 on the
> Rectifier Unit should NOT be energized.
>
> If those test/checks are good then power off the 830, let the HV
> filter capacitors bleed to zero (check HV caps with a DC volt meter)
> then install the driver and a pair of "known good" 6146Bs in the final
> amplifier.
>
> Set the SG switch to OFF, power up the 830, and set HEATER switch to
> ON. Allow about an minute for tube warm up. Look and listen for any
> abnormal noises and smoke. If you see and/or hear any smoke and/or
> abnormal noise, power the 830 OFF immediately and locate the source of
> the problem and fix it before you proceed.
>
> Set meter switch to ALC, CAR knob full CW, DRIVE control to 12
> o'clock, band switch to 7, and SEND Switch UP. Again, if any problems
> such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF
> immediately. If no problems occur, adjust the DRIVE control for a peak
> indication. If meter pegs full to the right, reduce the CAR Control
> CCW so the meter pointer is pointing at or near 12 o'clock and
> continue adjusting DRIVE control for a peak ALC meter indication.
> Again, if any problems occur, regardless of what those problems may
> be, unkey the transmitter immediately!! If the problems continues, you
> smell something getting hot or you see smoke, power the 830 OFF
> immediately and determine the cause of the problem and fix it before
> you proceed any further.
>
> Measure all final tube socket and Final Unit voltages on the "foil
> side" of the Final Amplifier Unit. Attempting to measure the final
> tube's screen and grid voltage through the top of the tube sockets can
> easily result in your hand/fingers and meter probes coming in contact
> with the HV on the RF choke and the plate cap parasitic suppressors.
> Use caution when measure DC voltage, as you know there are voltages in
> the 830 that can easily kill you so take your time and pay attention
> to what you are doing. Do not attempt to perform any of these
> test/voltage measurements when you are tired.
>
>
> 73
> Mike W5RKL
>
> On 12/10/2013 12:03 PM, Peter Ravn wrote:
>
> Mike,
>
> I carefully followed your instructions, and this is what I have found:
>
> All four cathode resistors in the final unit are within specs: R2
> 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn't look
> overheated either, so there was no need to replace them. But the

> screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109
> ohms, so they were replaced. I carefully inspected the board and
> found no smoking gun. Finally I cleaned the board on both sides
> and replugged it.
>
> With my ohm meter I spotted the erratic behavior of the bias pot
> you mention. After a careful cleaning the pot now shows smooth
> change of resistance when rotated. The resistance is now also
> identical on both terminals.
>
> I opened the final cage and removed the final tubes. In the cage
> there was no sign of overheating. I also removed the driver tube.
>
> On the reticifier R11 survived the battle, but with clear traces
> of overheating.
>
> This is status until now. I will continue the troubleshooting as
> soon as I find time.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 10. december 2013 13:55
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>
> It appears the bias pot is the source of instability when setting
> the 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled down to
> zero before you attempt any of the following checks and cleaning
> steps.
>
> Before you perform the following cleaning and testing process,
> thoroughly check the Final Unit's Cathode and Screen resistors. If
> there is evidence the resistors are damaged (overheated) or any of
> the resistors are out of tolerance, replace all of them. For
> example, if you find 2 of the 4 cathode resistors have overheated,
> replace all 4 of them with new resistors. The same for the screen
> resistors, if one if bad or out of tolerance then replace both

> with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner. Exercise the
> pot throughout it's travel, many times, during the cleaning
> process. I use DeoXit F5 Fader cleaner for pots then I use canned
> air to remove all cleaner residue and any dirt from the pot. I
> then test the pot using an ohm meter connected between the pot's
> wiper (center terminal) and any of the outside terminals. I rotate
> the pot slowly watching the ohm meter to see if any position
> results in erratic behavior. If I see erratic behavior I clean the
> pot again, thoroughly then retest the pot. Once the pot exhibits
> smooth resistance changes I consider the pot clean.
>
> Remove the Driver and both Final tubes and make sure the plate
> caps cannot touch anything or short to the chassis etc.
>
> You should use an analog DC volt meter for the following test. The
> meter should have a low voltage setting of approximately 200 to
> 250VDC. Set the meter to either low voltage setting, which ever
> your analog meter has.
>
> Connect the analog DC volt meter to the Final Unit's "FG" terminal
> and ground (RED lead to FG terminal and BLACK lead to the
> Chassis). With you finger on the main power switch, power up the
> 830. If you see smoke or hear unusual sounds turn the 830 off
> immediately and find what is causing the smoke and/or unusual
> sounds and eliminate the problem before proceeding. If there is no
> smoke and no unusual sounds, continue on to the next step.
>
> Set the mode switch to USB or LSB and set the SEND switch UP.
> Again, any unusual sounds or you see smoke, unkey the 830 and turn
> it off immediate. If all is okay so far then adjust the bias pot
> while watching the analog DC volt meter. The meter indication
> should rise and fall, depending on the direction you are rotating
> the bias pot indicating a smooth change in voltage as you rotate
> the bias pot. If this occurs, move the analog DC volt meter RED
> lead to pin 5 on the final tube socket foil side of the Final Unit
> PC board and repeat the bias pot adjustment, watching the meter
> closely, especially noting the volt meter movement at the low
> negative level of bias voltage, i.e., around the -50 to -70 VDC
> range. You should see the same results, a smooth increase and
> decrease of the bias voltage. If this test indicates a smooth
> change in bias voltage, no instability in the bias pot voltage
> indicated on your analog DC volt meter, then the bias circuit is
> working properly. The test results should be achieved using the
> analog DC volt meter connected to the AF Unit's "FG" terminal. The
> AF Unit and Final Unit "FG" terminals are connected together with
> a wire in the wiring harness. You can see this on the 830 schematic.
>
> Do not reuse the same 6146 tubes, obtain known good 6146Bs.

>
> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit terminal, on
> terminals 210A and 210B on the rectifier and on SG on the
> final unit. After some time I managed to get 60 mA idle
> current and started tuning up. The transmitter seemed somewhat
> unstable, and the panel meter would not zero in STAND-BY. A
> scary noise was suddenly heard, whereupon the finals turned
> deadly red and the fuse on the rear blew. When I replaced the
> fuse and turned on the radio again, smoke came from somewhere
> between the AF and the RF unit. End of today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>
> You also might check the RF Unit's voltage divider resistors,
> R36 (100K) and R37 (3.3K). Terry, K9TW, told me those
> resistors are some times changed to "hot rod" the hybrids. I
> wasn't aware those resistors were changed to "hot rod" the
> hybrids so check them.
>

> Also, check the final unit's R7 and R8, both 100 ohms. They
> are the final unit's "screen resistors". If they both measure
> within tolerance you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and R37 on the RF
> unit and R7 and R8 on the Final Unit board. Also let me know
> if you can tune your 830 up to full power into your dummy load.
>
> 73
> Mike W5RKL
>
>
>
>
> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the rectifier. On
> terminal 210A there are zero VDC, and on terminal 210B
> there are 264 DVC. If I bypass the open R11, I get 263 DVC
> on terminal 210A. No wonder that I see no voltages on plug
> 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will result in 210A
> voltage to be "0VDC" just as I said it would.
>
> I said you should recheck your voltages on the Rectifier
> Unit's 210A and 210B terminals, it appeared you had them
> "backwards". Once you found R11 was open, did you recheck
> the 210A and 210B voltages as I asked you do to? Since you

> say R11 is "open" then, as I indicated above, the voltage
> on the Rectifier Unit's "210A" terminal is "0VDC". You
> initially said the voltage on the Rectifier Unit's "210B"
> terminal was "0VDC" which I didn't believe you and so I
> asked you to recheck your voltages. What is the voltage on
> the Rectifier Unit's "210B" terminal?
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>
> Thanks to your patience and conscise instruction I
> found the culprit: R11 is open. I checked all the
> other diodes on the rectifier board, including the D6
> you mentioned, and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace the bad
> one, but before doing so I should like to know what
> made R11 open. What else to check before firing up my
> TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>

> You measured +263VDC at 210A but zero VDC at 210B?
> That doesn't make sense. I think you have the voltage
> measurements at the Rectifier Unit's 210A and 210B
> "backwards". I think the Rectifier Unit's "210A"
> terminal voltage is "0VDC" and the Rectifier Unit's
> "210B" terminal voltage is "+263VDC". You need to
> "recheck" the voltages on the Rectifier Unit's "210A"
> and "210B" terminals.
>
> You also did not comment on the condition of "R11"
> (470 ohm) on the Rectifier Unit I asked you to do. Did
> you visual inspect R11? Did you measure the resistance
> of R11? If R11 is "open" then the Rectifier Unit's
> "210A" terminal voltage will be "0VDC" which will
> results in 0VDC on the RF Unit plug 9 pin 2 (210A) and
> 0VDC on SG1, SG2, PD2, and the Final Unit's "SG"
> terminal and the final tube's screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot
> this problem? You need to do that.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9 pin2 (210A).
> On 210A on the rectifier there are 263 DVC, but
> zero on 210B, so where does that leave us?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no

> bias
>
>
>
> Peter,
>
> The Rectifier Unit's HV supply is a "Voltage
> Doubling" supply. Therefore, you will not see
> 800VAC on the transformer's "800AC" terminal. I
> recommend you spend some time studying how voltage
> doubling supplies work. The ARRL handbook has a
> section that covers different types of power
> supplies, including voltage doubling supplies.
>
> Your problem does not appear to be a bias problem
> but rather a loss of screen voltage to the driver
> and both final tubes.
>
> Loss of screen voltage to the driver and both
> final tubes will shut those tubes "down", no
> conduction in the tubes will occur. That means you
> will not see any drive from the driver tube to the
> final amplifier, no final tube IP current
> indication of any kind in any mode, and the final
> amplifier's cathode voltage will be zero.
>
> The reason the final tube cathode voltage is zero
> is simply because there is no current flowing in
> the final tubes. This is part of vacuum tube
> theory which is discussed in the ARRL handbook,
> early editions are the best or you can study the
> same theory in John T. Fryes, Basic Radio Course
> which is available in CD form from a seller on eBay.
>
> Since you have already checked the final tube's
> screens for voltage and found it to be zero, now
> check the RF Unit plug 9 pin 2 (210A). This is the
> driver tube's screen voltage from the Rectifier
> Unit's 210A source. If voltage is zero at RF Unit
> plug 9 pin 2, is zero check the Rectifier Unit's
> "210A" and "210B" supply outputs. If voltage at
> 210A "and" 210B are zero, check Rectifier Unit
> diode D6, it's most likely "open" resulting in
> zero voltage at 210A and 210B, hence zero screen
> voltage to the driver and both final tubes.
> Visually inspect R11, 470 ohm resistor on the
> Rectifier Unit. Resistor R11 is physically located
> on the Rectifier Unit but R11 is connected between
> the positive terminals of C180 and C181 which are
> on the IF Unit.

>
> If D6 is open, check C180 and C181, both are 22ufd
> 350VDC "Radial lead" capacitors on the IF unit,
> they are the filter capacitors for the Rectifier
> Unit's 210A and 210B supply, one or both could be
> shorted which would take out D6 resulting in zero
> Rectifier Unit 210A and 210B voltage, hence no
> screen voltage to the driver and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>
> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no voltages
> on TUNE, SG1, SG2, PD1 and PD2. On AC800 there
> are only 324 VAC instead of 800 VAC. Voltages
> on all other terminals on the rectifier board
> are ok, including the bias voltage which is --
> 110 DVC. R15 was checked and found ok. The
> preliminary conclusion is that the finals are
> getting no screen voltage from the rectifier.
>
> In TUNE/SEND the panel meter shows 900 DVC.
>
> When the HEATER is switched on, the filaments
> in the finals come alive. Voltages on the
> filaments are according to specs. There are --
> 103 DVC on the grids (pins 5), and with the
> bias potentiometer on the rear the voltages
> can be adjusted from -- 93 to -103 VDC. So
> this part seems to work . But there are no
> voltages on the screen or on the cathode.
> Screen and cathode resistors were checked and
> found ok, so the problem must be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH

>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830] TS830S no
> bias
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>
> Mike,
>
> A new careful measurement gave another result.
> On the rectifier there are -- 109 DVC in
> STAND-BY and -- 107 DVC in TUNE. On pins 5 of
> the final unit there are -- 96 DVC in STAND-BY
> and -- 57 DVC in TUNE. So apparently there is
> a loss, but not a complete loss of bias
> voltage, which might prove fatal.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>
> Loss of bias voltage to the final tubes will
> result in the final tubes conducting to
> saturation levels even in receive. Loss of
> bias voltage to the final tubes may have

> permanently damaged your final tubes.
>
> Have you checked/measured the bias voltage at
> the Rectifier Unit's "-C" terminal?
>
> I recommend you troubleshoot the bias supply
> from the Rectifier Unit "-C" to the final
> tubes to find where the loss of bias voltage
> is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>
> I followed the standard procedure. I
> turned the POWER and HEATER switches on,
> placed the MODE switch to SSB, the METER
> switch to lp, pushed the SEND button and
> adjusted the BIAS control, but there was
> no reading at all. I then measured pin 5
> in in the finals and saw no voltages in
> STAND-BY or SEND position. The only
> deflection on the TS meter is in HV in
> SEND position with voltages about 820 DVC.
>
> A correction to my first mail. I /do/ hear
> the t/r antenna relay when I key the
> transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>
> You said you checked for bias voltage and
> found none. If I may ask, did you measure
> the bias voltage at the final tube grids,

> pin 5, and that is where you found no bias
> voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/8/2013 2:15 AM, ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE position
> on my TS830s. In SEND position there
> is no deflection on the meter and no
> noise from the t/r relay. The heater
> and SG switch are naturally on.
>
> I checked R15 in the rectifier, and it
> was okay. So were the cathode and
> plate resistors in the final unit. I
> then checked the bias and found no
> bias at all. Adjusting the the BIAS
> control had no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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> <http://www.avast.com/>
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> This email is free from viruses and malware because avast!
> Antivirus <http://www.avast.com/> protection is active.
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46326. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 18:07:31 UTC
From: n8nma@...
Topic: 46316 Message: 46326

Also noticed that the digital readout reads 22 MHz in the 28 MHz band position but is ok in all others. This radio belongs to a friend. I have a 520 S so somewhat familiar with the radio.
Thanks
Tom Jones N8NMA

Sent from my iPad

On Dec 11, 2013, at 9:42 AM, <wagstw46@...> wrote:

> Tom:
>
>
>
> I did not see a response to your TS820 issues? If someone is working with you on this problem let me know as you dont need too many cooks.
>
>
>
> Couple of clarifying points:
>
> 1. By No Drive am I correct in assuming you have no ALC meter indication in Tune mode when you are adjusting the Drive Control and this is true for all bands?
>
> 2. By No RF Output power am I correct in assuming you see nothing with the panel meter in the RF relative power position or on an external Wattmeter?
>
> 3. Did the radio previously load properly? Did you have good ALC indication?
>
> 4. I assume you are experienced at loading the TS820?
>
>
>
> With no ALC indication and no RF output it would appear that it is not just an ALC indication problem. It is possible to have no ALC indication and still have good RF output, but that does not occur often.
>
>
>
> Try this:
>
>
>
> 1. Power and heaters on.
>
> 2. SG switch off

>
> 3. Meter in ALC, VFO approx 200, Drive control 1200
>
> 4. CAR level pot full CW
>
> 5. Tune mode
>
> 6. Flip to Send and adjust the Drive Control for a peak in ALC indication. If no indication then try in CW mode. If meter pegs full scale at any time simply reduce the CAR Level pot to get it off the peg. Adjust the Drive control thru its range and not just around 1200.
>
> 7. Perform this test on all bands.
>
> 8. Good rig should produce full scale ALC indication with CAR Level pot advanced below 1200 or position 5.
>
>
>
> For good ALC indication (RF drive) you need couple of things:
>
> 1. 6146 tubes with good filaments and heater power on so you have cathode emission.
>
> 2. RF voltage swing at the control grids of 6146 finals that is in excess of the operating bias offset voltage. For a TS-820 that is approx 47rms rf volts at Pin 5.
>
>
>
> Do you have an RF probe and VTVM? If not, then an O-scope? Needed to troubleshoot loss of RF drive. With either of these instruments and the TX Level Diagram relatively easy to find where RF drive is weak or missing.
>
>
>
> Terry K9TW
>
>
>
>
>
>

46327. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 17:59:27 UTC
From: n8nma@...
Topic: 46316 Message: 46327

Yes familiar with the radio and operation. Have all test equipment needed. And just noticed that it will work in FSK mode but no other mode. Or no output in any mode except FSK? Going to try the procedure you showed.

Thanks

Tom Jones N8NMA

Sent from my iPad

On Dec 11, 2013, at 9:42 AM, <wagstw46@...> wrote:

> Tom:
>
>
>
> I did not see a response to your TS820 issues? If someone is working with you on this problem let me know as you dont need too many cooks.
>
>
>
> Couple of clarifying points:
>
> 1. By No Drive am I correct in assuming you have no ALC meter indication in Tune mode when you are adjusting the Drive Control and this is true for all bands?
>
> 2. By No RF Output power am I correct in assuming you see nothing with the panel meter in the RF relative power position or on an external Wattmeter?
>
> 3. Did the radio previously load properly? Did you have good ALC indication?
>
> 4. I assume you are experienced at loading the TS820?
>
>
>
> With no ALC indication and no RF output it would appear that it is not just an ALC indication problem. It is possible to have no ALC indication and still have good RF output, but that does not occur often.
>
>
>
> Try this:
>
>
>
> 1. Power and heaters on.

>
> 2. SG switch off
>
> 3. Meter in ALC, VFO approx 200, Drive control 1200
>
> 4. CAR level pot full CW
>
> 5. Tune mode
>
> 6. Flip to Send and adjust the Drive Control for a peak in ALC indication. If no indication then try in CW mode. If meter pegs full scale at any time simply reduce the CAR Level pot to get it off the peg. Adjust the Drive control thru its range and not just around 1200.
>
> 7. Perform this test on all bands.
>
> 8. Good rig should produce full scale ALC indication with CAR Level pot advanced below 1200 or position 5.
>
>
>
> For good ALC indication (RF drive) you need couple of things:
>
> 1. 6146 tubes with good filaments and heater power on so you have cathode emission.
>
> 2. RF voltage swing at the control grids of 6146 finals that is in excess of the operating bias offset voltage. For a TS-820 that is approx 47rms rf volts at Pin 5.
>
>
>
> Do you have an RF probe and VTVM? If not, then an O-scope? Needed to troubleshoot loss of RF drive. With either of these instruments and the TX Level Diagram relatively easy to find where RF drive is weak or missing.
>
>
>
> Terry K9TW
>
>
>
>
>
>

46328. RE: Kenwood R-2000 Paint Color

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 14:30:46 UTC
From: <jason.bogstie@...>
Topic: 46319 Message: 46328

There is a man on Ebay who sells paint to match Kenwood products, if you do a search there, you can find him. He might also be able to take requests if he isn't carrying that particular color.

Jason - K7BOG

46329. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 23:38:20 UTC
From: <wagstw46@...>
Topic: 46316 Message: 46329

OK

Could you previously peak the ALC indication in Tune or CW mode since rig has been in your possession or is this a recent acquisition that came with this problem?

It is early to say, but might have a bad IF xtal filter. Does it have the CW filter in it?

You can try obtaining ALC indication in SSB mode by bringing the mic gain up and keying the mic PTT and whistling in the mic. This way you are going thru the SSB IF filter. If you get ALC indication in SSB mode then pretty safe bet the CW filter is bad or a bad CW filter switching diode. .

Terry K9TW

46330. Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-11 23:57:37 UTC
From: Craig Roberts
Topic: 46316 Message: 46330

Well, now I've done it! In the last moments of aligning my TS-830S after performing extensive service on it, I have managed to absolutely destroy the core of the 28 MHz RF tuning coil. All others adjusted nicely.

So, now I need a replacement for this component on the RF Board:

L21 L34-0995-05 28 MHz RF tuning coil

Does anyone have such a thing?

Many, many thanks and 73,

Craig
W3CRR

46331. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 00:14:52 UTC
From: Michael Sylvester
Topic: 46316 Message: 46331

Try emailing Jim at Hybrid restore,
He's quick to reply. I'd bet he'd know the part # and could tell you if Mauser or someone had it.
A 530S RF board sold 5 days ago on eBay for $50 or so. I just missed it.
Michael///KD0WSJ

From: Craig Roberts <crgrbrts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, December 11, 2013 5:57 PM
Subject: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Well, now I've done it! In the last moments of aligning my TS-830S after performing extensive service on it, I have managed to absolutely destroy the core of the 28 MHz RF tuning coil. All others adjusted nicely.

So, now I need a replacement for this component on the RF Board:

L21 L34-0995-05 28 MHz RF tuning coil

Does anyone have such a thing?

Many, many thanks and 73,

Craig
W3CRR

46332. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 02:14:51 UTC
From: n8nma@...
Topic: 46316 Message: 46332

So if it is the CW filter removing it and changing the plug below should tell this ...correct?

Tom Jones N8NMA

Sent from my iPad

On Dec 11, 2013, at 6:38 PM, <wagstw46@...> wrote:

> OK
>
>
>
> Could you previously peak the ALC indication in Tune or CW mode since rig has been in your possession or is this a recent acquisition that came with this problem?
>
>
>
> It is early to say, but might have a bad IF xtal filter. Does it have the CW filter in it?
>
>
>
> You can try obtaining ALC indication in SSB mode by bringing the mic gain up and keying the mic PTT and whistling in the mic. This way you are going thru the SSB IF filter. If you get ALC indication in SSB mode then pretty safe bet the CW filter is bad or a bad CW filter switching diode. .
>
>
>
> Terry K9TW
>
>

46333. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 01:51:07 UTC
From: n8nma@...
Topic: 46316 Message: 46333

Well it does have output in SSB so it must be where you said, the owner said he never used it in CW so never tuned it that way??? Oh well going to look at filter. And the diode. The filter had a loose solder joint but that didn't change anything.

Tom Jones N8NMA
Sent from my iPad

On Dec 11, 2013, at 6:38 PM, <wagstw46@...> wrote:

> OK
>
>
>
> Could you previously peak the ALC indication in Tune or CW mode since rig has been in your possession or is this a recent acquisition that came with this problem?
>
>
>
> It is early to say, but might have a bad IF xtal filter. Does it have the CW filter in it?
>
>
>
> You can try obtaining ALC indication in SSB mode by bringing the mic gain up and keying the mic PTT and whistling in the mic. This way you are going thru the SSB IF filter. If you get ALC indication in SSB mode then pretty safe bet the CW filter is bad or a bad CW filter switching diode. .
>
>
>
> Terry K9TW
>
>

46334. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 03:01:58 UTC
From: <wagstw46@...>
Topic: 46316 Message: 46334

Try moving the IF2 plug to the A position. The SSB filter will be selected regardless of the mode. Should be able to get ALC deflection in Tune mode and load in CW mode.

This should allow you to use the rig and then can trouble shoot the CW filter path by signal injection and measurement.

Pg 34 of the Owners manual shows the plug positions and study of the main schematic and the mode switch deck S6-1 shows how 14vdc is directed via the wiper of this switch to the IF board.

Not sure if you can find past message numbers in the archives on this subject or not, but not too long ago this same issue was dealt with in some detail including confirming that both CW filter switching diodes were good and getting necessary turn on bias voltage. Also discussion on how to sweep the CW filter to verify the center frequency. I will see if I can find this so wont have to repeat all the typing.

Terry K9TW

46335. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 03:33:34 UTC
From: Joseph Stiles
Topic: 46316 Message: 46335

Craig,

  Give Bob Mansker an email   ke5ftf "at" gmail "dot" com

   hes got lots of good used parts...have bought from him b-4

73 Joe
WB7UQU

On Wednesday, December 11, 2013 5:11 PM, Michael Sylvester <sylvstrmchl@...> wrote:

>Try emailing Jim at Hybrid restore,
>He's quick to reply. I'd bet he'd know the part # and could tell you if Mauser or someone had it.
>A 530S RF board sold 5 days ago on eBay for $50 or so. I just missed it.
>Michael///KD0WSJ
>
>
>From: Craig Roberts <crgrbrts@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Wednesday, December 11, 2013 5:57 PM
>Subject: [TS-520_820_530_830] Ts-830S RF coil needed!!!
>
>
>
>
>Well, now I've done it! In the last moments of aligning my TS-830S after
>performing extensive service on it, I have managed to absolutely destroy
>the core of the 28 MHz RF tuning coil. All others adjusted nicely.
>
>So, now I need a replacement for this component on the RF Board:
>
>L21 L34-0995-05 28 MHz RF tuning coil
>
>Does anyone have such a thing?
>
>Many, many thanks and 73,
>
>Craig
>W3CRR
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46336. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 10:02:15 UTC
From: Gordon JC Pearce
Topic: 46316 Message: 46336

On Wed, Dec 11, 2013 at 08:51:07PM -0500, n8nma@... wrote:
> Well it does have output in SSB so it must be where you said, the owner said he never used it in CW so never tuned it that way??? Oh well going to look at filter. And the diode. The filter had a loose solder joint but that didn't change anything.

That doesn't make a lot of sense, you can't tune it without using CW mode.

--
Gordonjcp MM0YEQ

46337. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 11:53:29 UTC
From: Mike
Topic: 46316 Message: 46337

Michael,

Craig provided the part number in his text that he needs:

L21 L34-0995-05 28 MHz RF tuning coil

The part number Craig provide is shown in the TS-830 service manual's
part number under "RF UNIT" parts.

Craig,

Check with Bob Mansker, ke5ftf@..., he most likely has that part.

73
Mike W5RKL

On 12/11/2013 6:14 PM, Michael Sylvester wrote:
> Try emailing Jim at Hybrid restore,
> He's quick to reply. I'd bet he'd know the part # and could tell you
> if Mauser or someone had it.
> A 530S RF board sold 5 days ago on eBay for $50 or so. I just missed it.
> Michael///KD0WSJ
>
> *From:* Craig Roberts <crgrbrts@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Wednesday, December 11, 2013 5:57 PM
> *Subject:* [TS-520_820_530_830] Ts-830S RF coil needed!!!
>
> Well, now I've done it! In the last moments of aligning my TS-830S after
> performing extensive service on it, I have managed to absolutely destroy
> the core of the 28 MHz RF tuning coil. All others adjusted nicely.
>
> So, now I need a replacement for this component on the RF Board:
>
> L21 L34-0995-05 28 MHz RF tuning coil
>
> Does anyone have such a thing?
>
> Many, many thanks and 73,
>
> Craig
> W3CRR
>
>
>
>

46338. Re: Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 09:15:24 UTC
From: James Scribner
Topic: 46316 Message: 46338

I bought out several coils at PacParts last year and have no extras! Have you tried Mr Mansker that recently relocated to Dallas area? He posted recently with Hybrid parts/boards for sale.
Good Luck
Jim W5SWM

46339. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 11:44:33 UTC
From: Michael Sylvester
Topic: 46316 Message: 46339

Another thought, some boards go for not too much on eBay, $20-$80 or so.
If you can't get just that one coil I'd bet that same coil is used on several other models if not all of them.You'd need to check the parts list and compare component numbers but if you have difficulty getting just that coil this might be a solution. One fellow, charro88 I think, makes a living chopping up Kenwoods, on eBay, sad deal.
He's got 4 radios cut up right now. Make him an offer if he's got a board that would work, he's a little negotiable. I've bought some components from him. His skills with the english language are lacking however, an immigrant I think, but he seems ok.
Just do a search for Kenwood TS or Kenwood parts, on eBay, you'll find what you need if you don't get it from KE5FTF.
Michael///KD0WSJ

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Wednesday, December 11, 2013 9:33 PM
Subject: Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Craig,

  Give Bob Mansker an email   ke5ftf "at" gmail "dot" com

   hes got lots of good used parts...have bought from him b-4

73 Joe
WB7UQU

On Wednesday, December 11, 2013 5:11 PM, Michael Sylvester <sylvstrmchl@...> wrote:

>Try emailing Jim at Hybrid restore,
>He's quick to reply. I'd bet he'd know the part # and could tell you if Mauser or someone had it.
>A 530S RF board sold 5 days ago on eBay for $50 or so. I just missed it.
>Michael///KD0WSJ
>
>
>
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>From: Craig Roberts <crgrbrts@...>
>To: TS-520_820_530_830@yahoogroups.com
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>
>
>
>
>Well, now I've done it! In the last moments of aligning my TS-830S after

>performing extensive service on it, I have managed to absolutely destroy
>the core of the 28 MHz RF tuning coil. All others adjusted nicely.
>
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>
>L21 L34-0995-05 28 MHz RF tuning coil
>
>Does anyone have such a thing?
>
>Many, many thanks and 73,
>
>Craig
>W3CRR
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46340. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 12:43:13 UTC
From: <wagstw46@...>
Topic: 46316 Message: 46340

Not true.

You need to study how the rig produces a DSBSC signal and how that becomes a TIF signal to provide RF drive for the Transmit Mixer. One of the first and key building blocks in a SSB transmitter is the Balanced Modulator.

A balanced modulator is a mixer. KW hybrids use a diode ring modulator. It is a key stage in a SSB transmitter. It has two inputs....low level Audio and high level Carrier.

The BM produces a DSBSC output in two ways:
1. Unbalance the ring diodes by applying a variable 0.0 vdc to 0.70 vdc bias voltage to turn on diodes. This is what the CAR Level pot does. We do this to Tune the rig and to operate CW mode.

OR

2. Input audio into the Mic line. Can be done by whistling or connecting audio generator and injecting 5mv to 10 mv at 1200 hz. We do this in SSB mode.

With either method you can peak the ALC indication with the Drive Control.

Method two obviously isnt the preferred method, but can be used to confirm if the rig is capable of producing TIF signal from the IF board.

In a pinch you can load rig this way if for example CAR Level pot dc voltage is unavailable. Not very convenient to have to hook up your audio generator to the Mic line to routinely load the rig.

Terry K9TW

46341. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 12:47:52 UTC
From: crgrbrts@...
Topic: 46316 Message: 46341

Hey, y'all,

Many thanks for the suggestions concerning the RF coil replacement. Here's the skinny:

Bob has no RF boards to part out,but may have one next month for eBay auctioning.

From examination of parts lists, it appears that none of the RF boards from other Kenwoods now offered on eBay contain the coil I need. Strange but true. I may buy one anyway to cannibalize a slug from a similar coil if I can extract the remains of my broken coil slug. I am considering super gluing a small diameter dowel to the top of the broken slug and try to back it out. It'd be nice if I could avoid removing the RF board altogether and risking damaged connectors. I have found these boards to be relatively fragile. The copper traces are insanely thin, as you know.

Any other suggestions would be most welcome.

Thanks again and 73,
Craig
W3CRR
Sent via BlackBerry by AT&T

46342. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 16:15:10 UTC
From: <paw_paw44036@...>
Topic: 46316 Message: 46342

I found one from an old CB unit that I had that had died years ago. My 530 and 830 have the same RF board.
Also if you remove the audio board there is a plate you can remove to access the bottom of the RF board with out removing the board.
Bill WD8OSJ

46343. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 17:15:33 UTC
From: Craig Roberts
Topic: 46316 Message: 46343

Many thanks, Bill. You mean I'm not the first person to destroy a coil slug?

73,

Craig
W3CRR

46344. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 15:43:15 UTC
From: Michael Sylvester
Topic: 46316 Message: 46344

I like the possibility of gluing a dowel to the cracked slug. Might try to get some lube Or penetrating oil in there to ease it out, but then if oil got on top the glue may not stick, hmmmmmm, how about glue the dowel, keep it small diameter, say 3/16" and keep the quantity of glue to a minimum like one drop or wet the end and remove any excess. (or you may glue it in place and never get it out).
After your glue is dry, gel might be better, then spray it with Deoxit to lube the slug, that would evaporate later and not leave oil in the coil.
The fellow that is destroying (parting out) perfectly good radios is charro815 (had the number wrong before) I have a hotlink to his eBay store:
http://www.ebay.com/sch/charro815/m.html?_nkw=&_armrs=1&_ipg=&_from=

Remember his facility of English is lacking, so keep your communication with him simple and to the point. He will dicker a little bit. I don't think he's selling a whole lot this month so he could use the money.
Tell him Michael sent you, I'd appreciate it. I'm trying to befreind him, he'll be more likely to consider my low offers if I can.
I made a lowball offer on a set of Knwd tubes this morning that he didn't accept. I told him if he could get a tube checker and learn to properly test tubes that if they tested close to new strength that they'd be worth $50-$60, more than he's asking, $40 "buy it now". I also explained to him that buying untested used tubes is a gamble, only about 1/3 are any good. That I've had pretty bad luck and I'm TRYING not to buy any more used tubes. He said I seem to be a good man, so I think he's OK.
Gotta get a TS-820 finished today and listed on eBay.Good luck with the dowel idea, let us know how it works.
MichaelKD0WSJ

From: "crgrbrts@..." <crgrbrts@verizon.net>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, December 12, 2013 6:47 AM
Subject: Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Hey, y'He replied thaall,

Many thanks for the suggestions concerning the RF coil replacement. Here's the skinny:

Bob has no RF boards to part out,but may have one next month for eBay auctioning.

From examination of parts lists, it appears that none of the RF boards from other Kenwoods now offered on eBay contain the coil I need. Strange but true. I may buy one anyway to cannibalize a slug from a similar coil if I can extract the remains of my broken coil slug. I am considering super gluing a small diameter dowel to the top of the broken slug and try to back it out. It'd be nice if I could avoid removing the RF board altogether and risking damaged connectors. I have found these boards to be relatively fragile. The copper traces are insanely thin, as you know.

Any other suggestions would be most welcome.

Thanks again and 73,
Craig
W3CRR
Sent via BlackBerry by AT&T

46345. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 17:23:13 UTC
From: <wagstw46@...>
Topic: 46316 Message: 46345

Craig:

You are correct that none of the other KW hybrids with exception of the TS530 and TS830 use this Mixer coil. It is the same as the L12 Ant coil. You cannot just swap for other "similar" coils as you will note no capacitor across this coil. This is because it uses the circuit parasitic capacitance to form a 10 meter parallel resonant circuit. That parasitic capacitance consists of not only the contribution from the PC board foil traces but the inter-electrode capacitance of the Driver tube.

As you know RF boards (especially TS530/TS830) come at a premium when/if you can find one and there is a reason for that. Also, very few people have any RF boards that they use to harvest parts from. Worth a try asking.

Your best bet is to try the super glue method to remove your cracked core.

You may also be able to use a burr on a Dremel Tool and grind out the core if you cant remove with wood dowel and super glue, but easy to damage the bobbin and windings trying to drill or grind out the core. Must of course carefully clean all the ferrite powder/dust residue.

Bill is correct you can access the foil side of the RF board by removing the metal access plate below the Audio board, but it only exposes the soldering and there is no board thru hole to access the other side of the ferrite core. I cant remember if there is a hole in the bottom of the bobbin or if it is a blind hole?

If you are not successful with core removal check back with me after first of the year as I may have a line on a parts special TS-530.

Terry K9TW

---In TS-520_820_530_830@yahoogroups.com, <crgrbrts@...> wrote:

Hey, y'all,

Many thanks for the suggestions concerning the RF coil replacement. Here's the skinny:

Bob has no RF boards to part out,but may have one next month for eBay auctioning.

From examination of parts lists, it appears that none of the RF boards from other Kenwoods now offered on eBay contain the coil I need. Strange but true. I may buy one anyway to cannibalize a slug from a similar coil if I can extract the remains of my broken coil slug. I am considering super gluing a small diameter dowel to the top of the broken slug and try to back it out. It'd be nice if I could avoid removing the RF board altogether and risking damaged connectors. I have found these boards to be relatively fragile. The copper traces are insanely thin, as you know.

Any other suggestions would be most welcome.

Thanks again and 73,
Craig
W3CRR
Sent via BlackBerry by AT&T

46346. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 17:26:01 UTC
From: <n6wk@...>
Topic: 46316 Message: 46346

Okay, I can't see you suffer any longer.
What is your mailing address?
I have a L-21 Coil here

73,
Gordon
N6WK

46347. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 17:28:46 UTC
From: <n6wk@...>
Topic: 46316 Message: 46347

L-12 is the exact same coil :-)

46348. Re: [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 17:30:04 UTC
From: Ron
Topic: 46316 Message: 46348

Way to go Mike !!!!!

Ron KK4PWF

On Dec 12, 2013, at 12:28 PM, <n6wk@n6wk.com> wrote:

>
>
> L-12 is the exact same coil :-)
>
>
>
>
>
>

46349. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 22:49:19 UTC
From: <wagstw46@...>
Topic: 46316 Message: 46349

Gordon:

I re-read your post. I thought you were questioning my suggested troubleshooting test to see if there is ALC indication (and of course accompanying RF output) when whistling into the mic in SSB mode.

Here is what I thought you were responding to.

"You can try obtaining ALC indication in SSB mode by bringing the mic gain up and keying the mic PTT and whistling in the mic."

I see now you were questioning the former owner saying he never loaded in CW mode. It is very doubtful that he whistled or held a note into the mic, or held the mic up to a code practice oscillator speaker, or injected audio into the mic line to routinely load in SSB mode. Any and all will work if you can sustain a note. Of course injecting audio in the mic line works just fine.

Not uncommon for old timers or experienced SSB contest operators to retouch up the loading on the fly when QSYing up and down the band by just peaking the Drive and adjusting the Plate Tuning by speaking (threeee or fiiiiiive) or whistling in the mic. They have no time to go back to Tune or CW modes and touch up the loading.

Some people really have no understanding of what they are doing when loading one of these rigs. No concept of what ALC indication is telling them.

This former owner probably meant he never operated CW but that does not mean he wasnt loading the rig in CW mode as we all normally do.

So I stand by my original response that you do not need to be in CW mode to load the rig, however it is the normal method that we all employ and I would say it is very unlikely that the former owner loaded in SSB mode.

Terry K9TW

46350. [TS-520_820_530_830] Ts-830S RF coil needed!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-12 22:47:19 UTC
From: Wes Will
Topic: 46316 Message: 46350

I have done the super-glue thing with old tube radios. You know, back in the days when they were repairable and it was worth the bother, before we became the society that is going to be built on nothing but land-fills?

Anyway, that rant is for another time and place. The main thing was to use the THICK superglue, the sort that model airplane and various other precision model-makers use, for one thing. The other 'trick' is NOT to use a wooden dowel. Dowel, yes. Wood, no. The glue soaks in too much to 'grab' quickly.

I've been thinking about this, and looked around the house for odds and ends that would work for this. A 'swizzle-stick" sort of coffee or possibly iced-tea spoon sort of thingummy, from one of the fast-food places looked promising. (I can't tell which sort, don't patronize those places much, if ever.)

There were several odds and ends of packaging material, such as the thick edge-pieces of those insanely-hard-to-open plastic bubble packages, that if trimmed square and cut off flush and even, would probably be OK as well.

I used a piece of thin lexan I had tossed in the trash, from another project. It was a few inches long, and about 3/32nds of an inch square-ish. The cracked slug was a bit more than twice that diameter, I think.

One tiny drop of light oil on a toothpick around the edge of the coil form to keep the cyanoacrylate from getting into the threads, one bigger (but still small) droplet of the glue on the end of the plastic stick, press it in against the center of the slug, and then WAIT a minute or three.

No matter what I've ever glued with cyanoacrylate, be it balsa or bronze, it always seems to work better if I don't try to rely on the "instant" part of the advertising hype. Three or four minutes, instead of 24 hours (for white glue or similar), seems quite instant enough when you think about it. For some reason, though, we all seem to be in a big hurry and want it -NOW!- instead of three minutes from now.

Give it some time to set, for the love of Pete, don't do what stupey old me does all too often, and try to rush things.

I would be willing to bet that your idea works on that coil, at least as well as it did on that old three-tube regenerative shortwave receiver I did it to twenty or thirty years ago.

(Maybe I'll take that back up one of these days, if I can find some old tube radios to fix. I always enjoyed that, and the circuits are so bloody simple compared to modern, digital stuff in particular. Quite restful on the mind by contrast.

And to think, when I was a dumb kid I had trouble with those kinds of things, because of their 'complexity.' Little did I know what was coming down the pike, straight at me. didididit didit.)

--
Wes Will
N9KDY

46351. What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 13:44:36 UTC
From: Mike
Topic: 46351 Message: 46351

There's a TS-830S Rectifier Unit board being sold on eBay for $20 plus $5 shipping. The eBay ID number is 400622364893. Go to ebay.com, put that ID number in eBay's search box and click search and the ad will come up.

I mean no disrespect towards the eBay seller who is selling the TS-830 Rectifier Unit board shown in that eBay add. However, can you find what's wrong with the board he is selling by simply looking at the component side picture in his ad?

His ad says the 830 receiver worked fine but the transmitter had no output. He further says he found a bad resistor on the final board. He then said the Rectifier board was probably okay but there were no guarantees. The issue is not "there's no guarantees" statement. That's more often than not to be expected when selling used equipment.

However, can you see what is wrong with the Rectifier Unit board he is selling and what could easily have been the source for the resistor failure on the final unit board he says in his description? Also, what other possible failures in the final amplifier/final unit board could have possibly occurred that he may not be aware of by looking at the Rectifier Unit board he is selling?

73
Mike W5RKL

46352. RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 13:45:37 UTC
From: <paw_paw44036@...>
Topic: 46316 Message: 46352

No, I didn't destroy it, but a diddle stick happy CB'er did. He thought he could get more than 100 watts output.
In fact he destroyed more than one slug. When he moved out of town, I helped him move and found this 530 in the closet and he gave it to me for helping. First thing I did was rip out the CB mods and restored it to 10 meters. That's when I found out what he did. Took me 3 days to get this rig back up and running. Even the band switch wafer for 10 meters was burned. you had to wiggle the band switch to get 10 meters. I repaired it with some silver solder and got it to work, but I don't know how long it will last. It is crazy what some unknowing people can do to these rigs. In my opinion, this line of hybrids rigs are the best that Kenwood ever built. You have to treat them with respect. Like one ham on here says "Real Radios Glow in the DARK"
Bill WD8OSJ

46353. K9TW, Terry, Excellent work!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 14:32:04 UTC
From: <cocobean64@...>
Topic: 46353 Message: 46353

Although I enjoy working on these hybrids,my experience and test bench are very limited. So when it came time and I could go no further I sought out the help of a professional.

I had Terry give my TS-830 a good once-over seeing how he has the knowledge and equipment to do so.
All I can say is WOW! :):):)

73 Bart

46354. RE: K9TW, Terry, Excellent work!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 17:53:49 UTC
From: <wagstw46@...>
Topic: 46353 Message: 46354

Bart:

Thanks so much for the endorsement.

I am a little reluctant to respond to your kind words as I usually stay in hiding until after the warranty period has expired!

Back to the bench now as I have several rigs here in the queue that will be getting a good dose of the same Bolt Blaster and selective Hammering that your TS-830 got!

Best 73s

Terry K9TW

46355. TS520 relays not operating when go to TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 07:34:47 UTC
From: <peterlake2003@...>
Topic: 46355 Message: 46355

I have a problem with my old TS520S The relays have stopped operating when the set is switched to tx, this happens when the send switch or PTT are used and there is no VOX switching? I have tried tracing the circuit but can not seem to find where the relays pick their feed up from (The only circuit that I have is on disk and hard to follow)
I can see that the RL points on the boards are linked but where do the get their feed?
Any help much appreciated
Thanks in advance
Peter G8ZZL

46356. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 16:56:12 UTC
From: Michael Sylvester
Topic: 46351 Message: 46356

The 470 Ohm resistor on the rectifier board is usually toast too.
I just bought another 820S Tuesday, making 5 total here!!!
I just bought the RF finals board, Rectifier board for 820S and a 430 LPF board, to get the small relays, hoping they match the relays in LA-1000 amps (I have 2 right now), one pristine and one beater I've restored), for $60 delivered.

The damage you will find on the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm that act as fuses. Don't "super size" them as Ken, K4EAA.com (http://www.k4eaa.com/examples.html) would say. He has a page showing what happens when you increase the wattage rating of resistors there to keep them from burning up. Can't find it right now...
Kenwood designed them to act as fuses protecting the other components.I just replaced (10), yes 10, 33 Ohm 1/4 watt resistors in parallel that replaced them on one radio, I think the "oldham" that went silent key must have bought them for bulk quantity price.......
The TS-530S I've nicknamed "Old Dog", looks like he went through WWI in the trenches.
10-33's in parallel make 3 Ohms, real high wattage, too high current, and is probably why he had fires on that board and the Rectifier board.
"Old Dog" is the the brother of "Pretty Sister", the pristine, perfect low miles TS-530S I had for sale on eBay, came from the same estate.
I've got 20 or so hours into "Old Dog" and not done yet.
The other damage you will find is R11 on the rectifier board. A 470 Ohm resistor. Had a fire there too......
I had a man contact me on eBay, try to give a bunch of knowledge but his letter was lost because it contained an email addy, eBay clips the emails.
He later contacted me by Personal email, found it on my QRZ page I'd geuss. He said he found by trial and error that the GE 6146W tubes are not biased right for Kenwood Transceivers, the hard way by burning up some boards using the GE W's.
I believe He's right and that they are the source of many fried Finals and Rectifier boards. I won't be using any. Sylvania 6146W seem to be ok however.
"Communications gear will be essential"
Michael///KD0WSJ

From: Mike <w5rkl@...>
To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Friday, December 13, 2013 7:44 AM
Subject: [TS-520_820_530_830] What's wrong with this board?

There's a TS-830S Rectifier Unit board being sold on eBay for $20 plus $5 shipping. The eBay ID number is 400622364893. Go to ebay.com, put that ID number in eBay's search box and click search and the ad will come up.

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However, can you see what is wrong with the Rectifier Unit board he is selling and what could easily have been the source for the resistor failure on the final unit board he says in his description? Also, what other possible failures in the final amplifier/final unit board could have possibly occurred that he may not be aware of by looking at the Rectifier Unit board he is selling?

73
Mike W5RKL

46357. Re: [TS-520_820_530_830] RE: Another issue with 820 no drive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 16:16:55 UTC
From: Michael Sylvester
Topic: 46316 Message: 46357

"Real Radios Glow in the DARK"
I think I read that in the Bible.
I concur.
Michael///KD0WSJ

From: "paw_paw44036@..." <paw_paw44036@yahoo.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 7:45 AM
Subject: [TS-520_820_530_830] RE: Another issue with 820 no drive

No, I didn't destroy it, but a diddle stick happy CB'er did. He thought he could get more than 100 watts output.
In fact he destroyed more than one slug. When he moved out of town, I helped him move and found this 530 in the closet and he gave it to me for helping. First thing I did was rip out the CB mods and restored it to 10 meters. That's when I found out what he did. Took me 3 days to get this rig back up and running. Even the band switch wafer for 10 meters was burned. you had to wiggle the band switch to get 10 meters. I repaired it with some silver solder and got it to work, but I don't know how long it will last. It is crazy what some unknowing people can do to these rigs. In my opinion, this line of hybrids rigs are the best that Kenwood ever built. You have to treat them with respect. Like one ham on here says "Real Radios Glow in the DARK"
Bill WD8OSJ

46358. TS-520 Lock Screw on Load control linkage hitting driver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 16:10:20 UTC
From: <bgaston@...>
Topic: 46358 Message: 46358

Just picked up a TS520 of "unknown condition" and have it up and putting out full power on all bands.

Noticed a "catch" last night on the load control, and opened the cover to find one of the screws on the shaft coupling that sticks out further than normal and is bumping the driver tube as it goes by. The shaft is keyed/flatted on one side so only one screw can go far enough into this coupling to clear the driver tube, and there are two on it.

I will put a photo in the album if you'd care to see what I'm talking about.

Secondly, is the metal piece running up the side of the driver tube supposed to be outside or inside the tube covering the valve?

Thanks.
BG

46359. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 18:48:44 UTC
From: Mike
Topic: 46351 Message: 46359

Michael,

You said:

"the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm that act as fuses".

No, unfortunately, not true.

The "4" resistors you are referring to are not "grid resistors" but rather they are "cathode resistors" and they do not act as fuses as you have also said they do.

The cathode resistors in the 520, 820, 530, and 830, act as meter shunts, allow for a voltage drop to occur during transmit when current flows in the cathode circuit. This voltage is then applied to the metering circuit resulting in a significant decrease in DC voltage caused by voltage drops that occur in the meter "multiplier" resistors, reducing the voltage down to the "mv" level, that is then applied to the meter through the "IP" meter switch setting. The metering circuit in the 520, 820, 530, and 830 hybrids measures "voltage" even though the meter's top scale is registering "current".

The Rectifier Unit board shown in the eBay add is not from a TS-820 but rather from a TS-830. None of the resistors on the TS-830 Rectifier Unit board pictured in the eBay ad show any signs of being "toast" (overheated) so that is not what's wrong with the Rectifier Unit board.

73
Mike W5RKL

On 12/13/2013 10:56 AM, Michael Sylvester wrote:
> The 470 Ohm resistor on the rectifier board is usually toast too.
> I just bought another 820S Tuesday, making 5 total here!!!
> I just bought the RF finals board, Rectifier board for 820S and a 430
> LPF board, to get the small relays, hoping they match the relays in
> LA-1000 amps (I have 2 right now), one pristine and one beater I've
> restored), for $60 delivered.
> The damage you will find on the finals board would be the (4) grid
> resistors, the 1/2 watt 20 Ohm that act as fuses. Don't "super size"
> them as Ken, K4EAA.com (http://www.k4eaa.com/examples.html) would say.
> He has a page showing what happens when you increase the wattage
> rating of resistors there to keep them from burning up. Can't find it
> right now...
> Kenwood designed them to act as fuses protecting the other
> components.I just replaced (10), yes 10, 33 Ohm 1/4 watt resistors in
> parallel that replaced them on one radio, I think the "oldham" that

> went silent key must have bought them for bulk quantity price.......
> The TS-530S I've nicknamed "Old Dog", looks like he went through WWI
> in the trenches. 10-33's in parallel make 3 Ohms, real high wattage,
> too high current, and is probably why he had fires on that board and
> the Rectifier board.
> "Old Dog" is the the brother of "Pretty Sister", the pristine, perfect
> low miles
> TS-530S I had for sale on eBay, came from the same estate.
> I've got 20 or so hours into "Old Dog" and not done yet.
> The other damage you will find is R11 on the rectifier board. A 470
> Ohm resistor. Had a fire there too......
> I had a man contact me on eBay, try to give a bunch of knowledge but
> his letter was lost because it contained an email addy, eBay clips the
> emails.
> He later contacted me by Personal email, found it on my QRZ page I'd
> geuss. He said he found by trial and error that the GE 6146W tubes are
> not biased right for Kenwood Transceivers, the hard way by burning up
> some boards using the GE W's.
> I believe He's right and that they are the source of many fried Finals
> and Rectifier boards. I won't be using any. Sylvania 6146W seem to be
> ok however.
> "Communications gear will be essential"
> Michael///KD0WSJ
>
> *From:* Mike <w5rkl@...>
> *To:* Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Friday, December 13, 2013 7:44 AM
> *Subject:* [TS-520_820_530_830] What's wrong with this board?
>
> There's a TS-830S Rectifier Unit board being sold on eBay for $20 plus
> $5 shipping. The eBay ID number is 400622364893. Go to ebay.com, put
> that ID number in eBay's search box and click search and the ad will
> come up.
>
> I mean no disrespect towards the eBay seller who is selling the TS-830
> Rectifier Unit board shown in that eBay add. However, can you find
> what's wrong with the board he is selling by simply looking at the
> component side picture in his ad?
>
> His ad says the 830 receiver worked fine but the transmitter had no
> output. He further says he found a bad resistor on the final board. He
> then said the Rectifier board was probably okay but there were no
> guarantees. The issue is not "there's no guarantees" statement. That's
> more often than not to be expected when selling used equipment.
>
> However, can you see what is wrong with the Rectifier Unit board he is
> selling and what could easily have been the source for the resistor
> failure on the final unit board he says in his description? Also, what
> other possible failures in the final amplifier/final unit board could
> have possibly occurred that he may not be aware of by looking at the

> Rectifier Unit board he is selling?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>

46360. RE: TS-520 Lock Screw on Load control linkage hitting driver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 18:12:56 UTC
From: <bgaston@...>
Topic: 46358 Message: 46360

Haven't been able to upload a photo yet.

Here's a link to the photo where you can see the screw/valve interference:

http://kv4rh.com/wp-content/uploads/2013/12/IMG_2557.jpg
http://kv4rh.com/wp-content/uploads/2013/12/IMG_2557.jpg

46361. Re: [TS-520_820_530_830] TS520 relays not operating when go to TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 18:53:34 UTC
From: John Davidson
Topic: 46355 Message: 46361

There are three transistors that are involved in driving the relays. I had to replace one when I had this problem but that was 20 years ago and I had the (NO)-S model.

On Friday, December 13, 2013 1:01 PM, "peterlake2003@..." <peterlake2003@...> wrote:

I have a problem with my old TS520S The relays have stopped operating when the set is switched to tx, this happens when the send switch or PTT are used and there is no VOX switching?
I have tried tracing the circuit but can not seem to find where the relays pick their feed up from (The only circuit that I have is on disk and hard to follow)
I can see that the RL points on the boards are linked but where do the get their feed?
Any help much appreciated
Thanks in advance
Peter G8ZZL

46362. N3ZI DDS-2 VFO to TS-830?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 17:41:33 UTC
From: <ecoons@...>
Topic: 46362 Message: 46362

Hi all, I am new to the group having just acquired a nice gold label TS-830. I don't have the VFO-230 and am wondering if anyone has successfully interfaced Doug's DDS-2 kit to be used as an external VFO? Thanks for any ideas, help, suggestions. 73's, Eric W2EJC

46363. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 19:06:59 UTC
From: <wagstw46@...>
Topic: 46351 Message: 46363

Michael:

With all due respect:

1. "Grid Resistors"???

Do you mean Cathode meter shunt resistors? Or are you talking about the SG grid stopper resistors?

Are the cathode meter shunt resistors in a Yaesu FT-101, Heath HW-101, or Drake T4X "fuses" as well? Are they designed to blow to protect "other components" ? Wonder how often they blow?

Ken Kempski is a smart man and a friend but I do not want my cathode resistors blowing open. I like to keep my panel meter. Take a read on KW hybrid cathode resistor topic on W8JI Tom Rauch website.

2. "GE 6146W tubes are not biased right for Kenwood Transceivers"???

What does this mean as no vacuum tube comes "biased"? Please elaborate.

Your hybrid wont know what 6146 is in the socket. Any and all will work just fine. Best to not mix no suffx or A and B as they have slightly different inter-electrode capacitance, but any brand other than the new Chinese will work just fine. No need for matched pairs as we are running parallel and not push pull.

I am sorry but this is starting to get pretty scary and a bit concerned for our newly licensed and first time KW hybrid owners that may be taking notes on this.

Terry K9TW

46364. RE: TS520 relays not operating when go to TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 19:12:08 UTC
From: <wagstw46@...>
Topic: 46355 Message: 46364

Peter:

Look at the main schematic at the VOX board. Not uncommon for relay switching transistor Q8 to fail. If you troubleshoot and determine it is bad I would also replace the back emf diode D8 at same time you have the board out.

Terry K9TW

46365. Re: [TS-520_820_530_830] RE: TS-520 Lock Screw on Load control linkage hitting driver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 19:15:20 UTC
From: K5MYJ
Topic: 46358 Message: 46365

Why don't you just change the screws to allen head set screws? Like those used in knobs!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: bgaston@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 10:12 AM
Subject: [TS-520_820_530_830] RE: TS-520 Lock Screw on Load control linkage hitting driver

Haven't been able to upload a photo yet.

Here's a link to the photo where you can see the screw/valve interference:

http://kv4rh.com/wp-content/uploads/2013/12/IMG_2557.jpg

46366. RE: TS-520 Lock Screw on Load control linkage hitting driver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 19:19:45 UTC
From: <wagstw46@...>
Topic: 46358 Message: 46366

Someone has either changed the screws or shifted the coupler on the shafts closer to the tube shield. Screws should be same length and one will sit flush and other will show 2 or 3 threads. Maybe loosen all four screws and shift the coupler slightly toward the PA cage. Only one screw should ever come close as the rotation is limited to 180 degrees.

The ground strap needs to be on inside of the black metal tube shield.

Terry K9TW

46367. Re: [TS-520_820_530_830] N3ZI DDS-2 VFO to TS-830?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 19:38:31 UTC
From: Mike
Topic: 46362 Message: 46367

Eric,

The N3ZI DDS VFO kit being sold by Doug, N3ZI, is a nice VFO, very stable, and has a typical upper frequency limit of 40Mhz. I have 2 of them, one I use to control a converted Johnson Messenger 223 on 29.0Mhz 10 meter AM.

The DDS VFO's out signal level is 250mv into a 200 ohm impedance. Although the DDS VFO manual states the output impedance doesn't have to be matched to the circuit the VFO's connected to, if the impedance is not matched the VFO's output spur filter will not be as effective as it would be if the VFO output impedance and the impedance of the circuit the VFO is connected to are the same or very close to 200 ohms. An impedance mismatch not only will result in higher spur output but also a significant reduction in the VFO's output signal level. Depending on the circuit you are considering using the DDS VFO with, a small amp may be required between the VFO and the circuit the VFO is connected to.

You might search the web for "DDS VFO Amps", there are a few out there you can build.

73
Mike W5RKL

On 12/13/2013 11:41 AM, ecoons@... wrote:
>
> Hi all, I am new to the group having just acquired a nice gold label
> TS-830. I don't have the VFO-230 and am wondering if anyone has
> successfully interfaced Doug's DDS-2 kit to be used as an external
> VFO? Thanks for any ideas, help, suggestions.
>
> 73's, Eric W2EJC
>
>

46368. RE: TS-520 Lock Screw on Load control linkage hitting driver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 20:00:33 UTC
From: <wagstw46@...>
Topic: 46358 Message: 46368

I commented before I saw your picture.

It appears that the coupler has rotated. Most of the older TS520 rigs have ceramic coupler and not phenolic and have one screw that is flush on coupler hub.

Might have to use a right angle Phillips and loosen and rotate and re-tighten. Suggest you see if you can slip it toward the PA cage enough to clear the tube shield and if not will have to be rotated. I would remove top cover of PA cage so can observe position of the Plate Load cap plates and make sure they are fully meshed at full CCW rotation. Make sure rig unplugged and HV caps discharged.

Terry K9TW

46369. Cathode resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 20:04:01 UTC
From: Gordon JC Pearce
Topic: 46369 Message: 46369

All this talk of cathode resistors has got me wondering.

The stock cathode resistors are carbon composition, and on my 520 when I got it they had cracked and split. Now, the advice not to "super-size" them is sound, and the idea that wirewounds won't work because they're inductive seems intuitively obvious.

But! I've seen plenty of stuff that does have wirewounds in the cathode at RF, including hoofing great marine sets with PA valves like pickle jars. Not to mention the array of disc ceramics around the cathode circuit. So, I figured why not stick in the 10 ohm 7W wirewounds that I actually have on the shelf, instead of ordering up resistors and waiting for a few days. So I did. This is when I discovered something quite surprising.

I couldn't find a sniff of RF on the cathode, with my oscilloscope. Nothing. Well, maybe a wee ripple on 3.5MHz at full bore but certainly not enough for weird reactive effects to come into play in the resistors, we're talking about millivolts at most. But not only that...

There was hardly any audio across the cathode resistors. The cathode voltage unsurprisingly followed speech and showed a wee bit of speech "waveform" on low-pitched vowels, but with a normal SSB two-tone test it was again just the tiniest ripple.

I've since found a few people who say that wirewounds are just fine for the cathode resistors in these old rigs, but a roughly equal number who say they aren't.

--
Gordonjcp MM0YEQ

46370. Re: [TS-520_820_530_830] Cathode resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 20:50:06 UTC
From: Mike
Topic: 46369 Message: 46370

The "cathode circuit" is part of the DC voltage current path in the
final amplifier tube. The RF chokes in the Screen and Plate circuits,
block the flow of RF from flowing through the screen and plate supplies
so there is no RF of any significance in the final tube's cathode circuit.

The cathode resistors are not fuses that open when the final amplifier
is improperly tuned.

I made a video that explains the voltage drop across the cathode
resistors (cathode voltage) in the TS-520 and TS-820 and the cathode
voltage is applied to the IP metering circuit resulting in millivolts
applied to the meter in IP postion. You can watch the video at the
following link:

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/

73
Mike W5RKL

On 12/13/2013 2:04 PM, Gordon JC Pearce wrote:
>
> All this talk of cathode resistors has got me wondering.
>
> The stock cathode resistors are carbon composition, and on my 520 when
> I got it they had cracked and split. Now, the advice not to
> "super-size" them is sound, and the idea that wirewounds won't work
> because they're inductive seems intuitively obvious.
>
> But! I've seen plenty of stuff that does have wirewounds in the
> cathode at RF, including hoofing great marine sets with PA valves like
> pickle jars. Not to mention the array of disc ceramics around the
> cathode circuit. So, I figured why not stick in the 10 ohm 7W
> wirewounds that I actually have on the shelf, instead of ordering up
> resistors and waiting for a few days. So I did. This is when I
> discovered something quite surprising.
>
> I couldn't find a sniff of RF on the cathode, with my oscilloscope.
> Nothing. Well, maybe a wee ripple on 3.5MHz at full bore but certainly
> not enough for weird reactive effects to come into play in the
> resistors, we're talking about millivolts at most. But not only that...
>
> There was hardly any audio across the cathode resistors. The cathode
> voltage unsurprisingly followed speech and showed a wee bit of speech
> "waveform" on low-pitched vowels, but with a normal SSB two-tone test
> it was again just the tiniest ripple.
>

> I've since found a few people who say that wirewounds are just fine
> for the cathode resistors in these old rigs, but a roughly equal
> number who say they aren't.
>
> --
> Gordonjcp MM0YEQ
>
>

46371. Re: [TS-520_820_530_830] Cathode resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 20:53:13 UTC
From: Mike
Topic: 46369 Message: 46371

I said:

The "cathode circuit" is part of the DC voltage current path in the
final amplifier..."

The word "voltage" should not be there, the statement I meant to say is

The "cathode curcit" is part of the DC current path in the final
amplifier..."

73
Mike W5RKL

On 12/13/2013 2:50 PM, Mike wrote:
> The "cathode circuit" is part of the DC voltage current path in the
> final amplifier tube. The RF chokes in the Screen and Plate circuits,
> block the flow of RF from flowing through the screen and plate
> supplies so there is no RF of any significance in the final tube's
> cathode circuit.
>
> The cathode resistors are not fuses that open when the final amplifier
> is improperly tuned.
>
> I made a video that explains the voltage drop across the cathode
> resistors (cathode voltage) in the TS-520 and TS-820 and the cathode
> voltage is applied to the IP metering circuit resulting in millivolts
> applied to the meter in IP postion. You can watch the video at the
> following link:
>
>
http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/
>
> 73
> Mike W5RKL
>
>
>
>
> On 12/13/2013 2:04 PM, Gordon JC Pearce wrote:
>>
>> All this talk of cathode resistors has got me wondering.
>>
>> The stock cathode resistors are carbon composition, and on my 520
>> when I got it they had cracked and split. Now, the advice not to
>> "super-size" them is sound, and the idea that wirewounds won't work
>> because they're inductive seems intuitively obvious.

>>
>> But! I've seen plenty of stuff that does have wirewounds in the
>> cathode at RF, including hoofing great marine sets with PA valves
>> like pickle jars. Not to mention the array of disc ceramics around
>> the cathode circuit. So, I figured why not stick in the 10 ohm 7W
>> wirewounds that I actually have on the shelf, instead of ordering up
>> resistors and waiting for a few days. So I did. This is when I
>> discovered something quite surprising.
>>
>> I couldn't find a sniff of RF on the cathode, with my oscilloscope.
>> Nothing. Well, maybe a wee ripple on 3.5MHz at full bore but
>> certainly not enough for weird reactive effects to come into play in
>> the resistors, we're talking about millivolts at most. But not only
>> that...
>>
>> There was hardly any audio across the cathode resistors. The cathode
>> voltage unsurprisingly followed speech and showed a wee bit of speech
>> "waveform" on low-pitched vowels, but with a normal SSB two-tone test
>> it was again just the tiniest ripple.
>>
>> I've since found a few people who say that wirewounds are just fine
>> for the cathode resistors in these old rigs, but a roughly equal
>> number who say they aren't.
>>
>> --
>> Gordonjcp MM0YEQ
>>
>>
>

46372. transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 21:44:26 UTC
From: <bozo231@...>
Topic: 46372 Message: 46372

Is there a replacement transistor for 2sc856 that anyone knows about thanks Ron KK4PWF

46373. RE: Cathode resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:22:13 UTC
From: <wagstw46@...>
Topic: 46369 Message: 46373

Gordon:

In theory should be no RF at cathode of grid driven Class AB1 RF amplifier because should require no RF power to drive the finals in this configuration. All we need is RF voltage swing at the control grids (approx 47 rms or 133 p-p rf volts). Zero current X 47 rf volts = Zero power. So all we are doing is turning that 900vdc on and off at an RF rate. We then use the tank circuit to make something useful out of those current pulses.

If we never draw grid current the grids of the finals present a load which is conductance. When we have full ALC (with approx 45 ua of grid current) then the control grids look resistive at approx 500 to 1000 ohms. Instead of a swamping resistor from control grid to ground (as you might find in a high power class AB1 linear amp) KW engineers used a parallel resonant circuit shared by the Driver stage and Final control grids to present a more stable input impedance.

In practice the 6146 finals do require some RF power to supply charging/dis-charging current for the inter-electrode capacitance. We have Cgp and Cgk which are low values of capacitance from control grid to plate and control grid to cathode. Also inside the tube there is small amount of inductance in the cathode leads Lk and outside the tube small inductance from cathode pin to chassis ground thru foil traces and resistors that we label as Lk1. Lk and Lk1 are in series.

What this means is there will be some very small amount of RF current charging and discharging this capacitance and feeding thru this cathode inductance to chassis ground. It turns out that it requires approx 2 watts of power from the 12BY7A tube to provide this RF charging and discharging current.

To address this feed thru rf current thru Lk and Lk1 we use RF bypass capacitors from cathode to ground and as you note in your TS-520 there are 6 disc ceramic bypass capacitors in parallel.

If you have ever seen a Yaesu FT101 or FT102 you will notice they use a single cathode meter shunt resistor to ground. It is a small coil of nichrome wire that measures approx 0.60 ohms. I dont know how much inductance it presents in series with the cathode, but it seems Yaesu engineers were not concerned about using an inductive meter shunt. Not uncommon to see the white glass insulating sleeve over this resistor discolored from high cathode current in these Yaesu rigs. Abuse?

So I dont know what inductance value your new wire wound cathode resistor meter shunts present, but I am not surprised that you see no or very little rf current across them. Perhaps if you have another and a LCR bridge you could measure the inductance.

One problem with too much inductance in the cathode circuit is the small rf current flowing causes an IR drop across the tube grid to cathode and due to the phase relationship it will result in the input conductance dropping which means more RF drive requirement and that will increase as you go up in frequency toward 10 meters.We are running the 12BY7A just about maxed out as it is.

I have to admit with all the testing I have done I have never looked at the 6146 cathodes for RF current. You have piqued my interest. Might be fun to look at it with the bypass caps removed.

Terry K9TW

46374. RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:35:15 UTC
From: <pmarkavage@...>
Topic: 46372 Message: 46374

Go here:
http://nte01.nteinc.com/nte/NTExRefSemiProd.nsf/$$Search?OpenForm
http://nte01.nteinc.com/nte/NTExRefSemiProd.nsf/$$Search?OpenForm

Pete, wa2cwa

46375. RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:44:37 UTC
From: <wagstw46@...>
Topic: 46372 Message: 46375

Ron:

It appears you are looking for an ALC transistor. It is unusual for it to fail. I hope you have not had a 6146 tube arc over to the control grid and to the FG line. Kind of unusual as arc over normally gets the beam forming plates and cathode.

Can lose a lot of components if that has occurred including series choke L3 and burn the RF board at Q10 and maybe burn up the bias voltage adjust pot. Just about have to inspect everything in the path back to -C power supply.

Curious if it is Q10 that you have diagnosed as failed?

Terry K9TW

46376. Re: [TS-520_820_530_830] RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:56:07 UTC
From: Ron
Topic: 46372 Message: 46376

Yes Terry Q10 as I have checked it with ohm meter shows bad , why who knows this is the rewire 520

Ron KK4PWF

On Dec 13, 2013, at 4:44 PM, <wagstw46@...> wrote:

>
>
> Ron:
>
>
>
> It appears you are looking for an ALC transistor. It is unusual for it to fail. I hope you have not had a 6146 tube arc over to the control grid and to the FG line. Kind of unusual as arc over normally gets the beam forming plates and cathode.
>
>
>
> Can lose a lot of components if that has occurred including series choke L3 and burn the RF board at Q10 and maybe burn up the bias voltage adjust pot. Just about have to inspect everything in the path back to -C power supply.
>
>
>
> Curious if it is Q10 that you have diagnosed as failed?
>
>
>
> Terry K9TW
>
>
>
>

46377. Re: [TS-520_820_530_830] TS-520 Lock Screw on Load control linkage hitting driver

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 21:52:42 UTC
From: Michael Sylvester
Topic: 46358 Message: 46377

The bumping screw, replace it with a set screw?
The metal goes inside, it's supposed to ground that shield.
MICHAEL///KD0WSJ

From: "bgaston@..." <bgaston@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 10:10 AM
Subject: [TS-520_820_530_830] TS-520 Lock Screw on Load control linkage hitting driver

Just picked up a TS520 of "unknown condition" and have it up and putting out full power on all bands.

Noticed a "catch" last night on the load control, and opened the cover to find one of the screws on the shaft coupling that sticks out further than normal and is bumping the driver tube as it goes by. The shaft is keyed/flatted on one side so only one screw can go far enough into this coupling to clear the driver tube, and there are two on it.

I will put a photo in the album if you'd care to see what I'm talking about.

Secondly, is the metal piece running up the side of the driver tube supposed to be outside or inside the tube covering the valve?

Thanks.
BG

46378. Re: [TS-520_820_530_830] RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:49:54 UTC
From: Michael Sylvester
Topic: 46372 Message: 46378

Thanks for that valuable link Pete. Where were you when I was trying to find components for my Milwaukee electric screwdriver last year?
Michael///KD0WSJ

From: "pmarkavage@..." <pmarkavage@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 4:35 PM
Subject: [TS-520_820_530_830] RE: transistors

Go here:
http://nte01.nteinc.com/nte/NTExRefSemiProd.nsf/$$Search?OpenForm

Pete, wa2cwa

46379. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:25:06 UTC
From: Michael Sylvester
Topic: 46351 Message: 46379

Yes, I mispoke. I'm old, goofy, and ignorant.
The reference to the GE 6146W not being good in the Kenwoods is from another man that gave me alot of info yesterday. He said he burned up 3 or 4 boards using the GE W's and that his conclusion was something is not right with them in Kenwood transceivers. Obviously not bias, those were his words.

Again, from Kens' website:
Damaged Cathode Resistors
If a rig appears to load up properly, with sufficient plate current and good high voltage, but suffers from low output, the answer is many times the cathode resistors. Kenwood uses these resistors as fuses, to protect the finals and power transformer if the rig is mistuned for any length of time. The resistors will overheat, start to climb in resistance, and maybe even burn and rupture. In the picture below, the larger 1W 10 ohm resistors are in series with the cathodes of the 6146B's. In a rig that's been abused, these resistors may look fine, but actually be high in value from being overheated. The only way to tell is to measure them. Being in parallel, they should measure a total 5 ohms to ground. The plate current metering is derived from these R's, and will read much higher than it's actual value if the resistors are damaged. I replace them with 10 ohm 1W metal film units, to maintain the safety that they provide as pseudo-fuses.

I suggest you also go debate the fuse theory with your freind Ken. I'm sure he knows what the difference between grid and Cathode resistors is however and will not mispeak.
Pardon my mispoken tube part name. Forgive my ignorance, I've been away for a bit.
Man, tough croud today.
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 1:06 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael:

With all due respect:

1. "Grid Resistors"???

Do you mean Cathode meter shunt resistors? Or are you talking about the SG grid stopper resistors?

Are the cathode meter shunt resistors in a Yaesu FT-101, Heath HW-101, or Drake T4X "fuses" as well? Are they designed to blow to protect "other components" ? Wonder how often they blow?

Ken Kempski is a smart man and a friend but I do not want my cathode resistors blowing open. I like to keep my panel meter. Take a read on KW hybrid cathode resistor topic on W8JI Tom Rauch website.

2. "GE 6146W tubes are not biased right for Kenwood Transceivers"???

What does this mean as no vacuum tube comes "biased"? Please elaborate.

Your hybrid wont know what 6146 is in the socket. Any and all will work just fine. Best to not mix no suffx or A and B as they have slightly different inter-electrode capacitance, but any brand other than the new Chinese will work just fine. No need for matched pairs as we are running parallel and not push pull.

I am sorry but this is starting to get pretty scary and a bit concerned for our newly licensed and first time KW hybrid owners that may be taking notes on this.

Terry K9TW

46380. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:07:59 UTC
From: Michael Sylvester
Topic: 46351 Message: 46380

Yes, cathode resistors, I mispoke, thank you for catching that.
I even went and looked at the schematic before I posted because I keep catching myself doing that often. That little thing in the bottom of the tube picture, huh?
Pin #1. cathode.

Yes, those are also meter shunts.
From K4EAA's website:
Damaged Cathode Resistors
If a rig appears to load up properly, with sufficient plate current and good high voltage, but suffers from low output, the answer is many times the cathode resistors. Kenwood uses these resistors as fuses, to protect the finals and power transformer if the rig is mistuned for any length of time. The resistors will overheat, start to climb in resistance, and maybe even burn and rupture. In the picture below, the larger 1W 10 ohm resistors are in series with the cathodes of the 6146B's. In a rig that's been abused, these resistors may look fine, but actually be high in value from being overheated. The only way to tell is to measure them. Being in parallel, they should measure a total 5 ohms to ground. The plate current metering is derived from these R's, and will read much higher than it's actual value if the resistors are damaged. I replace them with 10 ohm 1W metal film units, to maintain the safety that they provide as pseudo-fuses.

I'll let you debate it with him, you both know much more than me I concede.
I thank you for correcting my tube component name error.
Michael///KD0WSJ

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 12:48 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael,

You said:

"the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm that act as fuses".

No, unfortunately, not true.

The "4" resistors you are referring to are not "grid resistors" but rather they are "cathode resistors" and they do not act as fuses as you have also said they do.

The cathode resistors in the 520, 820, 530, and 830, act as meter shunts, allow for a voltage drop to occur during transmit when current flows in the cathode circuit. This voltage is then applied to the metering circuit resulting in a significant decrease in DC voltage caused by voltage drops that occur in the meter "multiplier" resistors, reducing the voltage down to the "mv" level, that is then applied to the meter through the "IP" meter switch setting. The metering circuit in the 520, 820, 530, and 830 hybrids measures "voltage" even though the meter's top scale is registering "current".

The Rectifier Unit board shown in the eBay add is not from a TS-820 but rather from a TS-830. None of the resistors on the TS-830 Rectifier Unit board pictured in the eBay ad show any signs of being "toast" (overheated) so that is not what's wrong with the Rectifier Unit board.

73
Mike W5RKL

On 12/13/2013 10:56 AM, Michael Sylvester wrote:

>The 470 Ohm resistor on the rectifier board is usually toast too.
>I just bought another 820S Tuesday, making 5 total here!!!
>I just bought the RF finals board, Rectifier board for 820S and a 430 LPF board, to get the small relays, hoping they match the relays in LA-1000 amps (I have 2 right now), one pristine and one beater I've restored), for $60 delivered.
>
>The damage you will find on the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm that act as fuses. Don't "super size" them as Ken, K4EAA.com (http://www.k4eaa.com/examples.html) would say. He has a page showing what happens when you increase the wattage rating of resistors there to keep them from burning up. Can't find it right now...
>Kenwood designed them to act as fuses protecting the other components.I just replaced (10), yes 10, 33 Ohm 1/4 watt resistors in parallel that replaced them on one radio, I think the "oldham" that went silent key must have bought them for bulk quantity price.......
>The TS-530S I've nicknamed "Old Dog", looks like he went through WWI in the trenches. 10-33's in parallel make 3 Ohms, real high wattage, too high current, and is probably why he had fires on that board and the Rectifier board.
>"Old Dog" is the the brother of "Pretty Sister", the pristine, perfect low miles
>TS-530S I had for sale on eBay, came from the same estate.
>I've got 20 or so hours into "Old Dog" and not done yet.
>The other damage you will find is R11 on the rectifier board. A 470 Ohm resistor. Had a fire there too......
>I had a man contact me on eBay, try to give a bunch of knowledge but his letter was lost because it contained an email addy, eBay clips the emails.
>He later contacted me by Personal email, found it on my QRZ page I'd geuss. He said he found by trial and error that the GE 6146W tubes are not biased right for Kenwood Transceivers, the hard way by burning up some boards using the GE W's.
>I believe He's right and that they are the source of many fried Finals and Rectifier boards. I won't be using any. Sylvania 6146W seem to be ok however.
>"Communications gear will be essential"
>Michael///KD0WSJ
>
>
>From: Mike mailto:w5rkl@...
>To: Yahoo Kenwood Group mailto:TS-520_820_530_830@yahoogroups.com
>Sent: Friday, December 13, 2013 7:44 AM
>Subject: [TS-520_820_530_830] What's wrong with this board?
>
>
>
>

>There's a TS-830S Rectifier Unit board being sold on eBay for $20 plus $5 shipping. The eBay ID number is 400622364893. Go to ebay.com, put that ID number in eBay's search box and click search and the ad will come up.
>
>I mean no disrespect towards the eBay seller who is selling the TS-830 Rectifier Unit board shown in that eBay add. However, can you find what's wrong with the board he is selling by simply looking at the component side picture in his ad?
>
>His ad says the 830 receiver worked fine but the transmitter had no output. He further says he found a bad resistor on the final board. He then said the Rectifier board was probably okay but there were no guarantees. The issue is not "there's no guarantees" statement. That's more often than not to be expected when selling used equipment.
>
>However, can you see what is wrong with the Rectifier Unit board he is selling and what could easily have been the source for the resistor failure on the final unit board he says in his description? Also, what other possible failures in the final amplifier/final unit board could have possibly occurred that he may not be aware of by looking at the Rectifier Unit board he is selling?
>
>
>73
>Mike W5RKL
>
>
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>
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>

46381. Re: [TS-520_820_530_830] Cathode resistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 22:25:14 UTC
From: clifford wright
Topic: 46369 Message: 46381

Well! I've got wire wounds in my 820S and there should be no problems at all. They were well bypassed by disk ceramic capacitors already. To be sure I added extra ones of higher value in parallel. This makes sure that there are NO resonances in the final cathode circuit.
BTW the original carbon resistors were being slowly cooked out of spec, this often happens with parallel connection as one resistor tends to take more of the load than others due to tolerances.
As long as the value of the resistors are correct there is no reason at all not to use wire wounds. If you REALLY need the resistors to act as a "fuse" then you are either over driving the finals or have no idea how to set up a linear amplifier.
It seems a pretty weird place to use resistors as a fuse!
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46382. Re: [TS-520_820_530_830] RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-13 23:37:15 UTC
From: <wagstw46@...>
Topic: 46372 Message: 46382

OK if you cant find a 2SC856 or NTE sub might be easier to find a 2SC1515 which will work and is used in the other Hybrids for this application, but will have to switch the leads around in the socket. Look on ebay and as I mention do a real good visual as unusual to lose a ALC transistor. Might consider buying several as you dont really know the root cause of the failure.

I think you are going to get an award for having the worse TS520 of all times! I dont have the patience to work on these hacked ones any more and no money in it. Never know if you have found all the mods and problems until you perform a complete service manual alignment.

Good luck

Terry K9TW

46383. Re: [TS-520_820_530_830] RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 01:05:22 UTC
From: Ronald Robinson
Topic: 46372 Message: 46383

thanks for the link Pete !!!!

On Friday, December 13, 2013 5:19 PM, Michael Sylvester <sylvstrmchl@...> wrote:

Thanks for that valuable link Pete. Where were you when I was trying to find components for my Milwaukee electric screwdriver last year?
Michael///KD0WSJ

From: "pmarkavage@..." <pmarkavage@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 4:35 PM
Subject: [TS-520_820_530_830] RE: transistors

Go here:
http://nte01.nteinc.com/nte/NTExRefSemiProd.nsf/$$Search?OpenForm

Pete, wa2cwa

46384. Re: [TS-520_820_530_830] RE: transistors

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 01:03:32 UTC
From: Ronald Robinson
Topic: 46372 Message: 46384

Thanks Terry ,I couldn't have picked a better one to learn on its certainly putting me thru the paces lol

On Friday, December 13, 2013 5:37 PM, "wagstw46@..." <wagstw46@...> wrote:

OK if you cant find a 2SC856 or NTE sub might be easier to find a 2SC1515 which will work and is used in the other Hybrids for this application, but will have to switch the leads around in the socket. Look on ebay and as I mention do a real good visual as unusual to lose a ALC transistor. Might consider buying several as you dont really know the root cause of the failure.

I think you are going to get an award for having the worse TS520 of all times! I dont have the patience to work on these hacked ones any more and no money in it. Never know if you have found all the mods and problems until you perform a complete service manual alignment.

Good luck

Terry K9TW

46385. New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 00:52:07 UTC
From: <brett_forehand@...>
Topic: 46385 Message: 46385

Hi all, I'm new to the group, and a new Technician as well. I recently purchased a clean TS520. I did the DeOxit clean-up, got all the scratchiness out of the switches and potentiometers. The radio tunes up fine on 10 meters, and does right at 100 watts. The problem comes when transmitting on SSB. I can listen and hear my transmission through another monitor rig, and it sounds fine. The problem is the output is intermittent. I have tried two mics with the same outcome... no power output on SSB. Out of the blue, the power will come on strong, and I have gotten good audio reports when it is working right. I can hear the relay click when I key/unkey the mic. I have done extra cleaning of the mic gain/compressor/carrier potentiometers. The problem is still intermittent. Is there something else I should be looking at to fix the problem?

73,
Brett
KF5WXP

46386. RE: New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 03:14:02 UTC
From: <n6wk@...>
Topic: 46385 Message: 46386

Sounds like it might be dirty relay contacts

73,
Gordon
N6WK

46387. Re: [TS-520_820_530_830] RE: New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 06:22:53 UTC
From: John Davidson
Topic: 46385 Message: 46387

I would suspect the bandswitch contacts in the final /driver area being intermittant. How does the plate current behave during an intermittant output episode?

On Friday, December 13, 2013 10:14 PM, "n6wk@..." <n6wk@...> wrote:

Sounds like it might be dirty relay contacts

73,
Gordon
N6WK

46388. RE: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 08:02:31 UTC
From: fpath fpath
Topic: 46351 Message: 46388

Mike,

Supersized comes to mind! This might give some of the newbies a hint

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: w5rkl@...
Date: Fri, 13 Dec 2013 12:48:44 -0600
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael,

You said:

"the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm that act as fuses".

No, unfortunately, not true.

The "4" resistors you are referring to are not "grid resistors" but rather they are "cathode resistors" and they do not act as fuses as you have also said they do.

The cathode resistors in the 520, 820, 530, and 830, act as meter shunts, allow for a voltage drop to occur during transmit when current flows in the cathode circuit. This voltage is then applied to the metering circuit resulting in a significant decrease in DC voltage caused by voltage drops that occur in the meter "multiplier" resistors, reducing the voltage down to the "mv" level, that is then applied to the meter through the "IP" meter switch setting. The metering circuit in the 520, 820, 530, and 830 hybrids measures "voltage" even though the meter's top scale is registering "current".

The Rectifier Unit board shown in the eBay add is not from a TS-820 but rather from a TS-830. None of the resistors on the TS-830 Rectifier Unit board pictured in the eBay ad show any signs of being "toast" (overheated) so that is not what's wrong with the Rectifier Unit board.

73
Mike W5RKL

On 12/13/2013 10:56 AM, Michael Sylvester wrote:

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The damage you will find on the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm that act as fuses. Don't "super size" them as Ken, K4EAA.com (http://www.k4eaa.com/examples.html) would say. He has a page showing what happens when you increase the wattage rating of resistors there to keep them from burning up. Can't find it right now...
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"Old Dog" is the the brother of "Pretty Sister", the pristine, perfect low miles TS-530S I had for sale on eBay, came from the same estate.
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I believe He's right and that they are the source of many fried Finals and Rectifier boards. I won't be using any. Sylvania 6146W seem to be ok however.
"Communications gear will be essential"
Michael///KD0WSJ

From: Mike <w5rkl@...>
To: Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
Sent: Friday, December 13, 2013 7:44 AM
Subject: [TS-520_820_530_830] What's wrong with this board?

There's a TS-830S Rectifier Unit board being sold on eBay for $20 plus $5 shipping. The eBay ID number is 400622364893. Go to ebay.com, put that ID number in eBay's search box and click search and the ad will come up. I mean no disrespect towards the eBay seller who is selling the TS-830 Rectifier Unit board shown in that eBay add. However, can you find what's wrong with the board he is selling by simply looking at the component side picture in his ad?His ad says the 830 receiver worked fine but the transmitter had no output. He further says he found a bad resistor on the final board. He then said the Rectifier board was probably okay but there were no guarantees. The issue is not "there's no guarantees" statement. That's more often than not to be expected when selling used equipment.However, can you see what is wrong with the Rectifier Unit board he is selling and what could easily have been the source for the resistor failure on the final unit board he says in his description? Also, what other possible failures in the final amplifier/final unit board could have possibly occurred that he may not be aware of by looking at the Rectifier Unit board he is selling?73Mike W5RKL

46389. SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 08:15:50 UTC
From: Peter Ravn
Topic: 46257 Message: 46389

Mike,

I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY. When it is installed, and R11, R15 and R16 on the rectifier have been replaced, I will follow your instruction and let you know the result.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 11. december 2013 22:15
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices, www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has

gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered

do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms,
R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either,

so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth

resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@ymail.com wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

46390. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 13:27:18 UTC
From: Mike
Topic: 46351 Message: 46390

Dave,

Yep you're right if you are referring to the large 2 watt resistor, color bands BLUE/GRAY/BLACK/SILVER indicating 68 ohms 10% tolerance, mounted just to the left of RL1 on the 830's Rectifier Unit board. That LARGE 68 ohm 2 watt resistor replaced the original design 470 ohm 1/2 watt for R11, a VERY VERY BAD idea!

That LARGE resistor should have stuck out like a sore thumb to anyone looking at the board. For example, the seller said the 830 had no RF output and he found a resistor on the Final board that was bad. If that Rectifier Unit board was found in an 830 with that large 68 ohm 2 watt resistor in place of the original 470 ohm 1/2 watt resistor for R11, I would instantly suspect there are more problems than one bad resistor on the Final Unit board. At a minimum, I would not trust the 6146Bs in the final amplifier, they could easily have been permanently damaged.

This should be a clear indicator for those members who may have considered doing this because they read or were told they can increase their TS-830's power output by changing R11 to a lower resistance value, that they should NOT do that!!!

The 6146B's ICAS service maximum ratings in Class AB1 RF amplifier are:

Maximum screen voltage (Grid #2) is 250VDC
Maximum screen power dissipation (Grid #2) is 3 watts which equals a maximum screen current (Grid #2) of 12ma (3 / 250 = .012).

ICAS stands for "Intermittent Commercial and Amateur Service"
CCS stands for "Continuous Commercial Service".

http://www.ab4oj.com/quadra/icas.html

http://w8ji.com/designing_ham_transmitter.htm

http://frank.pocnet.net/sheets/079/6/6146B.pdf

73
Mike W5RKL

On 12/14/2013 2:02 AM, fpath fpath wrote:
>
> Mike,
>
> Supersized comes to mind! This might give some of the newbies a hint
>
> 73's
> Dave

> VK5PDL
>
> ---
> To: TS-520_820_530_830@yahoogroups.com
> From: w5rkl@...
> Date: Fri, 13 Dec 2013 12:48:44 -0600
> Subject: Re: [TS-520_820_530_830] What's wrong with this board?
>
> Michael,
>
> You said:
>
> "the finals board would be the (4) grid resistors, the 1/2 watt 20 Ohm
> that act as fuses".
>
> No, unfortunately, not true.
>
> The "4" resistors you are referring to are not "grid resistors" but
> rather they are "cathode resistors" and they do not act as fuses as
> you have also said they do.
>
> The cathode resistors in the 520, 820, 530, and 830, act as meter
> shunts, allow for a voltage drop to occur during transmit when current
> flows in the cathode circuit. This voltage is then applied to the
> metering circuit resulting in a significant decrease in DC voltage
> caused by voltage drops that occur in the meter "multiplier"
> resistors, reducing the voltage down to the "mv" level, that is then
> applied to the meter through the "IP" meter switch setting. The
> metering circuit in the 520, 820, 530, and 830 hybrids measures
> "voltage" even though the meter's top scale is registering "current".
>
> The Rectifier Unit board shown in the eBay add is not from a TS-820
> but rather from a TS-830. None of the resistors on the TS-830
> Rectifier Unit board pictured in the eBay ad show any signs of being
> "toast" (overheated) so that is not what's wrong with the Rectifier
> Unit board.
>
> 73
> Mike W5RKL
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> On 12/13/2013 10:56 AM, Michael Sylvester wrote:

>
> The 470 Ohm resistor on the rectifier board is usually toast too.
> I just bought another 820S Tuesday, making 5 total here!!!
> I just bought the RF finals board, Rectifier board for 820S and a
> 430 LPF board, to get the small relays, hoping they match the
> relays in LA-1000 amps (I have 2 right now), one pristine and one
> beater I've restored), for $60 delivered.
> The damage you will find on the finals board would be the (4) grid
> resistors, the 1/2 watt 20 Ohm that act as fuses. Don't "super
> size" them as Ken, K4EAA.com (http://www.k4eaa.com/examples.html)
> would say. He has a page showing what happens when you increase
> the wattage rating of resistors there to keep them from burning
> up. Can't find it right now...
> Kenwood designed them to act as fuses protecting the other
> components.I just replaced (10), yes 10, 33 Ohm 1/4 watt resistors
> in parallel that replaced them on one radio, I think the "oldham"
> that went silent key must have bought them for bulk quantity
> price.......
> The TS-530S I've nicknamed "Old Dog", looks like he went through
> WWI in the trenches. 10-33's in parallel make 3 Ohms, real high
> wattage, too high current, and is probably why he had fires on
> that board and the Rectifier board.
> "Old Dog" is the the brother of "Pretty Sister", the pristine,
> perfect low miles
> TS-530S I had for sale on eBay, came from the same estate.
> I've got 20 or so hours into "Old Dog" and not done yet.
> The other damage you will find is R11 on the rectifier board. A
> 470 Ohm resistor. Had a fire there too......
> I had a man contact me on eBay, try to give a bunch of knowledge
> but his letter was lost because it contained an email addy, eBay
> clips the emails.
> He later contacted me by Personal email, found it on my QRZ page
> I'd geuss. He said he found by trial and error that the GE 6146W
> tubes are not biased right for Kenwood Transceivers, the hard way
> by burning up some boards using the GE W's.
> I believe He's right and that they are the source of many fried
> Finals and Rectifier boards. I won't be using any. Sylvania 6146W
> seem to be ok however.
> "Communications gear will be essential"
> Michael///KD0WSJ
>
> *From:* Mike <w5rkl@...> <mailto:w5rkl@...>
> *To:* Yahoo Kenwood Group <TS-520_820_530_830@yahoogroups.com>
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Sent:* Friday, December 13, 2013 7:44 AM
> *Subject:* [TS-520_820_530_830] What's wrong with this board?
>
> There's a TS-830S Rectifier Unit board being sold on eBay for $20
> plus $5 shipping. The eBay ID number is 400622364893. Go to
> ebay.com, put that ID number in eBay's search box and click search

> and the ad will come up.
>
> I mean no disrespect towards the eBay seller who is selling the
> TS-830 Rectifier Unit board shown in that eBay add. However, can
> you find what's wrong with the board he is selling by simply
> looking at the component side picture in his ad?
>
> His ad says the 830 receiver worked fine but the transmitter had
> no output. He further says he found a bad resistor on the final
> board. He then said the Rectifier board was probably okay but
> there were no guarantees. The issue is not "there's no guarantees"
> statement. That's more often than not to be expected when selling
> used equipment.
>
> However, can you see what is wrong with the Rectifier Unit board
> he is selling and what could easily have been the source for the
> resistor failure on the final unit board he says in his
> description? Also, what other possible failures in the final
> amplifier/final unit board could have possibly occurred that he
> may not be aware of by looking at the Rectifier Unit board he is
> selling?
>
>
> 73
> Mike W5RKL
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>

46391. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 15:06:30 UTC
From: <wagstw46@...>
Topic: 46351 Message: 46391

The other QRO mod and maybe more common one is to simply move the 210A lead over to the 300 terminal on the Rect Unit Board. Now you have increased the SG voltage to the Driver tube as well as the 6146 finals.

What is sad about this is it shows absolutely no understanding of what the effect of raising RF output power from 100 watts to 130 watts means on the receiving end. Remember it take 4X power increase to realize 1 S-unit increase.

Also none of these QRO mods consider what effect on IMD but who cares about linearity if you have this kind of mentality.

Some of you may remember that back in th 70s Jerry Ginsberg W6TOG (SK) sold mod kits for the TS520 and TS820 rigs. One popular kit was a QRO kit that included changing the S2001 tubes out for 6293 pulse rated tubes, raising the screen grid voltage as Mike discusses, changing the ALC time constant resistors and capacitors to shorten the recovery time so ALC provided some level of compression, and even changing the zero signal plate current bias voltage setting.

As hams we have been experimenting and modifying rigs since day one, but some of these mods are very ill conceived.

W6TOG was a smart guy and made money by selling KW hybrid owners kits that included different front end dual gate mosfets promising improved rx sensitivity and better noise figure, different balanced mixer devices that promised better RF overload immunity, and lastly his Magicom board that converts the TS-820 speech processor from a compressor to a rf clipper.

I have seen them all and in my opinion none produce the dramatic promised effects. At least not to my ear. When I find them in a customers rig I confer with the owner and recommend removal. Just recently had a TS-820 with the Magicom board hanging off back of IF board.

A properly aligned TS-820 speech processor works just fine.

Terry K9TW

46392. SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 16:08:33 UTC
From: Peter Ravn
Topic: 46257 Message: 46392

Mike,

I found the smoking gun today: R102, a 10 k ohms resistor connecting Q10 on the AF unit to the FG terminal on the board. The resistor is severely discoloured, but surprisingly not open. It will naturally be replaced.

73

Peter, OZ8CTH

a: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 14. december 2013 09:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY. When it is installed, and R11, R15 and R16 on the rectifier have been replaced, I will follow your instruction and let you know the result.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 11. december 2013 22:15
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices,

www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal

noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke

and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either, so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@...m
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn

Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com

Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

46393. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 07:06:39 UTC
From: Michael Sylvester
Topic: 46351 Message: 46393

(regarding the theorized possible damage fom GE 6146W tubes)

From: "Your hybrid wont know what 6146 is in the socket. Any and all will work just fine. Best to not mix no suffx or A and B as they have slightly different inter-electrode capacitance, but any brand other than the new Chinese will work just fine. No need for matched pairs as we are running parallel and not push pull.
Terry K9TW
,Quote:

I am sorry but this is starting to get pretty scary and a bit concerned for our newly licensed and first time KW hybrid owners that may be taking notes on this. "
Terry K9TW

Unquote.

Sorry, didn't mean to steer anyone wrong with buggered up information.
I too am a new ticket and first time Kenwood owner.

What is wrong with the Khainese tubes, in your opinion, other than country of origin?

Good to hear that unmatched tubes will work in the finals.

Never heard that before.
So then why do unmatched tubes blow so often for me? Matched tubes don't however so it's not that I'm an idiot or that I have no clue how to tune. I do know now that alot of that WAS a learning process and also from using cheap questionable used tubes
I have several Hybrids, some need work. So I've tried several radios and went through several mismatched sets of used tubes.

I too have a new ticket and never owned a Kenwood before 3 months ago.

I didn't mean to "scare" you.
Perhaps it would be better if I did not participate here, if never allowed to use a wrong word, or suggest a controversial idea, without being berated.
Surely you would rather not hear of my new ideas or techniques to clean wafer switches, new tools I've made just for that purpose. Or how I am repairing the wafer contacts using methods before untried, with good success. Certainly nobody could come up with a method better than spraying petroleum distilates all over our cirquit boards. Everything has been thought of and tried in the 35 year history of the Hybrids.
After all I am a "new ticket".

Perhaps it would be better for my ego to not come here to share my ideas to be pounced upon by even bigger egos for mistakes like using the word grid instead of cathode. I mispoke. I even checked the schematic before I wrote to get it right and still used the wrong term. Surely that mistake has never been made here before?

I have an extensive electronics background but have not used much of it in decades.
If I am not contributing in a beneficial way I'll keep my ideas to myself and keep my mouth

shut,
boy that would be hard.
I freely admit I'm human and make mistakes. More so as I get older.
I am, like alot of you, smarter than most. I've learned alot in my short time here, I am a very fast learner.
But my ego is fragile. Please be more tolerant of my errors and be more considerate of my ideas.
If we could all be a bit more tolerant and understanding, showing the patience and understanding we like to receive, we can all learn from one another.
Even from a new ticket.
Thanks for putting up with me, I know it can be hard.

Please answer my question regarding Khianese tubes.
Michael Sylvester///KD0WSJ

WPS. What do you get when you buy cheap chines junk tools?
What do you get when you buy cheap chinese junk tools?

From: Michael Sylvester <sylvstrmchl@...>
To: TS-520_820_530_830@...m
Sent: Friday, December 13, 2013 4:25 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Yes, I mispoke. I'm old, goofy, and ignorant.
The reference to the GE 6146W not being good in the Kenwoods is from another man that gave me alot of info yesterday. He said he burned up 3 or 4 boards using the GE W's and that his conclusion was something is not right with them in Kenwood transceivers. Obviously not bias, those were his words.

Again, from Kens' website:
Damaged Cathode Resistors
If a rig appears to load up properly, with sufficient plate current and good high voltage, but suffers from low output, the answer is many times the cathode resistors. Kenwood uses these resistors as fuses, to protect the finals and power transformer if the rig is mistuned for any length of time. The resistors will overheat, start to climb in resistance, and maybe even burn and rupture. In the picture below, the larger 1W 10 ohm resistors are in series with the cathodes of the 6146B's. In a rig that's been abused, these resistors may look fine, but actually be high in value from being overheated. The only way to tell is to measure them. Being in parallel, they should measure a total 5 ohms to ground. The plate current metering is derived from these R's, and will read much higher than it's actual value if the resistors are damaged. I replace them with 10 ohm 1W metal film units, to maintain the safety that they provide as pseudo-fuses.

I suggest you also go debate the fuse theory with your freind Ken. I'm sure he knows what the difference between grid and Cathode resistors is however and will not mispeak.
Pardon my mispoken tube part name. Forgive my ignorance, I've been away for a bit.
Man, tough croud today.
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 1:06 PM

Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael:

With all due respect:

1. "Grid Resistors"???

Do you mean Cathode meter shunt resistors? Or are you talking about the SG grid stopper resistors?

Are the cathode meter shunt resistors in a Yaesu FT-101, Heath HW-101, or Drake T4X "fuses" as well? Are they designed to blow to protect "other components" ? Wonder how often they blow?

Ken Kempski is a smart man and a friend but I do not want my cathode resistors blowing open. I like to keep my panel meter. Take a read on KW hybrid cathode resistor topic on W8JI Tom Rauch website.

2. "GE 6146W tubes are not biased right for Kenwood Transceivers"???

What does this mean as no vacuum tube comes "biased"? Please elaborate.

Your hybrid wont know what 6146 is in the socket. Any and all will work just fine. Best to not mix no suffx or A and B as they have slightly different inter-electrode capacitance, but any brand other than the new Chinese will work just fine. No need for matched pairs as we are running parallel and not push pull.

I am sorry but this is starting to get pretty scary and a bit concerned for our newly licensed and first time KW hybrid owners that may be taking notes on this.

Terry K9TW

46394. RE: TS520 relays not operating when go to TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 08:59:17 UTC
From: <peterlake2003@...>
Topic: 46355 Message: 46394

Thanks Terry will give that a shot, with any luck will cure the problem.
Will let you know
Cheers
Best 73s
Peter G8ZZL

46395. good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 14:49:39 UTC
From: kenny
Topic: 46395 Message: 46395

http://stakeholders.ofcom.org.uk/consultations/citizens-band-radio/statement/

46396. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 17:36:44 UTC
From: Joe - W7RKN
Topic: 46395 Message: 46396

Guess I am lacking a wee bit of information here, but...if your CB radio service can *now* use AM, what *DID* they use before being allowed to use AM??????

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: [TS-520_820_530_830] good news for the uk

☐

http://stakeholders.ofcom.org.uk/consultations/citizens-band-radio/statement/

46397. RE: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 18:02:35 UTC
From: Rob
Topic: 46395 Message: 46397

FM

Cheers,

Rob.

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Joe - W7RKN
Sent: Sunday, 15 December 2013 4:37 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

☐

Guess I am lacking a wee bit of information here, but...if your CB radio service can *now* use AM, what *DID* they use before being allowed to use AM??????

Joe - W7RKN

----- Original Message -----

From: kenny <mailto:kenny.macdougall@...>

Subject: [TS-520_820_530_830] good news for the uk

☐

http://stakeholders.ofcom.org.uk/consultations/citizens-band-radio/statement/

46398. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 18:33:43 UTC
From: <wagstw46@...>
Topic: 46351 Message: 46398

Michael

I dont know you. I dont know your formal education level. I dont know your fundamental electronic knowledge. I dont know your fundamental radio theory knowledge, I do not know your KW hybrid knowledge or experience.

There is nothing wrong with being new. We all were at one time. However, a new person who listens and asks is far more likely to be taken seriously than one who speaks when clearly has little or no knowledge of the subject.

All I or anyone else on this forum can go by is what you say and how you say it in writing. After about 3 or 4 posts and responses a picture is painted. The perception may be wrong, but important for you to know what that perception is and to care about it and to take action to change it if it is wrong. Perception is always the other guys reality.

Regarding perception it is clear you have lots of zeal and are anxious to help, but it is also very obvious that you lack basic electronic knowledge, vacuum tube fundamentals, and KW hybrid knowledge and experience OR you have become very very rusty. Time will tell.

One of the very worst things any of us can do on this forum is bum dope people. Any and all of us should be corrected when we give out bad or just plain wrong technical advice. We are adults and should not take that as personal attack. Sometimes we just make a mistake or typo and other times we are out in left field. That includes me.

There will always be professional differences of opinion but those should be debated on the merits of the technical basis that each side presents and not on subjective or anecdotal or tribal myths and beliefs. Far too much of that abounds on the various ham radio forums today. For example, you will always have those who insist that matched pair finals are better or necessary and when quizzed about only one bias voltage pot and no ability to individually set the zero signal plate current they huff and puff and tap dance around.

You recently talked about cleaning all the Molex connectors on a TS520 and applying Corrosion X and presenting it as new idea. Well it is not a new idea. Many people recommend cleaning molex connectors as first step in resolving any and all operational issues with a hybrid. I am in the camp that this is silly and bad advice. It represents risk of immediate damage and introducing latent failure and simply is not required. Yes from time to time it will resolve an issue, but what really fixed the problem? Experiential based troubleshooting is fine, but once that is exhausted have to break out the schematic and test gear. Also, Corrosion X is commonly used by the RC model boat folks who routinely immerse their electronics. I never submerge any of my KW hybrids. Deoxit and Fader lube properly applied works great and no oily smelly greasy residue. By the way a TS-520 has no molex connectors as it uses wire wrap terminal posts.

So I appreciate your zeal and interest and eagerness to help, but it appears to me at this stage of your development you would be better served reading the post, asking questions, and learning. However, it is your call if you wish to continue responding as you have been. You need to earn respect and that will come with the quality of your questions and

responses.

I am not telling you that you are not welcome on this forum. I am not the owner and not in position to say one way or another. What I can offer is if you want to learn there are people here with 40 to 50 years ham radio knowledge and experience who grew up in the tube era and who have 10 to 15 years of hands on KW hybrid repair and they freely share any and all of their knowledge and experience. Up to you if you want to avail yourself of that valuable resource. Of course as we age we are looking for new folks to take our place holding up the tent poles. Those people dont get produced over night.

Just dont be too thin skinned or have fragile self esteem. When someone corrects you it is meant to help you and every new person who is following along. This is a technical forum and a KW hybrid is a complex engineering marvel. To be taken seriously you need to be credible.

"Reburbing" KW hybrids by cleaning, lubing, and painting them does not make anyone a KW hybrid service tech. Yes cosmetic cleaning is a part of repair, but it takes knowledge, experience, proper test gear, and knowing how to use it to run the Service Manual steps to restore a KW hybrid to factory performance level. Sure you can run the Owner Instruction Manual Maintenance section steps and get rig in pretty good shape. It just depends on how many golden screw drivers have been inside the rig and what your definition of performance and quality is.

Any technical discipline comes with its own parlance and jargon and using the terminology in the proper context speaks volumes about the persons knowledge and experience level.

So sorry if I hurt your feelings, but very hard to sit on sidelines and read advice that the goes way beyond not using the parlance properly. So to be 100% honest with you in my mind the jury is still out. Hopefully, you care enough to accept the challenge and prove me and others wrong.

Terry K9TW

46399. Search function not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 20:26:22 UTC
From: ravnpeter@ymail.com
Topic: 46399 Message: 46399

The search function in the yahoo groups I subscribe to have not been working for some time. It goes for this group as well. Any idea why?

Thanks.

Peter, OZ8CTH

46400. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 17:45:00 UTC
From: kenny
Topic: 46395 Message: 46400

Hi Joe,
27MHz FM
73s
Kenny
Scotland

----- Original Message -----
From: Joe - W7RKN
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 5:36 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

☐

Guess I am lacking a wee bit of information here, but...if your CB radio service can *now* use AM, what *DID* they use before being allowed to use AM??????

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: [TS-520_820_530_830] good news for the uk

☐
http://stakeholders.ofcom.org.uk/consultations/citizens-band-radio/statement/

46401. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 17:39:43 UTC
From: kenny
Topic: 46395 Message: 46401

27/81 fm
----- Original Message -----
From: Joe - W7RKN
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 5:36 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

☐

Guess I am lacking a wee bit of information here, but...if your CB radio service can *now* use AM, what *DID* they use before being allowed to use AM??????

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: [TS-520_820_530_830] good news for the uk

☐
http://stakeholders.ofcom.org.uk/consultations/citizens-band-radio/statement/

46402. Kenwood530s and Swan 1200X

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 18:49:29 UTC
From: Bill Telesca
Topic: 46402 Message: 46402

Hi all:

Have a Kenwood 530s and a Swan 1200x amp. Understand their is a mod to hook up the relay cable from the 1200x to the 530s. Looking for the mod and how do you hook up the relay cable with the mod from the back of the 1200x to the 530s

Bill ----- KA2SHA

46403. Re: [TS-520_820_530_830] Search function not working

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 20:52:03 UTC
From: Joseph Stiles
Topic: 46399 Message: 46403

Peter,

  I just went and checked. From my end here it works just fine. I entered "ts-830S bias" in the search groups(s) area and got a whole lot of returns/threads/conversations.

73 Joe
WB7UQU
Group Co-owner

On Saturday, December 14, 2013 12:26 PM, "ravnpeter@..." <fasan5@...> wrote:

>The search function in the yahoo groups I subscribe to have not been working for some time. It goes for this group as well. Any idea why?
>
>Thanks.
>
>Peter, OZ8CTH
>
>
>
>
>

46404. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 21:06:13 UTC
From: Joe - W7RKN
Topic: 46395 Message: 46404

Well! I learned something....again....I just figured your CB was like ours...AM and SSB.

What is your frequency band span?

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: Re: [TS-520_820_530_830] good news for the uk

☐

27/81 fm

46405. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 21:45:47 UTC
From: Guy Morgan
Topic: 46395 Message: 46405

When CB was legalised in the UK a slightly different frequency band and FM were used in order not to legitimise the imported US AM/SSB gear being used illicitly at the time.

Guy – G3POM

From: Joe - W7RKN
Sent: Saturday, December 14, 2013 9:06 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

☐

Well! I learned something....again....I just figured your CB was like ours...AM and SSB.

What is your frequency band span?

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
27/81 fm

46406. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 21:56:44 UTC
From: William Houghton
Topic: 46395 Message: 46406

I fail to understand why this is GOOD news ... hihi

From: Guy Morgan <yahoo@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 1:45 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

When CB was legalised in the UK a slightly different frequency band and FM were used in order not to legitimise the imported US AM/SSB gear being used illicitly at the time.

Guy – G3POM

From: Joe - W7RKN
Sent: Saturday, December 14, 2013 9:06 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
Well! I learned something....again....I just
figured your CB was like ours...AM and SSB.

What is your frequency band span?

Joe - W7RKN
----- Original Message -----
>From: kenny
>Subject: Re: [TS-520_820_530_830] good news for the uk
> ☐
>27/81 fm
>

46407. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 22:07:26 UTC
From: Guy Morgan
Topic: 46395 Message: 46407

So do I! IMHO it's a bad move.

Guy – G3POM

From: William Houghton
Sent: Saturday, December 14, 2013 9:56 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

I fail to understand why this is GOOD news ... hihi

From: Guy Morgan <yahoo@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 1:45 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

When CB was legalised in the UK a slightly different frequency band and FM were used in order not to legitimise the imported US AM/SSB gear being used illicitly at the time.

Guy – G3POM

From: Joe - W7RKN
Sent: Saturday, December 14, 2013 9:06 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
Well! I learned something....again....I just figured your CB was like ours...AM and SSB.

What is your frequency band span?

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
27/81 fm

46408. Re: [TS-520_820_530_830] Kenwood530s and Swan 1200X

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 22:24:16 UTC
From: W5RKL
Topic: 46402 Message: 46408

Hi Bill,

The following link will allow you to download the manual for the Swam 1200W amp which has the required changes in the manual under the "Installation" section.

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CC8QFjAB&url=http%3A%2F%2Fgmcotton.com%2FHam_Radio%2FMISC%2520Manuals%2FSwan%2FSwan_1200W%2520Linear_Service%2520Manual.pdf&ei=tdesUsCUB-mc2QXho4HQCQ&usg=AFQjCNGF5osQRQ5y6qO2E_WeE2k1XbhuQw&bvm=bv.57967247,d.b2I

You should know the Swan 1200 amplifier does not have an internal cooling fan to blow air across the tubes. The amplifier uses "6LQ6" sweep tubes, four of them. You must follow the instructions for tune up and operating so you do not over drive the amplifier and/or overheat the tubes. Before you make any changes to the amplifier's relay switching circuit, you should check the amplifier first, it's quite possible a previous owner may have made the changes outlined in the amplifier's manual. You should also check for a fan that may have been installed by a previous owner, the amplifier did not have an internal fan when it came from the factory. If there is no fan you should seriously consider installing one that blows air at the tubes. Those sweep tubes are not cheap and can easily be damaged by excessive heat.

73
Mike W5RKL

On 12/14/2013 12:49 PM, Bill Telesca wrote:
>
> Hi all:
>
> Have a Kenwood 530s and a Swan 1200x amp. Understand their is a mod
> to hook up the relay cable from the 1200x to the 530s. Looking for the
> mod and how do you hook up the relay cable with the mod from the back
> of the 1200x to the 530s
>
> Bill ----- KA2SHA
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46409. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 22:51:22 UTC
From: W5RKL
Topic: 46395 Message: 46409

While it may be interesting for some members to discuss the differences between U.S. and UK CB radios and CB frequencies, this is not the forum for such discussions. If you desire to continue discussions about these topics, please do so off group, through private e-mails.

Thank you and 73
Mike W5RKL
Moderator

On 12/14/2013 4:07 PM, Guy Morgan wrote:
>
> So do I! IMHO it's a bad move.
> Guy – G3POM
> *From:* William Houghton <mailto:rdrbill@...>
> *Sent:* Saturday, December 14, 2013 9:56 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Subject:* Re: [TS-520_820_530_830] good news for the uk
>
>
> I fail to understand why this is GOOD news ... hihi
> ---
> *From:* Guy Morgan <yahoo@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Saturday, December 14, 2013 1:45 PM
> *Subject:* Re: [TS-520_820_530_830] good news for the uk
> When CB was legalised in the UK a slightly different frequency band
> and FM were used in order not to legitimise the imported US AM/SSB
> gear being used illicitly at the time.
> Guy – G3POM
> *From:* Joe - W7RKN <mailto:w7rkn.7@...>
> *Sent:* Saturday, December 14, 2013 9:06 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Subject:* Re: [TS-520_820_530_830] good news for the uk
> ☐
> Well! I learned something....again....I just figured your CB was like
> ours...AM and SSB.
> What is your frequency band span?
> Joe - W7RKN
>
> ----- Original Message -----
> *From:* kenny <mailto:kenny.macdougall@...>
> *Subject:* Re: [TS-520_820_530_830] good news for the uk
> ☐

> /27/81 fm/
>
>
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46410. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-14 22:57:03 UTC
From: Guy Morgan
Topic: 46395 Message: 46410

Sorry

Guy – G3POM

From: W5RKL
Sent: Saturday, December 14, 2013 10:51 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

While it may be interesting for some members to discuss the differences between U.S. and UK CB radios and CB frequencies, this is not the forum for such discussions. If you desire to continue discussions about these topics, please do so off group, through private e-mails.

Thank you and 73
Mike W5RKL
Moderator

On 12/14/2013 4:07 PM, Guy Morgan wrote:

So do I! IMHO it’s a bad move.

Guy – G3POM

From: William Houghton
Sent: Saturday, December 14, 2013 9:56 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

I fail to understand why this is GOOD news ... hihi

From: Guy Morgan mailto:yahoo@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 1:45 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

When CB was legalised in the UK a slightly different frequency band and FM were used in order not to legitimise the imported US AM/SSB gear being used illicitly at the time.

Guy – G3POM

From: Joe - W7RKN
Sent: Saturday, December 14, 2013 9:06 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

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Well! I learned something....again....I just figured your CB was like ours...AM and SSB.

What is your frequency band span?

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
27/81 fm

This email is free from viruses and malware because avast! Antivirus protection is active.

46411. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 06:37:42 UTC
From: Michael Sylvester
Topic: 46351 Message: 46411

To Terry K9TW ,
Thank you for your kind and considerate advice.
Wise words.
You said that I mentioned I'm cleaning the molex connectors, I don't know what a molex connector is. I could have looked it up and not admitted my ignorance.
"a TS-520 has no molex connectors as it uses wire wrap terminal posts."

What I'm doing is cleaning all the multiple wire plugs that are everywhere.
Coating them, gently wire brushing them then pushing and pulling the plugs on and off 3 times.
Cleaned and coated.
Mechanical connections are one of the biggest problem sources of these antique rigs, in my estimation.

With the wafer switches I'm making custom brushes, some just for particular switches, to gently rub the tarnish off the rotating discs, after spraying, cleaning and coating.
I'm trying Corrosion X after hearing a few Hams swear by that, others swear by Deoxit, I've bought them all and will try them all and draw my own conclusions, hopefully I'll live long enough to see the differences.
I will be trying the Fader Lube now because you endorse it and seem knowledgable. Ken likes it too, good enough for you guys I'll at least try it.

I'm using small artists paint brushes to apply chems to just the areas I want coated. I don't like the idea of just bathing or spraying down an area with volumes of toxic, expensive chemicals. I know it can and does work to an extent.

There are some Hams that "dip" or soak boards in chems.....with good results. I've read of using the dishwasher. I'm thinking of gently using the carwash on one I have that is filthy and letting it dry out for days near my woodburner.....
(I recall spraying tuners in the old tv's back in the day.)

(Still not sure what the molex are.)

The man that insisted (by email) the the GE 6146W has PROVEN to him they don't work real well in Kenwood transceivers was very adamant that he'd blown RF boards and Rectifier boards only when he'd used those tubes. He has done the repeated trial and error expensive test, in more than one radio.
For now I'll take his word for it and use other tubes.
Ok, it's not a bias difference (wrong terminology, yes, but HIS words), perhaps internal capacitance differences or I don't know what.
Biasing requirements of the tubes?

I'm surprised that there is such a divide on the opinion of the grid resistors being "pseudo fuses" or not. I understand they establish meter current levels acting as shunts in the cirquit.
(The cobwebs are slowly coming off my electronics memories.)
My impression of K4EAA was that he was one of the "gurus" and his statements were accepted

Biblical truths. I geuss not!!!

So, long story short, Thanks Terry for GENTLY stating your position.
Also for tolerating an ignorant egotistical mechanical genius that doesn't know squat about Kenwoods.....
I will do my best in future to more specifically select my wording when writing of a technical nature and will try to not impress so needfully to gratify my ego.
!!!!??
I appreciate you guys putting up with me,
so far!.....I'll attempt to not be so annoying in future (good luck with that) and to commit fewer errors to words here!

Answer for me, what is your objection to the Khainese tubes, other than country of origin? I've bought one set, I think that was the pair that one slipped out of my hand and I cracked the glass. I haven't had a set long enough to establish an opinion.

Second, explain Molex connector to me. You said:
"You recently talked about cleaning all the Molex connectors on a TS520 and applying Corrosion X and presenting it as new idea. Well it is not a new idea."

What I think might be a new idea (I'm sure somebody has done it before) is using tiny brushes to remove even more tarnish off the rotating discs of the wafer switches that Deoxit spray didn't. While avoiding touching or damaging the fingers of the springy contacts. I really like the idea.
I seem to be having good success with rigs that are giving trouble from bad connections in this switching area.
Some discs are black with corrosion even after spraying, when I'm done most look like new.
The HV cage presents special challenges since it's so crowded. I'm making brushes for each area that are different as I find a way to get at them, away from the delicate contacts.

Also, what is your personal opinion of the apparent difference of opinion on whether the Cathode? resistors act as "pseudo fuses" as Ken calls them?

I'm running about 40 hours now on 2 hours sleep last night. Been doing that alot lately, pushing and testing myself mentally and physically, on purpose.
While it helps me to understand my limits and capabilities, it also turns me into a short tempered, dimwit a**hole, that's offended easily.

I'm expecting great turmoil in our country soon. I need to know my limits and also know I can "operate" under duress and for long hours.
I hope I'm wrong regarding the turmoil.

I pray I'm wrong.

In summation, answer about the Khainese tubes?
What are Molex connectors?
Your opinion on the "fuses" debate please.

Thank you for your time and patience Terry.

"Communications will be key"
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 12:33 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael

I dont know you. I dont know your formal education level. I dont know your fundamental electronic knowledge. I dont know your fundamental radio theory knowledge, I do not know your KW hybrid knowledge or experience.

There is nothing wrong with being new. We all were at one time. However, a new person who listens and asks is far more likely to be taken seriously than one who speaks when clearly has little or no knowledge of the subject.

All I or anyone else on this forum can go by is what you say and how you say it in writing. After about 3 or 4 posts and responses a picture is painted. The perception may be wrong, but important for you to know what that perception is and to care about it and to take action to change it if it is wrong. Perception is always the other guys reality.

Regarding perception it is clear you have lots of zeal and are anxious to help, but it is also very obvious that you lack basic electronic knowledge, vacuum tube fundamentals, and KW hybrid knowledge and experience OR you have become very very rusty. Time will tell.

One of the very worst things any of us can do on this forum is bum dope people. Any and all of us should be corrected when we give out bad or just plain wrong technical advice. We are adults and should not take that as personal attack. Sometimes we just make a mistake or typo and other times we are out in left field. That includes me.

There will always be professional differences of opinion but those should be debated on the merits of the technical basis that each side presents and not on subjective or anecdotal or tribal myths and beliefs. Far too much of that abounds on the various ham radio forums today. For example, you will always have those who insist that matched pair finals are better or necessary and when quizzed about only one bias voltage pot and no ability to individually set the zero signal plate current they huff and puff and tap dance around.

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So I appreciate your zeal and interest and eagerness to help, but it appears to me at this stage of your development you would be better served reading the post, asking questions, and learning. However, it is your call if you wish to continue responding as you have been. You need to earn respect and that will come with the quality of your questions and

responses.

I am not telling you that you are not welcome on this forum. I am not the owner and not in position to say one way or another. What I can offer is if you want to learn there are people here with 40 to 50 years ham radio knowledge and experience who grew up in the tube era and who have 10 to 15 years of hands on KW hybrid repair and they freely share any and all of their knowledge and experience. Up to you if you want to avail yourself of that valuable resource. Of course as we age we are looking for new folks to take our place holding up the tent poles. Those people dont get produced over night.

Just dont be too thin skinned or have fragile self esteem. When someone corrects you it is meant to help you and every new person who is following along. This is a technical forum and a KW hybrid is a complex engineering marvel. To be taken seriously you need to be credible.

"Reburbing" KW hybrids by cleaning, lubing, and painting them does not make anyone a KW hybrid service tech. Yes cosmetic cleaning is a part of repair, but it takes knowledge, experience, proper test gear, and knowing how to use it to run the Service Manual steps to restore a KW hybrid to factory performance level. Sure you can run the Owner Instruction Manual Maintenance section steps and get rig in pretty good shape. It just depends on how many golden screw drivers have been inside the rig and what your definition of performance and quality is.

Any technical discipline comes with its own parlance and jargon and using the terminology in the proper context speaks volumes about the persons knowledge and experience level.

So sorry if I hurt your feelings, but very hard to sit on sidelines and read advice that the goes way beyond not using the parlance properly. So to be 100% honest with you in my mind the jury is still out. Hopefully, you care enough to accept the challenge and prove me and others wrong.

Terry K9TW

Being very careful to avoid the contact fingers, I know how delicate they are, I've repaired a few using Sterling Silver wire, magnifier lamp while wearing 2.25 glasses and fine tip soldering tools. Like doing microsurgery. Quite the challenge. I think it was about 22 gauge silver, I had to restore the springy touch of the contact and solder to it's tip, tough job.

46412. Re: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 08:04:46 UTC
From: William Houghton
Topic: 46385 Message: 46412

Hi Brett,

When you have no power output in SSB, if you switch to CW will the rig transmit in CW?

A useful learning experience will be to study the block diagram of the rig and the transmitter description in the manual so that you know how the transmitted signal is generated.

Here is what I would do.

Tune up the rig when its working or if it works in CW.
Turn the SG (screen grid) switch on the back to the off position. This will save wear on the finals while troubleshooting. You won't get any power output in this position.
Connect an audio generator to the mic input and set it to something like 1kHz. Set the level to something like 10mV. I don't know the exact level you will need but I would think it would be enough. If you don't have one you can key the mic and whistle.
Set the mode to SSB.
Now you can key the rig (probably need to use a jumper on the PTT line if you use an audio gen).
Use a scope to check the various stages to see if signals are present.

If it works in CW but not in SSB the problem is probably in the mic audio amp stages. Set the VOX/MAN switch in MAN to eliminate the VOX circuits from having any influence.
I would check to see that you are getting audio output from the various mic audio stages.

73,

Bill

From: "brett_forehand@..." <brett_forehand@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 4:52 PM
Subject: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Hi all, I'm new to the group, and a new Technician as well. I recently purchased a clean TS520. I did the DeOxit clean-up, got all the scratchiness out of the switches and potentiometers. The radio tunes up fine on 10 meters, and does right at 100 watts. The problem comes when transmitting on SSB. I can listen and hear my transmission through another monitor rig, and it sounds fine. The problem is the output is intermittent. I have tried two mics with the same outcome... no power output on SSB. Out of the blue, the power will come on strong, and I have gotten good audio reports when it is working right. I can hear the relay click when I key/unkey the mic. I have done extra cleaning of the mic gain/compressor/carrier potentiometers. The problem is still intermittent. Is there something else I should be looking at to fix the problem?

73,
Brett
KF5WXP

46413. Re: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 08:05:57 UTC
From: William Houghton
Topic: 46385 Message: 46413

Oops, forgot to put my call,

Bill, WA6NEQ

From: William Houghton <rdrbill@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, December 15, 2013 12:04 AM
Subject: Re: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Hi Brett,

When you have no power output in SSB, if you switch to CW will the rig transmit in CW?

A useful learning experience will be to study the block diagram of the rig and the transmitter description in the manual so that you know how the transmitted signal is generated.

Here is what I would do.

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I would check to see that you are getting audio output from the various mic audio stages.

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Bill

From: "brett_forehand@..." <brett_forehand@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 4:52 PM
Subject: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

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73,
Brett
KF5WXP

46414. Re: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 08:19:57 UTC
From: William Houghton
Topic: 46385 Message: 46414

Brett,

One more thought. Does it fail to work in both USB and LSB or just one of them? I see on the block diagram that there are three xtals for the carrier gen. If it fails just one, its possible that the carrier osc xtal for that mode is having startup issues.

73,

Bill, WA6NEQ

From: William Houghton <rdrbill@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, December 15, 2013 12:04 AM
Subject: Re: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Hi Brett,

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A useful learning experience will be to study the block diagram of the rig and the transmitter description in the manual so that you know how the transmitted signal is generated.

Here is what I would do.

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Use a scope to check the various stages to see if signals are present.

If it works in CW but not in SSB the problem is probably in the mic audio amp stages. Set the VOX/MAN switch in MAN to eliminate the VOX circuits from having any influence.
I would check to see that you are getting audio output from the various mic audio stages.

73,

Bill

From: "brett_forehand@..." <brett_forehand@yahoo.com>

To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 13, 2013 4:52 PM
Subject: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

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73,
Brett
KF5WXP

46415. High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 11:31:33 UTC
From: <adrian@...>
Topic: 46415 Message: 46415

I am having a baffling time with my TS520SE.

One step forward, 2 steps back as I had fixed problem of very low sensitivity on WWV receive by replacing blown Q5 2SK19.

Spent a day last weekend trying to troubleshoot problem with rig not tuning up on output (was getting high SWR and low Ip, which I finally traced to an open circuit patch lead which I was using to connect to dummy load!

So I had been operating the rig and trying to tune it with effectively no load on the output. I'm worried that this has caused some damage as I am now getting high SWR into dummy load, and incredibly high SWR into my usual antenna.

Here are symptoms. Tuning into an MFJ dummy load (which I am almost certain showed SWR close to 1.0 in past on Welz RF/SWR meter), I am seeing SWR of 1.4, 1.6, 2.5, 4.0 on 10m, 20m, 40m, 80m respectively. When I peak power I am seeing lower Ip then I would normally see (170mA when I would usually see around 200mA).

If I try to switch in my antenna (off centre fed dipole) then on the Welz meter I see far higher SWR than when rig was operating normally. On 40m say when I could tune SWR down to 1 using an AT130 matching unit, I now can't dip the SWR below the red portion on the meter, and the Welz meter shows an SWR of over 10!

I know it's not antenna system, as I am getting those high SWR figures into dummy load, but I can't figure out what would be problem in rig which would mean I would see high SWR into external dummy load? It must be something really simple but I'm baffled.

Where should I be looking to start testing/fixing? The receive side of the rig is working perfectly.

Thanks and 73, Adrian G4IQW

46416. Re: [TS-520_820_530_830] High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 12:15:23 UTC
From: Gordon JC Pearce
Topic: 46415 Message: 46416

On Sun, Dec 15, 2013 at 03:31:33AM -0800, adrian@... wrote:
> Here are symptoms. Tuning into an MFJ dummy load (which I am almost certain showed SWR close to 1.0 in past on Welz RF/SWR meter), I am seeing SWR of 1.4, 1.6, 2.5, 4.0 on 10m, 20m, 40m, 80m respectively. When I peak power I am seeing lower Ip then I would normally see (170mA when I would usually see around 200mA).
>

Minimise your variables.

Start by checking your patch leads, SWR meter and dummy load with a known-good radio. Fling the ATU for now, it's just going to mislead you.

If there are any questions over the reliability of the patch leads, dummy load, or SWR meter, get or make known-good ones.

With the dummy load connected to the radio, see if you can load it up as expected on all bands. Just the dummy load, a patch lead and the radio. Note down the meter readings you obtain on all bands. They will be slightly different on each band, but they should more-or-less match up with the handbook.

First things first, though - check the cables, SWR meter and dummy load. Then check them again.

--
Gordonjcp MM0YEQ

46417. Re: [TS-520_820_530_830] High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 13:42:00 UTC
From: <wagstw46@...>
Topic: 46415 Message: 46417

I agree remove the tuner for this troubleshooting. If you need it for SWR bridge or wattmeter then see if you can borrow a bridge or wattmeter from someone. If not a bad patch cord then open the PA cage and inspect the bare tinned lead at center of SO-239. I have found them not soldered and will pull out with gentle tug. Also look at all the soldering to the tank cap and tank coil. Might even clean the TR relay contacts.

As to hurting your TS520SE by loading into an open I doubt it. Here is what happens: (the weak link is the close spacing of the Plate load cap)

With very high SWR the PA load line will shift. The load impedance RL presented to the 6146 finals is now very high. The PA is now under-coupled. This means there will be less RF current, but much higher RF voltage. Very high vswr causes higher PA rf voltage swing.

What is approx normal RF voltage across the tank capacitor and the plate load capacitor? Most folks cant measure it. I have high voltage P5100 scope probe and capacitive voltage divider for use with HP-410C so can measure it couple of ways. So I can tell you what "normal" is. It can also be calculated. Approx calcs are as follows:

RF rms tank cap volts = 6146 Plate dc voltage x .9 x .707 or 850vdc x .9 x .707 = 541 rf volts across C1.

RF volts across 50 ohm dummy load at 100 watts is E squared = P x R or
100 x 50 = 5000. Square root of 5000 = 70.7 rf volts . Approx 71 volts is across the Plate Load cap C2.

These are approx voltages at 1:1 SWR.

If you load into an open you have very high input impedance. With very high Z there will be very high voltage. The weak links are the Plate Load capacitor and the bandswitch contacts. The Plate Load cap has very close spacing (almost broadcast band receiver spacing). As noted it is the weakest link.

One of the problems with using the old dip and load method to load a hybrid is the plate current will fool you into thinking all is well unless you are experienced at recognizing there is an issue. Also the RF meter position will register and indicate as it is measuring the RF voltage at the SO-239. It will register much higher than normal. An external wattmeter will tell you immediately that you have a problem as you will have no RF output or it will intermittent.

I dont recommend that a new person try this but I have loaded all the hybrids with no load connected and measured the rf voltages across the Tank cap and Load cap. Here is measured values for a TS-520 with no load connected and 100ma plate current. .

RF voltage across Plate Load cap = 200 rms rf volts. This is almost 3 times normal 70.7 rf volts that would have with 50 ohm dummy load connected and loaded to 200 ma.

I did not load any higher as I did not want to arc over the Plate Loading cap. It is the weak link. Not easy to repair arced over plates back to original.

On a TS820 or TS830 that employ RF negative feedback the voltage will be approx 100 rms rf volts. Wont go into explanation of how RF negative feedback works. Just know it is harder to hurt these models with open antenna.

So point of all of this is I would not be too worried that you hurt your TS520 by loading it into an open. More than likely you would have heard and seen the effects of the plates of the loading cap arcing over and as you now attempt to load when you would reach that same amount of plate mesh would likely arc over again at that same spot as metal has been raised at that spot and you will see that on the plate current and wattmeter as it makes frying or arcing noise.

The voltage across the Tank cap does increase as well but not to extremes and it has much larger plate spacing so not as likely for it to arc over during an open load event.

Terry K9TW

46418. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 14:58:24 UTC
From: <wagstw46@...>
Topic: 46351 Message: 46418

Michael

You have covered a lot of ground here. Will attempt to address it all. If not we can take this off list or start new post?

1. Use of Artist brushes very good idea. I try not to spray anything as hard to control amount and really direct it and to clean off all the residue.

2. OK to try different contact cleaners. Everyone has there favorite. Fader lube is good for carbon trace pots. Usual weak link is the rivet to pc trace interface and not the actual contact fingers unless someone has been in there and pressed on them. They are phosphor bronze with spring temper and can take thousands of spread cycles.Never attempt screwdriver to close them. Only way to change that gap is perhaps attempt a twist. Best to measure contact resistance by applying approx 6 vdc and 1 amp and measuring the millivolt drop across the contacts. Ohm meter test is not good way to find bad contact as no current is used.

3. Molex connector is the brand name. The large white connectors on the TS820 are Molex connectors. Just much heavier. A smaller version is used on the TS530 and TS830. You havent lived until you pull 5 or 6 off a board. The pins and sockets in the two connectors are plated and should last long time, but cleaning with contact cleaners and wiping them by multiple cycling can help, but it comes with some risk especially on the TS530 and TS830. I always inspect the connector body pins on foil side of the boards under magnification when board is removed. I insert a plug back on the connector and gently rock back and forth and observe and not uncommon to see a complete 360 degree circumferential crack around the pin and solder "cone".. The pin is floating and can see it moving. In some cases the solder never wetted to the pin. The pin has now developed oxide coating and you cannot simply resolder it. Need to remove the old solder and clean the pin and resolder.

Other problem with repeated cleaning and plug and unplug cycles of these molex connectors is you can rock the connector body and induce a crack in the foil trace right at the pin pad junction. That crack is hard to see due to the solder mask and it can cause you fits.

So with 30 to 40 year old radios best not to fix things that are not broken.

I have had TS820 rigs here where owner broke corner off RF board trying to remove Molex connector and broke the FIX board trying to remove a seized molex connector. Just have to be damn careful.

4. Chinese tubes. They have a bad reputation for arc over. I have never run them but do find them in customers rigs. Have had opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf volts swing so need to be able to hold off that level. I have DC hi-pot and test a lot of 6146 finals. Good RCA and Sylvania will usually hold off 2000 to 2500 volts. I have tested couple of sets of Chinese and one arced over at 1100 and the other at 1500. So I dont have a lot of experience with them. They just do not have a good reputation. Maybe they are getting better?

5. I wont go into a long debate over cathode resistors designed as fuses in detail here as it has been discussed numerous times on this forum. You can search the forum and find all of the previous debate. It is one area where Ken and I agree to disagree. Briefly:

A. When 6146 tubes go into thermal runaway due to loss of operating bias and plates are glowing cherry red why dont the cathode resistor blow open? Run your bias voltage down and watch what happens (I dont really recommend this).

B. Carbon resistors can stand extreme over current and wattage dissipation for a very long time. Have you ever connected DC supply or Variac to a carbon resistor on your bench and run the current up? You can get them to start smoking and eventually glowing so that you literally see color in them. They wont pop open under those conditions. I would not want enough plate current to flow in my PA to cause the cathode resistors to glow. What would they be protecting then?

C. When is last time you blew a cathode resistor open on your HW-101, or SB-102, or Drake T4X or any other 6146 boat anchor transmitter? They all typically measure plate current the same way. Seldom see any post or discussion about cathode resistors popping open on these other forums.

D. Only way to experience an instantaneous cathode resistor failure is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180 amps. (not considering the power supply esr that would add some additional current limiting during the fault). This did not happen back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It is only a more recent phenomenon due to 35 to 40 year old NOS and pulls available that have off gassed and/or have some ingress around tube pin seals after all these years.

E. Lastly you never want your cathode to become open circuited. As I previously mentioned in other response. When tube arcs over and momentarily have 160 amps fault current flowing thru 5 ohms then the IR drop is approx 800vdc. The maximum voltage your panel meter can stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter isnt going to like it when it now tries to measure 800vdc!. If it survives the initial fault now you have an open cathode and it will rise quickly toward Screen grid voltage. The only thing limiting it is the operating bias voltage. It will rise to over 100 vdc (I have measured it). When you place the meter to IP during attempt to reload after you hear that pop the meter will be stressed again.

Kenwood engineers would never fuse the cathode to save "other components" at risk of sacrificing the plate meter. Meter is far more delicate and expensive component.

Suggest you figure this out for yourself. Put four 20 ohm carbon resistors in parallel on your service bench and load them up and find out what it takes to get them to "fuse". You are going to see smoke and color before that happens.

If I failed to answer one of your questions let me know.

Terry K9TW

46419. Re: [TS-520_820_530_830] good news for the uk

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 13:56:07 UTC
From: kenny
Topic: 46395 Message: 46419

Why not good news.People now have a choice.

Kenny
----- Original Message -----
From: William Houghton
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 9:56 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

I fail to understand why this is GOOD news ... hihi

From: Guy Morgan <yahoo@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 1:45 PM
Subject: Re: [TS-520_820_530_830] good news for the uk

When CB was legalised in the UK a slightly different frequency band and FM were used in order not to legitimise the imported US AM/SSB gear being used illicitly at the time.

Guy – G3POM

From: Joe - W7RKN
Sent: Saturday, December 14, 2013 9:06 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
Well! I learned something....again....I just figured your CB was like ours...AM and SSB.

What is your frequency band span?

Joe - W7RKN
----- Original Message -----
From: kenny
Subject: Re: [TS-520_820_530_830] good news for the uk

☐
27/81 fm

46420. Re: [TS-520_820_530_830] High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 15:49:11 UTC
From: <adrian@...>
Topic: 46415 Message: 46420

Thanks Gordon for good advice.

I moved the whole lot from dummy load back to rig to my vhf rig. It showed expected 1:1 swr and power reading so I can be sure that set of patch leads and dummy load and antenna switch is fine. Now will focus on 520SE.

In fact had bought new patch leads this week after cheap one failed on me last week, and I checked all these too for open/shorts and they are fine.

Thanks again Adrian G4IQW

46421. Modulation, with or without processor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 16:15:13 UTC
From: <sm7fyw@...>
Topic: 46421 Message: 46421

Hello All
Now I have run into a slight problem with an 520-SE.
If I run the rig without processor, it sounds normal on lets say 1 a'clock on mod knob, but, when I turn on processor, the modulation jumps way to high, (comparing with my own 520) in order to make it sound normal, I have to turn knob down to about 9 a'clock... and if I then turn processor of, modulation is really low, and needs to be turned back up.
So Q is, is there an internal adjustment on processor gain?
Lars KB3WBT

46422. RE: Modulation, with or without processor

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 18:02:48 UTC
From: <wagstw46@...>
Topic: 46421 Message: 46422

By "mod" knob I assume you mean Mic gain pot? Was it working and has now changed or is rig new to you and just discovered not working correctly? May just need alignment. Would try that first.

Do you have the Service manual? Need to perform Step 19.

Requires Audio Generator and AF VTVM to accurately measure millivolt levels. Easy adjustment if you have the test gear.

Absent test gear may be able to find a audio generator app on the internet that uses output from your sound card.

Terry K9TW

46423. Re: [TS-520_820_530_830] High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 18:56:03 UTC
From: <adrian@...>
Topic: 46415 Message: 46423

Thanks Terry and you had the right diagnosis but in the wrong piece of gear!

I opened up PA cage and all was ok. No visible damage to plate cap either.

I discovered the high swr only happened when the Welz power meter in line with antenna/load. When I opened it up couldn't see a problem. But when I took off plate covering the in/out sockets then it was obvious that the copper wire wound round ferrite ring connected to antenna socket was blackened and melted! So that high RF voltage you mentioned with no load must have been "seen" by this choke. The wire is relatively thin. I remember the bad open circuit patch I found last week was connected between the power meter and dummy load.

The meter looked ok when I tested it on my FT221 2m rig as the problem lessened as frequency rose (my swr was worst on 40m and almost normal on 10m). At 144MHz that burnt up choke was not causing much of a problem. Unfortunately I didn't have another hf rig to compare with the TS520SE.

So all fixed now, but I need a new swr/power meter. Almost got an AT230 at good price on ebay last week. Will keep a watch for one as nice match to rig, and probably beefier than the melted Welz!

Thanks Terry and Gordon for pointing me in right direction to fix this.

73 Adrian G4IQW

46424. Re: [TS-520_820_530_830] High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 20:03:15 UTC
From: Gordon JC Pearce
Topic: 46415 Message: 46424

On Sun, Dec 15, 2013 at 10:56:03AM -0800, adrian@... wrote:
>
> So all fixed now, but I need a new swr/power meter. Almost got an AT230 at good price on ebay last week. Will keep a watch for one as nice match to rig, and probably beefier than the melted Welz!
>

No, you need to repair your SWR meter ;-)

--
Gordonjcp MM0YEQ

46425. Replacement Fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 17:31:35 UTC
From: <radiovintage2000@...>
Topic: 46425 Message: 46425

I want to know if the fan TS520 (first series), you can replace it with a more recent fan (type TS830 / Ts530) that are less nois
thanks Frank

46426. Re: [TS-520_820_530_830] Replacement Fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 20:21:03 UTC
From: Joseph Stiles
Topic: 46425 Message: 46426

Frank,

  If you look at the schematic of the 520 AND the 530/830, you will see that they run off the 100V tap on the transformer. The motors are I believe, wound for 120V...but the lower 100V
has them spinning a bit slower/quieter. I can not remember IF the fan mounting holes have the same dimensions regarding the mounting holes..but as stated earlier...they use the SAME voltage

73 Joe
WB7UQU

On Sunday, December 15, 2013 12:13 PM, "radiovintage2000@..." <radiovintage2000@...> wrote:

>I want to know if the fan TS520 (first series), you can replace it with a more recent fan (type TS830 / Ts530) that are less nois
>thanks Frank
>
>
>

46427. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 17:54:31 UTC
From: Michael Sylvester
Topic: 46351 Message: 46427

To:
Terry K9TW ,

Thank you for your thorough explanation.
Between you and Wes I am now thoroughly edumacated on these particular subjects.
Whether I retain this detailed voluminous instruction we will see.

I much appreciate your kind and generous sharing of your wealth of knowlege
and the giving of your valuable time Sir.
Break is over, now finish that radio.

"Communications gear will be vital"
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 15, 2013 8:58 AM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael

You have covered a lot of ground here. Will attempt to address it all. If not we can take this off list or start new post?

1. Use of Artist brushes very good idea. I try not to spray anything as hard to control amount and really direct it and to clean off all the residue.

2. OK to try different contact cleaners. Everyone has there favorite. Fader lube is good for carbon trace pots. Usual weak link is the rivet to pc trace interface and not the actual contact fingers unless someone has been in there and pressed on them. They are phosphor bronze with spring temper and can take thousands of spread cycles.Never attempt screwdriver to close them. Only way to change that gap is perhaps attempt a twist. Best to measure contact resistance by applying approx 6 vdc and 1 amp and measuring the millivolt drop across the contacts. Ohm meter test is not good way to find bad contact as no current is used.

3. Molex connector is the brand name. The large white connectors on the TS820 are Molex connectors. Just much heavier. A smaller version is used on the TS530 and TS830. You havent lived until you pull 5 or 6 off a board. The pins and sockets in the two connectors are plated and should last long time, but cleaning with contact cleaners and wiping them by multiple cycling can help, but it comes with some risk especially on the TS530 and TS830. I always inspect the connector body pins on foil side of the boards under magnification when board is removed. I insert a plug back on the connector and gently rock back and forth and observe and not uncommon to see a complete 360 degree circumferential crack around the pin and solder "cone".. The pin is floating and can see it moving. In some cases the solder never wetted to the pin. The pin has now developed oxide coating and you cannot simply

resolder it. Need to remove the old solder and clean the pin and resolder.

Other problem with repeated cleaning and plug and unplug cycles of these molex connectors is you can rock the connector body and induce a crack in the foil trace right at the pin pad junction. That crack is hard to see due to the solder mask and it can cause you fits.

So with 30 to 40 year old radios best not to fix things that are not broken.

I have had TS820 rigs here where owner broke corner off RF board trying to remove Molex connector and broke the FIX board trying to remove a seized molex connector. Just have to be damn careful.

4. Chinese tubes. They have a bad reputation for arc over. I have never run them but do find them in customers rigs. Have had opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf volts swing so need to be able to hold off that level. I have DC hi-pot and test a lot of 6146 finals. Good RCA and Sylvania will usually hold off 2000 to 2500 volts. I have tested couple of sets of Chinese and one arced over at 1100 and the other at 1500. So I dont have a lot of experience with them. They just do not have a good reputation. Maybe they are getting better?

5. I wont go into a long debate over cathode resistors designed as fuses in detail here as it has been discussed numerous times on this forum. You can search the forum and find all of the previous debate. It is one area where Ken and I agree to disagree. Briefly:

A. When 6146 tubes go into thermal runaway due to loss of operating bias and plates are glowing cherry red why dont the cathode resistor blow open? Run your bias voltage down and watch what happens (I dont really recommend this).

B. Carbon resistors can stand extreme over current and wattage dissipation for a very long time. Have you ever connected DC supply or Variac to a carbon resistor on your bench and run the current up? You can get them to start smoking and eventually glowing so that you literally see color in them. They wont pop open under those conditions. I would not want enough plate current to flow in my PA to cause the cathode resistors to glow. What would they be protecting then?

C. When is last time you blew a cathode resistor open on your HW-101, or SB-102, or Drake T4X or any other 6146 boat anchor transmitter? They all typically measure plate current the same way. Seldom see any post or discussion about cathode resistors popping open on these other forums.

D. Only way to experience an instantaneous cathode resistor failure is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180 amps. (not considering the power supply esr that would add some additional current limiting during the fault). This did not happen back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It is only a more recent phenomenon due to 35 to 40 year old NOS and pulls available that have off gassed and/or have some ingress around tube pin seals after all these years.

E. Lastly you never want your cathode to become open circuited. As I previously mentioned in other response. When tube arcs over and momentarily have 160 amps fault current flowing thru 5 ohms then the IR drop is approx 800vdc. The maximum voltage your panel meter can stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter isnt going to like it when it now tries to measure 800vdc!. If it survives the initial fault now you have an open cathode and it will rise quickly toward Screen grid voltage. The only thing limiting it is

the operating bias voltage. It will rise to over 100 vdc (I have measured it). When you place the meter to IP during attempt to reload after you hear that pop the meter will be stressed again.

Kenwood engineers would never fuse the cathode to save "other components" at risk of sacrificing the plate meter. Meter is far more delicate and expensive component.

Suggest you figure this out for yourself. Put four 20 ohm carbon resistors in parallel on your service bench and load them up and find out what it takes to get them to "fuse". You are going to see smoke and color before that happens.

If I failed to answer one of your questions let me know.

Terry K9TW

46428. RE: High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 21:00:55 UTC
From: <adrian@...>
Topic: 46415 Message: 46428

I will have a go Gordon nothing to lose. Have removed the ferrite ring with melted winding, so just need to match the wire gauge and do some delicate soldering to re-install.

73 Adrian G4IQW

46429. Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 21:08:20 UTC
From: Mark Gilger
Topic: 46429 Message: 46429

The net recently celebrated it□s 2nd year in existence on November 1st, 2013. The yearly check-in totals are posted at the bottom of this message. It showed we had a 10% increase in our Saturday check-ins and an 8% on Sunday as compared to the 2012 check-ins.

The Saturday net on 40 meters had 14 check ins under good band condition. There were 1 new check ins, KC8SIG. We had the following number of radios checking in.

3 running TS-520(x)
2 running TS-530(x)
3 running TS-820(x)
2 running TS-830S

I was using my TS-830s.

The Sunday□s 20 meter net had 21 stations checking in under good band conditions. There were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH

Out of those, there was:

3 running TS-520(x)
4 running TS-530(x)
4 running TS-820(x)
2 running TS-830S

I was running my 820 twins, TS-820s + R-820.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940□s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit

and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins
Nov. 2012 - Oct. 2013 Saturdays total 828 check-ins, Sunday total 609 check-ins

November 2013, Saturday☐s net total = 94, Sunday☐s total = 85
December 2013, Saturday☐s net total = 37, Sunday☐s total = 41 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

46430. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 21:40:10 UTC
From: Ron
Topic: 46429 Message: 46430

What frequency do u have the net on

Ron KK4PWF

On Dec 15, 2013, at 4:08 PM, Mark Gilger <mgilger@...> wrote:

>
>
> The net recently celebrated it’s 2nd year in existence on November 1st, 2013. The yearly check-in totals are posted at the bottom of this message. It showed we had a 10% increase in our Saturday check-ins and an 8% on Sunday as compared to the 2012 check-ins.
>
> The Saturday net on 40 meters had 14 check ins under good band condition. There were 1 new check ins, KC8SIG. We had the following number of radios checking in.
>
> 3 running TS-520(x)
> 2 running TS-530(x)
> 3 running TS-820(x)
> 2 running TS-830S
>
> I was using my TS-830s.
>
> The Sunday’s 20 meter net had 21 stations checking in under good band conditions. There were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH
>
> Out of those, there was:
>
> 3 running TS-520(x)
> 4 running TS-530(x)
> 4 running TS-820(x)
> 2 running TS-830S
>
> I was running my 820 twins, TS-820s + R-820.
>
> We have been having several people checking in regularly with their TS-430, TS-440, and TS-940’s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.
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> If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.
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> Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
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> Web Site:
> http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>
> 73's,
> Mark, WB0IQK
>
>
>
>

46431. RE: High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 21:47:06 UTC
From: <wagstw46@...>
Topic: 46415 Message: 46431

If you are talking about a Ferrite core with melted winding you should inspect it after removing the winding to make sure not cracked. Also, pay attention to the wire as you remove it as it may be bifiliar wound.

Do you know the history of this wattmeter? Sounds like it has been used at power level beyond its rating?

Terry K9TW

46432. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 23:07:55 UTC
From: W5RKL
Topic: 46351 Message: 46432

Michael and Terry,

If I may add something to Terry's response.

Michael, you can easily calculate the approximately power dissipated in each cathode resistor in any of the KW TS-520, TS-820, TS-530, and TS-830 by simply performing simple math calculations using the following formula:

P = Isqrd x R

Let's assume an operator has improperly tuned their TS-520 resulting in 275ma of IP current.

We know that each cathode resistor is approximately 10 ohm 1 watt and the cathode current is 275ma so all we do is use these values and the above formula which will result in approximately .756 watts dissipated in each cathode resistor:

.275 x .275 = .075625 x 10 = .756 watts

Now lets increase the IP meter indication to 350ma, a much higher improper tuning IP cathode current in the final amplifier. What will the power dissipation in each cathode resistor be? Use the new 350ma IP current value, same 10 ohms 1 watt cathode resistor, and the same formula which results in approximately 1.225 watts dissipated in each cathode resistors:

.350 x .350 = .1225 x 10 = 1.225 watts

The additional .225 watts over the 1 watt power rating of each cathode resistor will not result in either of the cathode resistors to blow like a fuse.

You can also calculate the approximately cathode voltage using any value of IP cathode current by simply using the formula:

E = I x R

where "E" is the "unknown" cathode voltage, "I" is the value of IP cathode current, and R is the approximate 5 ohms of cathode resistance.

For example, if the IP cathode current is "60ma", what will the cathode voltage be and what will the power dissipated in each 10 ohm cathode resistor be? The cathode voltage will be approximately "+.3VDC" or "+300mv":

.06 x 5 = .3

The approximate power dissipated in each cathode resistor will be .036 watts or 36mw

.06 x .06 = .0036 x 10 = .036

This same math calculations can be performed on the TS-530 and TS-830 in the same way, using the same formulas.

73
Mike W5RKL

On 12/15/2013 11:54 AM, Michael Sylvester wrote:
> To:
> Terry K9TW ,
> Thank you for your thorough explanation.
> Between you and Wes I am now thoroughly edumacated on these particular
> subjects.
> Whether I retain this detailed voluminous instruction we will see.
> I much appreciate your kind and generous sharing of your wealth of
> knowlege
> and the giving of your valuable time Sir.
> Break is over, now finish that radio.
> "Communications gear will be vital"
> Michael///KD0WSJ
>
>
> *From:* "wagstw46@..." <wagstw46@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, December 15, 2013 8:58 AM
> *Subject:* Re: [TS-520_820_530_830] What's wrong with this board?
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> Michael
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> If not we can take this off list or start new post?
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> Fader lube is good for carbon trace pots. Usual weak link is the rivet
> to pc trace interface and not the actual contact fingers unless
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> bronze with spring temper and can take thousands of spread
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> resistance by applying approx 6 vdc and 1 amp and measuring the
> millivolt drop across the contacts. Ohm meter test is not good way to
> find bad contact as no current is used.
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> the TS820 are Molex connectors. Just much heavier. A smaller version
> is used on the TS530 and TS830. You havent lived until you pull 5 or 6
> off a board. The pins and sockets in the two connectors are plated and
> should last long time, but cleaning with contact cleaners and wiping
> them by multiple cycling can help, but it comes with some risk
> especially on the TS530 and TS830. I always inspect the connector body
> pins on foil side of the boards under magnification when board is
> removed. I insert a plug back on the connector and gently rock back
> and forth and observe and not uncommon to see a complete 360 degree
> circumferential crack around the pin and solder "cone".. The pin is
> floating and can see it moving. In some cases the solder never wetted
> to the pin. The pin has now developed oxide coating and you cannot
> simply resolder it. Need to remove the old solder and clean the pin
> and resolder.
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> these molex connectors is you can rock the connector body and induce a
> crack in the foil trace right at the pin pad junction. That crack is
> hard to see due to the solder mask and it can cause you fits.
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> So with 30 to 40 year old radios best not to fix things that are not
> broken.
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> I have had TS820 rigs here where owner broke corner off RF board
> trying to remove Molex connector and broke the FIX board trying to
> remove a seized molex connector. Just have to be damn careful.
>
> 4. Chinese tubes. They have a bad reputation for arc over. I have
> never run them but do find them in customers rigs. Have had
> opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf
> volts swing so need to be able to hold off that level. I have DC
> hi-pot and test a lot of 6146 finals. Good RCA and Sylvania will
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> have a lot of experience with them. They just do not have a good
> reputation. Maybe they are getting better?
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> fuses in detail here as it has been discussed numerous times on this
> forum. You can search the forum and find all of the previous debate.
> It is one area where Ken and I agree to disagree. Briefly:
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> bias and plates are glowing cherry red why dont the cathode resistor
> blow open? Run your bias voltage down and watch what happens (I dont
> really recommend this).
>
> B. Carbon resistors can stand extreme over current and wattage
> dissipation for a very long time. Have you ever connected DC supply or
> Variac to a carbon resistor on your bench and run the current up? You

> can get them to start smoking and eventually glowing so that you
> literally see color in them. They wont pop open under those
> conditions. I would not want enough plate current to flow in my PA to
> cause the cathode resistors to glow. What would they be protecting then?
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> C. When is last time you blew a cathode resistor open on your HW-101,
> or SB-102, or Drake T4X or any other 6146 boat anchor transmitter?
> They all typically measure plate current the same way. Seldom see any
> post or discussion about cathode resistors popping open on these other
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> D. Only way to experience an instantaneous cathode resistor failure is
> to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180
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> back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It
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> pulls available that have off gassed and/or have some ingress around
> tube pin seals after all these years.
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> E. Lastly you never want your cathode to become open circuited. As I
> previously mentioned in other response. When tube arcs over and
> momentarily have 160 amps fault current flowing thru 5 ohms then the
> IR drop is approx 800vdc. The maximum voltage your panel meter can
> stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter
> isnt going to like it when it now tries to measure 800vdc!. If it
> survives the initial fault now you have an open cathode and it will
> rise quickly toward Screen grid voltage. The only thing limiting it is
> the operating bias voltage. It will rise to over 100 vdc (I have
> measured it). When you place the meter to IP during attempt to reload
> after you hear that pop the meter will be stressed again.
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> Kenwood engineers would never fuse the cathode to save "other
> components" at risk of sacrificing the plate meter. Meter is far more
> delicate and expensive component.
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> Suggest you figure this out for yourself. Put four 20 ohm carbon
> resistors in parallel on your service bench and load them up and find
> out what it takes to get them to "fuse". You are going to see smoke
> and color before that happens.
>
> If I failed to answer one of your questions let me know.
>
> Terry K9TW
>
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.

http://www.avast.com

46433. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 23:25:17 UTC
From: Mark Gilger
Topic: 46429 Message: 46433

Ron,
The freq. and times are listed at the bottom of the original email.
Thanks,
Mark

At 04:40 PM 12/15/2013, you wrote:
>
>
>What frequency do u have the net on
>
>Ron KK4PWF
>
>On Dec 15, 2013, at 4:08 PM, Mark Gilger
><<mailto:mgilger@...>mgilger@...> wrote:
>
>>The net recently celebrated itâ□□s 2nd year in
>>existence on November 1st, 2013. The yearly
>>check-in totals are posted at the bottom of
>>this message. It showed we had a 10% increase
>>in our Saturday check-ins and an 8% on Sunday
>>as compared to the 2012 check-ins.
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>>The Saturday net on 40 meters had 14 check ins
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>>check ins, KC8SIG. We had the following number of radios checking in.
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>>3 running TS-520(x)
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>>3 running TS-820(x)
>>2 running TS-830S
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>>I was using my TS-830s.
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>>checking in under good band conditions. There
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>>73's,
>>Mark, WB0IQK

>

46434. Re: [TS-520_820_530_830] New to the group, having problems with SSB transmit TS520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 21:18:28 UTC
From: <brett_forehand@...>
Topic: 46385 Message: 46434

Hi Bill, (and others) for your response. Sorry it took me so long to get back on here. My "shack" is a shed in my back yard, and it does not have heat. Temps have been in the mid to low 20's here at night, and low 30's in the day, so I haven't spent a lot of time fiddling with the rig. Finally got warm today, and I played some more. I figured out that it is the potentiometer for the mic gain/carrier. It wiggles a tiny bit, and when you wiggle it, transmit comes back in. I need to figure out if I can tighten it, or if it needs to be replaced. Other than that, it seems to be working FB. 10 Meters contest this weekend, so no real chance to get a good audio report unless you like, 5/9 all the time. :)

Thanks again... this group is very active, and I'm impressed to have received responses so quickly!

73,
Brett
KF5WXP

46435. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 22:41:41 UTC
From: Michael Sylvester
Topic: 46429 Message: 46435

My first question too.
Read the entire post, it's at bottom of page, missed it this week.
I'd bet it's also listed at their website.
Michael///KD0WSJ

From: Ron <bozo231@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, December 15, 2013 3:40 PM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

What frequency do u have the net on

Ron KK4PWF

On Dec 15, 2013, at 4:08 PM, Mark Gilger <mgilger@...> wrote:

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>I was using my TS-830s.
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>The Sunday’s 20 meter net had 21 stations checking in under good band conditions. There were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH
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>Out of those, there was:
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>3 running TS-520(x)
>4 running TS-530(x)
>4 running TS-820(x)
>2 running TS-830S
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>I was running my 820 twins, TS-820s + R-820.
>
>We have been having several people checking in regularly with their TS-430, TS-440, and TS-940’s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome

as long as they have an interest in the older equipment.
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>If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.
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>For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.
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>His URL is:
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>To date, we have had the following check-in:
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>Nov. 2011 – Oct. 2012 Saturday total 754 check-ins, Sunday total 563 check-ins
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>Net Info:
>Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
>Sunday: 14.316 @ 1800 UTC following the ICOM net
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>Web Site:
>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>
>73's,
>Mark, WB0IQK
>
>

46436. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-15 23:43:59 UTC
From: Mark Gilger
Topic: 46429 Message: 46436

I think I'll make a change and move all that
stuff to the top of the updates. Easy to overlook.

Mark, WB0IQK

At 05:41 PM 12/15/2013, Michael Sylvester wrote:
>
>
>My first question too.
>Read the entire post, it's at bottom of page, missed it this week.
>I'd bet it's also listed at their website.
>Michael///KD0WSJ
>
>From: Ron <bozo231@...>
>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
>Sent: Sunday, December 15, 2013 3:40 PM
>Subject: Re: [TS-520_820_530_830] Kenwood Hybrid
>Net Update (December 15, 2013)
>
>
>What frequency do u have the net on
>
>Ron KK4PWF
>
>On Dec 15, 2013, at 4:08 PM, Mark Gilger
><<mailto:mgilger@brightdsl.net>mgilger@...> wrote:
>
>>The net recently celebrated itâ□□s 2nd year in
>>existence on November 1st, 2013. The yearly
>>check-in totals are posted at the bottom of
>>this message. It showed we had a 10% increase
>>in our Saturday check-ins and an 8% on Sunday
>>as compared to the 2012 check-ins.
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>>The Saturday net on 40 meters had 14 check ins
>>under good band condition. There were 1 new
>>check ins, KC8SIG. We had the following number of radios checking in.
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>>I was using my TS-830s.
>>
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>>checking in under good band conditions. There
>>were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH
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>>I was running my 820 twins, TS-820s + R-820.
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>>We have been having several people checking in
>>regularly with their TS-430, TS-440, and
>>TS-940â□□s, which of course is not a hybrid,
>>although over 30+ years old. Everyone is
>>welcome as long as they have an interest in the older equipment.
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>>If anyone would be interested in filling in as
>>a net control station, please send me an email.
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>>can alternate so everyone might be on a 3-4
>>week rotation. It's a lot of fun and a good way
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>>web site that WB4HFN is hosting. He currently
>>has a very nice site for Drake, Collins and
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>>manuals plus sale flyers and brochures will be
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>>73's,
>>Mark, WB0IQK
>
>
>

46437. RE: High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:00:29 UTC
From: <adrian@...>
Topic: 46415 Message: 46437

The wattmeter was fine up till incident I had last week with open circuit patch lead. I was seeing forward power pegging meter on that wattmeter (200W full scale) so suspect winding was damaged then. I dont know history as was used ebay purchase but prior to power and swr problems caused by faulty patch lead it has not given problem.

Adrian G4IQW

46438. RE: High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:04:49 UTC
From: <adrian@...>
Topic: 46415 Message: 46438

The ferrite only has a single winding with single connection to wire at each end

Adrian G4IQW

46439. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:06:19 UTC
From: Ron
Topic: 46429 Message: 46439

Mark I see the band and time but no specific freq , am I blind or what plz advise

Ron KK4PWF

On Dec 15, 2013, at 6:25 PM, Mark Gilger <mgilger@brightdsl.net> wrote:

>
>
> Ron,
> The freq. and times are listed at the bottom of the original email.
> Thanks,
> Mark
>
> At 04:40 PM 12/15/2013, you wrote:
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>> What frequency do u have the net on
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>> Ron KK4PWF
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>>> 3 running TS-820(x)
>>> 2 running TS-830S
>>>
>>> I was using my TS-830s.
>>>
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>>>
>>> Out of those, there was:
>>>
>>> 3 running TS-520(x)
>>> 4 running TS-530(x)
>>> 4 running TS-820(x)

>>> 2 running TS-830S
>>>
>>> I was running my 820 twins, TS-820s + R-820.
>>>
>>> We have been having several people checking in regularly with their TS-430, TS-440, and TS-940â€™s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.
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>>> If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.
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>>> Web Site:
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>>>
>>> 73's,
>>> Mark, WB0IQK
>
>
>
>

46440. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:07:29 UTC
From: Ron
Topic: 46429 Message: 46440

Ok never mind I see them lol I'm going blind I guess Sorry

Ron KK4PWF

On Dec 15, 2013, at 6:25 PM, Mark Gilger <mgilger@...> wrote:

>
>
> Ron,
> The freq. and times are listed at the bottom of the original email.
> Thanks,
> Mark
>
> At 04:40 PM 12/15/2013, you wrote:
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>> Ron KK4PWF
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>>> I was using my TS-830s.
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>>> The Sundayâ€™s 20 meter net had 21 stations checking in under good band conditions. There were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH
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>>> 4 running TS-530(x)
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>>>
>>> I was running my 820 twins, TS-820s + R-820.
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>>> We have been having several people checking in regularly with their TS-430, TS-440, and TS-940â€™s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.
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>>> Web Site:
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>>> 73's,
>>> Mark, WB0IQK
>
>
>
>

46441. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:53:44 UTC
From: <wagstw46@...>
Topic: 46351 Message: 46441

Thanks Mike

I have seen people who talk about blowing cathode resistors during mis-tuning events and as your math shows it just wont happen. For a couple of reasons. 1. Very hard if not impossible to ever see 350ma plate current on typical KW hybrid unless you are in thermal runaway and that is not due to mis-tuning and 2. The resistors can run all day long (essentially indefinitely) on that slight amount of additional dissipation over nameplate rating.

It seems like we have been here over and over again. I think it will be one of those things that people have strong beliefs whether the math and science supports it or not. Kind of like overheating and damaging the final tubes due to "high" SWR.

Probably should just avoid responding to any future pronouncements about cathode meter shunt resistors. Will save us all a lot of repeat key strokes. I need the discipline to do just that.

Maybe some day make a video of cathode resistor smoking and a shot of the current meter that shows what % overload it takes to do that. Better yet glowing like Christmas tree lamp!

Terry K9TW

46442. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:15:25 UTC
From: Michael Sylvester
Topic: 46351 Message: 46442

To:
Mike W5RKL

I need you to clarify, since the cathode resistors are 20 ohms X 4.
You say 10 ohms. Are you looking at pairs as 2 separate cirquits?
2-20 ohm resistors in parralel per tube for the 10 ohms you speak of?

Since the tubes are in effect in parralel? Do the tubes each see 5 ohms or do the tubes eachsee 10 ohms?
I think they each see 5 since the metering is measuring their total combined cathode currents.
Then you mention the 5 ohm resultant resistance of 4-20's in parralel?
You are somewhat muddling the issue.
Clarify please.

Michael///KD0WSJ

From: W5RKL <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 15, 2013 5:07 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael and Terry,

If I may add something to Terry's response.

Michael, you can easily calculate the approximately power dissipated in each cathode resistor in any of the KW TS-520, TS-820, TS-530, and TS-830 by simply performing simple math calculations using the following formula:

P = Isqrd x R

Let's assume an operator has improperly tuned their TS-520 resulting in 275ma of IP current.

We know that each cathode resistor is approximately 10 ohm 1 watt and the cathode current is 275ma so all we do is use these values and the above formula which will result in approximately .756 watts dissipated in each cathode resistor:

.275 x .275 = .075625 x 10 = .756 watts

Now lets increase the IP meter indication to 350ma, a much higher improper tuning IP cathode current in the final amplifier. What will the power dissipation in each cathode resistor be? Use the new 350ma IP current value, same 10 ohms 1 watt cathode resistor, and the same formula which results in approximately 1.225 watts dissipated in each cathode resistors:

.350 x .350 = .1225 x 10 = 1.225 watts

The additional .225 watts over the 1 watt power rating of each cathode resistor will not result in either of the cathode resistors to blow like a fuse.

You can also calculate the approximately cathode voltage using any value of IP cathode current by simply using the formula:

E = I x R

where "E" is the "unknown" cathode voltage, "I" is the value of IP cathode current, and R is the approximate 5 ohms of cathode resistance.

For example, if the IP cathode current is "60ma", what will the cathode voltage be and what will the power dissipated in each 10 ohm cathode resistor be? The cathode voltage will be approximately "+.3VDC" or "+300mv":

.06 x 5 = .3

The approximate power dissipated in each cathode resistor will be .036 watts or 36mw

.06 x .06 = .0036 x 10 = .036

This same math calculations can be performed on the TS-530 and TS-830 in the same way, using the same formulas.

73
Mike W5RKL

On 12/15/2013 11:54 AM, Michael Sylvester wrote:

>To:
>Terry K9TW ,
>
>Thank you for your thorough explanation.
>Between you and Wes I am now thoroughly edumacated on these particular subjects.
>Whether I retain this detailed voluminous instruction we will see.
>
>I much appreciate your kind and generous sharing of your wealth of knowlege
>and the giving of your valuable time Sir.
>Break is over, now finish that radio.
>
>"Communications gear will be vital"
>Michael///KD0WSJ
>
>
>
>
>From: mailto:wagstw46@... mailto:wagstw46@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Sunday, December 15, 2013 8:58 AM
>Subject: Re: [TS-520_820_530_830] What's wrong with this board?
>
>

>
>
>Michael
>
>
>You have covered a lot of ground here. Will attempt to address it all. If not we can take this off list or start new post?
>
>
>
>1. Use of Artist brushes very good idea. I try not to spray anything as hard to control amount and really direct it and to clean off all the residue.
>
>
>2. OK to try different contact cleaners. Everyone has there favorite. Fader lube is good for carbon trace pots. Usual weak link is the rivet to pc trace interface and not the actual contact fingers unless someone has been in there and pressed on them. They are phosphor bronze with spring temper and can take thousands of spread cycles.Never attempt screwdriver to close them. Only way to change that gap is perhaps attempt a twist. Best to measure contact resistance by applying approx 6 vdc and 1 amp and measuring the millivolt drop across the contacts. Ohm meter test is not good way to find bad contact as no current is used.
>
>
>3. Molex connector is the brand name. The large white connectors on the TS820 are Molex connectors. Just much heavier. A smaller version is used on the TS530 and TS830. You havent lived until you pull 5 or 6 off a board. The pins and sockets in the two connectors are plated and should last long time, but cleaning with contact cleaners and wiping them by multiple cycling can help, but it comes with some risk especially on the TS530 and TS830. I always inspect the connector body pins on foil side of the boards under magnification when board is removed. I insert a plug back on the connector and gently rock back and forth and observe and not uncommon to see a complete 360 degree circumferential crack around the pin and solder "cone".. The pin is floating and can see it moving. In some cases the solder never wetted to the pin. The pin has now developed oxide coating and you cannot simply resolder it. Need to remove the old solder and clean the pin and
resolder.
>
>
>Other problem with repeated cleaning and plug and unplug cycles of these molex connectors is you can rock the connector body and induce a crack in the foil trace right at the pin pad junction. That crack is hard to see due to the solder mask and it can cause you fits.
>
>
>So with 30 to 40 year old radios best not to fix things that are not broken.
>
>
>I have had TS820 rigs here where owner broke corner off RF board trying to remove Molex connector and broke the FIX board trying to remove a seized molex connector. Just have to be damn careful.
>

>
>4. Chinese tubes. They have a bad reputation for arc over. I have never run them but do find them in customers rigs. Have had opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf volts swing so need to be able to hold off that level. I have DC hi-pot and test a lot of 6146 finals. Good RCA and Sylvania will usually hold off 2000 to 2500 volts. I have tested couple of sets of Chinese and one arced over at 1100 and the other at 1500. So I dont have a lot of experience with them. They just do not have a good reputation. Maybe they are getting better?
>
>
>5. I wont go into a long debate over cathode resistors designed as fuses in detail here as it has been discussed numerous times on this forum. You can search the forum and find all of the previous debate. It is one area where Ken and I agree to disagree. Briefly:
>
>
>A. When 6146 tubes go into thermal runaway due to loss of operating bias and plates are glowing cherry red why dont the cathode resistor blow open? Run your bias voltage down and watch what happens (I dont really recommend this).
>
>
>B. Carbon resistors can stand extreme over current and wattage dissipation for a very long time. Have you ever connected DC supply or Variac to a carbon resistor on your bench and run the current up? You can get them to start smoking and eventually glowing so that you literally see color in them. They wont pop open under those conditions. I would not want enough plate current to flow in my PA to cause the cathode resistors to glow. What would they be protecting then?
>
>
>C. When is last time you blew a cathode resistor open on your HW-101, or SB-102, or Drake T4X or any other 6146 boat anchor transmitter? They all typically measure plate current the same way. Seldom see any post or discussion about cathode resistors popping open on these other forums.
>
>
>D. Only way to experience an instantaneous cathode resistor failure is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180 amps. (not considering the power supply esr that would add some additional current limiting during the fault). This did not happen back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It is only a more recent phenomenon due to 35 to 40 year old NOS and pulls available that have off gassed and/or have some ingress around tube pin seals after all these years.
>
>
>E. Lastly you never want your cathode to become open circuited. As I previously mentioned in other response. When tube arcs over and momentarily have 160 amps fault current flowing thru 5 ohms then the IR drop is approx 800vdc. The maximum voltage your panel meter can stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter isnt going to like it when it now tries to measure 800vdc!. If it survives the initial fault now you have an open cathode and it will rise quickly toward Screen grid voltage. The only thing limiting it is the operating bias voltage. It will rise to over 100 vdc (I have measured it). When you place the meter to IP during attempt to reload after you hear that pop the meter will be

stressed again.
>
>
>Kenwood engineers would never fuse the cathode to save "other components" at risk of sacrificing the plate meter. Meter is far more delicate and expensive component.
>
>
>Suggest you figure this out for yourself. Put four 20 ohm carbon resistors in parallel on your service bench and load them up and find out what it takes to get them to "fuse". You are going to see smoke and color before that happens.
>
>
>If I failed to answer one of your questions let me know.
>
>
>Terry K9TW
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.

46443. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:22:06 UTC
From: Michael Sylvester
Topic: 46429 Message: 46443

Net Info:
Saturday: 7.235 Mhz (40 meters) @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 Mhz (20 meters) @ 1800 UTC following the ICOM net

Copy, paste, edit.

Got it Now?
Michael///KD0WSJ

From: Ron <bozo231@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, December 15, 2013 6:06 PM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Mark I see the band and time but no specific freq , am I blind or what plz advise

Ron KK4PWF

On Dec 15, 2013, at 6:25 PM, Mark Gilger <mgilger@...> wrote:

Ron,
>The freq. and times are listed at the bottom of the original email.
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>At 04:40 PM 12/15/2013, you wrote:
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>>What frequency do u have the net on
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>>Ron KK4PWF
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>>>2 running TS-530(x)
>>>3 running TS-820(x)
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>>>I was using my TS-830s.
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>>>
>>>His URL is:
>>>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>
>>>To date, we have had the following check-in:
>>>
>>>Nov. 2011 – Oct. 2012 Saturday total 754 check-ins, Sunday tootal 563 check-ins
>>>Nov. 2012 - Oct. 2013 Saturdays total 828 check-ins, Sunday total 609 check-ins
>>>
>>>November 2013, Saturdayâ€™s net total = 94, Sundayâ€™s total = 85
>>>December 2013, Saturdayâ€™s net total = 37, Sundayâ€™s total = 41 (Month to date)
>>>
>>>Net Info:
>>>Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
>>>Sunday: 14.316 @ 1800 UTC following the ICOM net
>>>
>>>Web Site:
>>>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>

```
>>>73's,
>>>Mark, WB0IQK
>>>
>
```

46444. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 00:23:41 UTC
From: Michael Sylvester
Topic: 46429 Message: 46444

You too?
It's a conspiracy.
Michael///KD0WSJ

From: Ron <bozo231@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Sunday, December 15, 2013 6:07 PM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Ok never mind I see them lol I'm going blind I guess Sorry

Ron KK4PWF

On Dec 15, 2013, at 6:25 PM, Mark Gilger <mgilger@...> wrote:

Ron,
>The freq. and times are listed at the bottom of the original email.
>Thanks,
>Mark
>
>At 04:40 PM 12/15/2013, you wrote:
>
>
>>
>>What frequency do u have the net on
>>
>>Ron KK4PWF
>>
>>On Dec 15, 2013, at 4:08 PM, Mark Gilger <mgilger@...> wrote:
>>
>>
>>The net recently celebrated itâ€™s 2nd year in existence on November 1st, 2013. The yearly check-in totals are posted at the bottom of this message. It showed we had a 10% increase in our Saturday check-ins and an 8% on Sunday as compared to the 2012 check-ins.
>>>
>>>The Saturday net on 40 meters had 14 check ins under good band condition. There were 1 new check ins, KC8SIG. We had the following number of radios checking in.
>>>
>>>3 running TS-520(x)
>>>2 running TS-530(x)
>>>3 running TS-820(x)
>>>2 running TS-830S
>>>
>>>I was using my TS-830s.

>>>
>>>The Sundayâ€™s 20 meter net had 21 stations checking in under good band conditions. There were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH
>>>
>>>Out of those, there was:
>>>
>>>3 running TS-520(x)
>>>4 running TS-530(x)
>>>4 running TS-820(x)
>>>2 running TS-830S
>>>
>>>I was running my 820 twins, TS-820s + R-820.
>>>
>>>We have been having several people checking in regularly with their TS-430, TS-440, and TS-940â€™s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.
>>>
>>>If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.
>>>
>>>For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.
>>>
>>>His URL is:
>>>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>
>>>To date, we have had the following check-in:
>>>
>>>Nov. 2011 – Oct. 2012 Saturday total 754 check-ins, Sunday tootal 563 check-ins
>>>Nov. 2012 - Oct. 2013 Saturdays total 828 check-ins, Sunday total 609 check-ins
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>>>
>>>Web Site:
>>>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>
>>>73's,
>>>Mark, WB0IQK
>>>
>

46445. RE: High SWR into dummy load!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 01:15:02 UTC
From: <wagstw46@...>
Topic: 46415 Message: 46445

OK

With an open on the output or load side of a wattmeter the forward and reflected power should read the same. If you ever see this again make sure you check reflected. If you see 200 watts forward and 200 watts reflected you then know you have an open on the output side of the wattmeter.

Terry K9TW

46446. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 03:04:44 UTC
From: W5RKL
Topic: 46351 Message: 46446

Michael,

You said the cathodes resistors are 20 ohms times 4. That's true in the "TS-530 and TS-830 but it is not true in the TS-520 and TS-820. The TS-520 and TS-820 both have only "2" 10 ohm 1 watt cathode resistors.

I recommend you spend some time studying the final amplifier schematics of the TS-520, TS-820, TS-530 and the TS-830. I specifically said the operator was improperly tuning a "TS-520" which has "2" 10 ohm 1 watt cathode resistors not four 20 ohm cathode resistors.

The final tubes are connected in parallel and there is only "1" cathode circuit connected to both tubes. Therefore, both final tubes will see "5 ohms" of cathode resistance.

I'm not confusing the issue but rather you do not seem to understand the differences in the KW hybrid final amplifier cathode circuits nor how the cathode circuits work in the KW hybrids.

If you watch my cathode resistor and metering circuit video you will see exactly what I am talking about. I explain how the TS-520 and TS-820 cathode and metering circuits voltages are calculated, using a TS-520 hybrid with 350ma of cathode current flowing in the final amplifier's cathode circuit. Click on the link below then when the page comes up, fclick on the video link.

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/

73
Mike W5RKL

On 12/15/2013 6:15 PM, Michael Sylvester wrote:
> To:
> Mike W5RKL
>
> I need you to clarify, since the cathode resistors are 20 ohms X 4.
> You say 10 ohms. Are you looking at pairs as 2 separate cirquits?
> 2-20 ohm resistors in parralel per tube for the 10 ohms you speak of?
> Since the tubes are in effect in parralel? Do the tubes each see 5
> ohms or do the tubes eachsee 10 ohms?
> I think they each see 5 since the metering is measuring their total
> combined cathode currents.
> Then you mention the 5 ohm resultant resistance of 4-20's in parralel?
> You are somewhat muddling the issue.
> Clarify please.
> Michael///KD0WSJ
> *From:* W5RKL <w5rkl@...>

> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, December 15, 2013 5:07 PM
> *Subject:* Re: [TS-520_820_530_830] What's wrong with this board?
>
> Michael and Terry,
>
> If I may add something to Terry's response.
>
> Michael, you can easily calculate the approximately power dissipated
> in each cathode resistor in any of the KW TS-520, TS-820, TS-530, and
> TS-830 by simply performing simple math calculations using the
> following formula:
>
> P = Isqrd x R
>
> Let's assume an operator has improperly tuned their TS-520 resulting
> in 275ma of IP current.
>
> We know that each cathode resistor is approximately 10 ohm 1 watt and
> the cathode current is 275ma so all we do is use these values and the
> above formula which will result in approximately .756 watts dissipated
> in each cathode resistor:
>
> .275 x .275 = .075625 x 10 = .756 watts
>
> Now lets increase the IP meter indication to 350ma, a much higher
> improper tuning IP cathode current in the final amplifier. What will
> the power dissipation in each cathode resistor be? Use the new 350ma
> IP current value, same 10 ohms 1 watt cathode resistor, and the same
> formula which results in approximately 1.225 watts dissipated in each
> cathode resistors:
>
> .350 x .350 = .1225 x 10 = 1.225 watts
>
> The additional .225 watts over the 1 watt power rating of each cathode
> resistor will not result in either of the cathode resistors to blow
> like a fuse.
>
> You can also calculate the approximately cathode voltage using any
> value of IP cathode current by simply using the formula:
>
> E = I x R
>
> where "E" is the "unknown" cathode voltage, "I" is the value of IP
> cathode current, and R is the approximate 5 ohms of cathode resistance.
>
> For example, if the IP cathode current is "60ma", what will the
> cathode voltage be and what will the power dissipated in each 10 ohm
> cathode resistor be? The cathode voltage will be approximately
> "+.3VDC" or "+300mv":

>
> .06 x 5 = .3
>
> The approximate power dissipated in each cathode resistor will be .036
> watts or 36mw
>
> .06 x .06 = .0036 x 10 = .036
>
> This same math calculations can be performed on the TS-530 and TS-830
> in the same way, using the same formulas.
>
> 73
> Mike W5RKL
>
>
> On 12/15/2013 11:54 AM, Michael Sylvester wrote:
>> To:
>> Terry K9TW ,
>> Thank you for your thorough explanation.
>> Between you and Wes I am now thoroughly edumacated on these
>> particular subjects.
>> Whether I retain this detailed voluminous instruction we will see.
>> I much appreciate your kind and generous sharing of your wealth of
>> knowlege
>> and the giving of your valuable time Sir.
>> Break is over, now finish that radio.
>> "Communications gear will be vital"
>> Michael///KD0WSJ
>>
>>
>> *From:* mailto:wagstw46@... mailto:wagstw46@...
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Sunday, December 15, 2013 8:58 AM
>> *Subject:* Re: [TS-520_820_530_830] What's wrong with this board?
>>
>> Michael
>>
>> You have covered a lot of ground here. Will attempt to address it
>> all. If not we can take this off list or start new post?
>>
>> 1. Use of Artist brushes very good idea. I try not to spray anything
>> as hard to control amount and really direct it and to clean off all
>> the residue.
>>
>> 2. OK to try different contact cleaners. Everyone has there favorite.
>> Fader lube is good for carbon trace pots. Usual weak link is the
>> rivet to pc trace interface and not the actual contact fingers unless
>> someone has been in there and pressed on them. They are phosphor
>> bronze with spring temper and can take thousands of spread

>> cycles.Never attempt screwdriver to close them. Only way to change
>> that gap is perhaps attempt a twist. Best to measure contact
>> resistance by applying approx 6 vdc and 1 amp and measuring the
>> millivolt drop across the contacts. Ohm meter test is not good way to
>> find bad contact as no current is used.
>>
>> 3. Molex connector is the brand name. The large white connectors on
>> the TS820 are Molex connectors. Just much heavier. A smaller version
>> is used on the TS530 and TS830. You havent lived until you pull 5 or
>> 6 off a board. The pins and sockets in the two connectors are plated
>> and should last long time, but cleaning with contact cleaners and
>> wiping them by multiple cycling can help, but it comes with some risk
>> especially on the TS530 and TS830. I always inspect the connector
>> body pins on foil side of the boards under magnification when board
>> is removed. I insert a plug back on the connector and gently rock
>> back and forth and observe and not uncommon to see a complete 360
>> degree circumferential crack around the pin and solder "cone".. The
>> pin is floating and can see it moving. In some cases the solder never
>> wetted to the pin. The pin has now developed oxide coating and you
>> cannot simply resolder it. Need to remove the old solder and clean
>> the pin and resolder.
>>
>> Other problem with repeated cleaning and plug and unplug cycles of
>> these molex connectors is you can rock the connector body and induce
>> a crack in the foil trace right at the pin pad junction. That crack
>> is hard to see due to the solder mask and it can cause you fits.
>>
>> So with 30 to 40 year old radios best not to fix things that are not
>> broken.
>>
>> I have had TS820 rigs here where owner broke corner off RF board
>> trying to remove Molex connector and broke the FIX board trying to
>> remove a seized molex connector. Just have to be damn careful.
>>
>> 4. Chinese tubes. They have a bad reputation for arc over. I have
>> never run them but do find them in customers rigs. Have had
>> opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf
>> volts swing so need to be able to hold off that level. I have DC
>> hi-pot and test a lot of 6146 finals. Good RCA and Sylvania will
>> usually hold off 2000 to 2500 volts. I have tested couple of sets of
>> Chinese and one arced over at 1100 and the other at 1500. So I dont
>> have a lot of experience with them. They just do not have a good
>> reputation. Maybe they are getting better?
>>
>> 5. I wont go into a long debate over cathode resistors designed as
>> fuses in detail here as it has been discussed numerous times on this
>> forum. You can search the forum and find all of the previous debate.
>> It is one area where Ken and I agree to disagree. Briefly:
>>
>> A. When 6146 tubes go into thermal runaway due to loss of operating

>> bias and plates are glowing cherry red why dont the cathode resistor
>> blow open? Run your bias voltage down and watch what happens (I
>> dont really recommend this).
>>
>> B. Carbon resistors can stand extreme over current and wattage
>> dissipation for a very long time. Have you ever connected DC supply
>> or Variac to a carbon resistor on your bench and run the current up?
>> You can get them to start smoking and eventually glowing so that you
>> literally see color in them. They wont pop open under those
>> conditions. I would not want enough plate current to flow in my PA
>> to cause the cathode resistors to glow. What would they be protecting
>> then?
>>
>> C. When is last time you blew a cathode resistor open on your HW-101,
>> or SB-102, or Drake T4X or any other 6146 boat anchor transmitter?
>> They all typically measure plate current the same way. Seldom see any
>> post or discussion about cathode resistors popping open on these
>> other forums.
>>
>> D. Only way to experience an instantaneous cathode resistor failure
>> is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180
>> amps. (not considering the power supply esr that would add some
>> additional current limiting during the fault). This did not happen
>> back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It
>> is only a more recent phenomenon due to 35 to 40 year old NOS and
>> pulls available that have off gassed and/or have some ingress around
>> tube pin seals after all these years.
>>
>> E. Lastly you never want your cathode to become open circuited. As I
>> previously mentioned in other response. When tube arcs over and
>> momentarily have 160 amps fault current flowing thru 5 ohms then the
>> IR drop is approx 800vdc. The maximum voltage your panel meter can
>> stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter
>> isnt going to like it when it now tries to measure 800vdc!. If it
>> survives the initial fault now you have an open cathode and it will
>> rise quickly toward Screen grid voltage. The only thing limiting it
>> is the operating bias voltage. It will rise to over 100 vdc (I have
>> measured it). When you place the meter to IP during attempt to reload
>> after you hear that pop the meter will be stressed again.
>>
>> Kenwood engineers would never fuse the cathode to save "other
>> components" at risk of sacrificing the plate meter. Meter is far more
>> delicate and expensive component.
>>
>> Suggest you figure this out for yourself. Put four 20 ohm carbon
>> resistors in parallel on your service bench and load them up and find
>> out what it takes to get them to "fuse". You are going to see smoke
>> and color before that happens.
>>
>> If I failed to answer one of your questions let me know.

>>
>> Terry K9TW
>>
>>
>
>
>
> <http://www.avast.com/>
> This email is free from viruses and malware because avast! Antivirus
> <http://www.avast.com/> protection is active.
>
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>
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>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46447. Filters For TS-830S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 03:15:45 UTC
From: <planningpower@...>
Topic: 46447 Message: 46447

I have a TS-830S with no optional filters. I have not used it yet other than a bench test of receive with a wire inserted in the antenna port. It receives noise just fine so I think it is functional.

I have the following filters from a TS-430S;

YK-88A; 6 kHz AM Filter;

YK-88S; 2.4 kHz SSB Filter;

YK-88SN; 1.8 kHz SSB Filter and

YK-88C; 500 Hz CW Filter.

As far as I understand the manual, the first three are of no use with the '830; the YK-88C can be used with a YG-455C which I do not have.

Is the use of these two filters together mandatory or can just the YK-88C be fitted?

If so, is there any advantage to using the YK-88C alone?

Kerry VK2TIL.

46448. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 03:33:55 UTC
From: clifford wright
Topic: 46351 Message: 46448

There seems to be a lot of variation in these resistors. However my own
experience is that in my TS820S they were DEFINITELY stressed. My finals
are always run conservatively and would never be over 250 mA total
current for more than a few seconds.
The main problem is this, if they go out of spec, your meter indication
also is off.
Fortunately they usually fail high. But then you wonder where your
output has gone to.
If they went low the results could be really BAD as you could destroy
your finals while the meter reads a perfectly safe current.
I went through mine very carefully as my meter failed and I had to use a
replacement with a higher sensitivity. So everything was carefully cross
checked to get the calibration accurate on all the meter ranges.
So as I said before I use multi bypassed wire wound resistors set to
exactly 5 Ohms.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46449. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 06:29:09 UTC
From: Michael Sylvester
Topic: 46351 Message: 46449

To:
Mike W5RKL

Darnit, showing my ignorance again.
I don't have a 520 yet or any books on them.
So I kinda have an excuse for being lost on that one.
Thanks for explaining.
I will watch your video.
Thank you Sir.
Michael///KD0WSJ

From: W5RKL <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 15, 2013 9:04 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael,

You said the cathodes resistors are 20 ohms times 4. That's true in the "TS-530 and TS-830 but it is not true in the TS-520 and TS-820. The TS-520 and TS-820 both have only "2" 10 ohm 1 watt cathode resistors.

I recommend you spend some time studying the final amplifier schematics of the TS-520, TS-820, TS-530 and the TS-830. I specifically said the operator was improperly tuning a "TS-520" which has "2" 10 ohm 1 watt cathode resistors not four 20 ohm cathode resistors.

The final tubes are connected in parallel and there is only "1" cathode circuit connected to both tubes. Therefore, both final tubes will see "5 ohms" of cathode resistance.

I'm not confusing the issue but rather you do not seem to understand the differences in the KW hybrid final amplifier cathode circuits nor how the cathode circuits work in the KW hybrids.

If you watch my cathode resistor and metering circuit video you will see exactly what I am talking about. I explain how the TS-520 and TS-820 cathode and metering circuits voltages are calculated, using a TS-520 hybrid with 350ma of cathode current flowing in the final amplifier's cathode circuit. Click on the link below then when the page comes up, fclick on the video link.

http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/

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Mike W5RKL

On 12/15/2013 6:15 PM, Michael Sylvester wrote:

>To:
>Mike W5RKL
>
>I need you to clarify, since the cathode resistors are 20 ohms X 4.
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>2-20 ohm resistors in parralel per tube for the 10 ohms you speak of?
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>I think they each see 5 since the metering is measuring their total combined cathode currents.
>Then you mention the 5 ohm resultant resistance of 4-20's in parralel?
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>We know that each cathode resistor is approximately 10 ohm 1 watt and the cathode current is 275ma so all we do is use these values and the above formula which will result in approximately .756 watts dissipated in each cathode resistor:
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>.275 x .275 = .075625 x 10 = .756 watts
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>Now lets increase the IP meter indication to 350ma, a much higher improper tuning IP cathode current in the final amplifier. What will the power dissipation in each cathode resistor be? Use the new 350ma IP current value, same 10 ohms 1 watt cathode resistor, and the same formula which results in approximately 1.225 watts dissipated in each cathode resistors:
>
>.350 x .350 = .1225 x 10 = 1.225 watts
>

>The additional .225 watts over the 1 watt power rating of each cathode resistor will not result in either of the cathode resistors to blow like a fuse.
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>You can also calculate the approximately cathode voltage using any value of IP cathode current by simply using the formula:
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>For example, if the IP cathode current is "60ma", what will the cathode voltage be and what will the power dissipated in each 10 ohm cathode resistor be? The cathode voltage will be approximately "+.3VDC" or "+300mv":
>
>.06 x 5 = .3
>
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>.06 x .06 = .0036 x 10 = .036
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>This same math calculations can be performed on the TS-530 and TS-830 in the same way, using the same formulas.
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>73
>Mike W5RKL
>
>
>
>On 12/15/2013 11:54 AM, Michael Sylvester wrote:
>
>
>>To:
>>Terry K9TW ,
>>
>>Thank you for your thorough explanation.
>>Between you and Wes I am now thoroughly edumacated on these particular subjects.
>>Whether I retain this detailed voluminous instruction we will see.
>>
>>I much appreciate your kind and generous sharing of your wealth of knowlege
>>and the giving of your valuable time Sir.
>>Break is over, now finish that radio.
>>
>>"Communications gear will be vital"
>>Michael///KD0WSJ
>>
>>
>>
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>>From: mailto:wagstw46@...m mailto:wagstw46@...

>>To: TS-520_820_530_830@yahoogroups.com
>>Sent: Sunday, December 15, 2013 8:58 AM
>>Subject: Re: [TS-520_820_530_830] What's wrong with this board?
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>>Michael
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resolder.
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>>
>>
>>A. When 6146 tubes go into thermal runaway due to loss of operating bias and plates are glowing cherry red why dont the cathode resistor blow open? Run your bias voltage down and watch what happens (I dont really recommend this).
>>
>>
>>B. Carbon resistors can stand extreme over current and wattage dissipation for a very long time. Have you ever connected DC supply or Variac to a carbon resistor on your bench and run the current up? You can get them to start smoking and eventually glowing so that you literally see color in them. They wont pop open under those conditions. I would not want enough plate current to flow in my PA to cause the cathode resistors to glow. What would they be protecting then?
>>
>>
>>C. When is last time you blew a cathode resistor open on your HW-101, or SB-102, or Drake T4X or any other 6146 boat anchor transmitter? They all typically measure plate current the same way. Seldom see any post or discussion about cathode resistors popping open on these other forums.
>>
>>
>>D. Only way to experience an instantaneous cathode resistor failure is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180 amps. (not considering the power supply esr that would add some additional current limiting during the fault). This did not happen back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It is only a more recent phenomenon due to 35 to 40 year old NOS and pulls available that have off gassed and/or have some ingress around tube pin seals after all these years.
>>
>>
>>E. Lastly you never want your cathode to become open circuited. As I previously mentioned in other response. When tube arcs over and momentarily have 160 amps fault current flowing thru 5 ohms then the IR drop is approx 800vdc. The maximum voltage your panel meter can

stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter isnt going to like it when it now tries to measure 800vdc!. If it survives the initial fault now you have an open cathode and it will rise quickly toward Screen grid voltage. The only thing limiting it is the operating bias voltage. It will rise to over 100 vdc (I have measured it). When you place the meter to IP during attempt to reload after you hear that pop the meter will be stressed again.
>>
>>
>>Kenwood engineers would never fuse the cathode to save "other components" at risk of sacrificing the plate meter. Meter is far more delicate and expensive component.
>>
>>
>>Suggest you figure this out for yourself. Put four 20 ohm carbon resistors in parallel on your service bench and load them up and find out what it takes to get them to "fuse". You are going to see smoke and color before that happens.
>>
>>
>>If I failed to answer one of your questions let me know.
>>
>>
>>Terry K9TW
>>
>>
>
>
>
> This email is free from viruses and malware because avast! Antivirus protection is active.
>
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.

46450. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 12:59:34 UTC
From: Mike
Topic: 46351 Message: 46450

Michael,

There's nothing wrong with not knowing the differences in cathode resistors in the TS-520/TS-820 final amplifier cathode circuits when compared to the TS-530 and TS-830 final amplifier cathode circuit, especially if you have never own/worked on or studied the 520 and 820 manuals and schematics.The important thing to understand is, there are differences.

The different cathode resistor circuits in all of the KW hybrids, 520, 820, 530, and 830, perform the same thing, the cathode resistors are meter shunts. When current flows in the cathode circuit a voltage is present. This voltage is referred to as "the cathode voltage". This voltage is then applied to the hybrid's meter circuit (meter switch set to IP and the hybrid is in transmit) where the voltage is then displayed on the meter as "current", using the top scale on the meter.

To understand power dissipation in resistors and how power dissipated in a resistor, I recommend you watch my parallel resistor video which is accessed by clicking on the "Basic Ohms Law" link:

www.n6wk.com/w5rkl/Basic Ohms Law/

You can access all my videos starting at the following link:

www.n6wk.com/w5rkl/

The TS-520 and TS-820 operator and service manuals are available for downloading, free, at the following link:

www.n6wk.com/kenwood/

I recommend you download the manuals for the TS-520 and TS-820 along with the various high resolution schematics for all the KW hybrids. Review/study the 520 and 820 final amplifier schematic which will show you there are only two "10 ohm 1 watt" cathode resistors, not four 20 ohm 1/2 watt resistors. As I said, the TS-530 and TS-830 have four 20 ohm 1/2 watt cathode resistors. The bottom line, the different cathode resistor circuits perform the exact same thing, they use the final tube's cathode voltage that is applied to the "IP" meter circuit to measure voltage and display that voltage on the meter's top scale as "current".

73
Mike W5RKL

On 12/16/2013 12:29 AM, Michael Sylvester wrote:
> To:

> Mike W5RKL
> Darnit, showing my ignorance again.
> I don't have a 520 yet or any books on them.
> So I kinda have an excuse for being lost on that one.
> Thanks for explaining.
> I will watch your video.
> Thank you Sir.
> Michael///KD0WSJ
>
> *From:* W5RKL <w5rkl@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, December 15, 2013 9:04 PM
> *Subject:* Re: [TS-520_820_530_830] What's wrong with this board?
>
> Michael,
>
> You said the cathodes resistors are 20 ohms times 4. That's true in
> the "TS-530 and TS-830 but it is not true in the TS-520 and TS-820.
> The TS-520 and TS-820 both have only "2" 10 ohm 1 watt cathode resistors.
>
> I recommend you spend some time studying the final amplifier
> schematics of the TS-520, TS-820, TS-530 and the TS-830. I
> specifically said the operator was improperly tuning a "TS-520" which
> has "2" 10 ohm 1 watt cathode resistors not four 20 ohm cathode resistors.
>
> The final tubes are connected in parallel and there is only "1"
> cathode circuit connected to both tubes. Therefore, both final tubes
> will see "5 ohms" of cathode resistance.
>
> I'm not confusing the issue but rather you do not seem to understand
> the differences in the KW hybrid final amplifier cathode circuits nor
> how the cathode circuits work in the KW hybrids.
>
> If you watch my cathode resistor and metering circuit video you will
> see exactly what I am talking about. I explain how the TS-520 and
> TS-820 cathode and metering circuits voltages are calculated, using a
> TS-520 hybrid with 350ma of cathode current flowing in the final
> amplifier's cathode circuit. Click on the link below then when the
> page comes up, fclick on the video link.
>
>
http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/
>
> 73
> Mike W5RKL
>
>
>
>
>

>
>
> On 12/15/2013 6:15 PM, Michael Sylvester wrote:
>> To:
>> Mike W5RKL
>>
>> I need you to clarify, since the cathode resistors are 20 ohms X 4.
>> You say 10 ohms. Are you looking at pairs as 2 separate cirquits?
>> 2-20 ohm resistors in parralel per tube for the 10 ohms you speak of?
>> Since the tubes are in effect in parralel? Do the tubes each see 5
>> ohms or do the tubes eachsee 10 ohms?
>> I think they each see 5 since the metering is measuring their total
>> combined cathode currents.
>> Then you mention the 5 ohm resultant resistance of 4-20's in parralel?
>> You are somewhat muddling the issue.
>> Clarify please.
>> Michael///KD0WSJ
>> *From:* W5RKL mailto:w5rkl@...
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Sunday, December 15, 2013 5:07 PM
>> *Subject:* Re: [TS-520_820_530_830] What's wrong with this board?
>>
>> Michael and Terry,
>>
>> If I may add something to Terry's response.
>>
>> Michael, you can easily calculate the approximately power dissipated
>> in each cathode resistor in any of the KW TS-520, TS-820, TS-530, and
>> TS-830 by simply performing simple math calculations using the
>> following formula:
>>
>> P = Isqrd x R
>>
>> Let's assume an operator has improperly tuned their TS-520 resulting
>> in 275ma of IP current.
>>
>> We know that each cathode resistor is approximately 10 ohm 1 watt and
>> the cathode current is 275ma so all we do is use these values and the
>> above formula which will result in approximately .756 watts
>> dissipated in each cathode resistor:
>>
>> .275 x .275 = .075625 x 10 = .756 watts
>>
>> Now lets increase the IP meter indication to 350ma, a much higher
>> improper tuning IP cathode current in the final amplifier. What will
>> the power dissipation in each cathode resistor be? Use the new 350ma
>> IP current value, same 10 ohms 1 watt cathode resistor, and the same
>> formula which results in approximately 1.225 watts dissipated in each
>> cathode resistors:

>>
>> .350 x .350 = .1225 x 10 = 1.225 watts
>>
>> The additional .225 watts over the 1 watt power rating of each
>> cathode resistor will not result in either of the cathode resistors
>> to blow like a fuse.
>>
>> You can also calculate the approximately cathode voltage using any
>> value of IP cathode current by simply using the formula:
>>
>> E = I x R
>>
>> where "E" is the "unknown" cathode voltage, "I" is the value of IP
>> cathode current, and R is the approximate 5 ohms of cathode resistance.
>>
>> For example, if the IP cathode current is "60ma", what will the
>> cathode voltage be and what will the power dissipated in each 10 ohm
>> cathode resistor be? The cathode voltage will be approximately
>> "+.3VDC" or "+300mv":
>>
>> .06 x 5 = .3
>>
>> The approximate power dissipated in each cathode resistor will be
>> .036 watts or 36mw
>>
>> .06 x .06 = .0036 x 10 = .036
>>
>> This same math calculations can be performed on the TS-530 and TS-830
>> in the same way, using the same formulas.
>>
>> 73
>> Mike W5RKL
>>
>>
>> On 12/15/2013 11:54 AM, Michael Sylvester wrote:
>>> To:
>>> Terry K9TW ,
>>> Thank you for your thorough explanation.
>>> Between you and Wes I am now thoroughly edumacated on these
>>> particular subjects.
>>> Whether I retain this detailed voluminous instruction we will see.
>>> I much appreciate your kind and generous sharing of your wealth of
>>> knowlege
>>> and the giving of your valuable time Sir.
>>> Break is over, now finish that radio.
>>> "Communications gear will be vital"
>>> Michael///KD0WSJ
>>>
>>>
>>> *From:* mailto:wagstw46@... mailto:wagstw46@...

>>> *To:* TS-520_820_530_830@yahoogroups.com
>>> <mailto:TS-520_820_530_830@yahoogroups.com>
>>> *Sent:* Sunday, December 15, 2013 8:58 AM
>>> *Subject:* Re: [TS-520_820_530_830] What's wrong with this board?
>>>
>>> Michael
>>>
>>> You have covered a lot of ground here. Will attempt to address it
>>> all. If not we can take this off list or start new post?
>>>
>>> 1. Use of Artist brushes very good idea. I try not to spray anything
>>> as hard to control amount and really direct it and to clean off all
>>> the residue.
>>>
>>> 2. OK to try different contact cleaners. Everyone has there
>>> favorite. Fader lube is good for carbon trace pots. Usual weak link
>>> is the rivet to pc trace interface and not the actual contact
>>> fingers unless someone has been in there and pressed on them. They
>>> are phosphor bronze with spring temper and can take thousands of
>>> spread cycles.Never attempt screwdriver to close them. Only way to
>>> change that gap is perhaps attempt a twist. Best to measure contact
>>> resistance by applying approx 6 vdc and 1 amp and measuring the
>>> millivolt drop across the contacts. Ohm meter test is not good way
>>> to find bad contact as no current is used.
>>>
>>> 3. Molex connector is the brand name. The large white connectors on
>>> the TS820 are Molex connectors. Just much heavier. A smaller version
>>> is used on the TS530 and TS830. You havent lived until you pull 5 or
>>> 6 off a board. The pins and sockets in the two connectors are plated
>>> and should last long time, but cleaning with contact cleaners and
>>> wiping them by multiple cycling can help, but it comes with some
>>> risk especially on the TS530 and TS830. I always inspect the
>>> connector body pins on foil side of the boards under magnification
>>> when board is removed. I insert a plug back on the connector and
>>> gently rock back and forth and observe and not uncommon to see a
>>> complete 360 degree circumferential crack around the pin and solder
>>> "cone".. The pin is floating and can see it moving. In some cases
>>> the solder never wetted to the pin. The pin has now developed oxide
>>> coating and you cannot simply resolder it. Need to remove the old
>>> solder and clean the pin and resolder.
>>>
>>> Other problem with repeated cleaning and plug and unplug cycles of
>>> these molex connectors is you can rock the connector body and induce
>>> a crack in the foil trace right at the pin pad junction. That crack
>>> is hard to see due to the solder mask and it can cause you fits.
>>>
>>> So with 30 to 40 year old radios best not to fix things that are not
>>> broken.
>>>
>>> I have had TS820 rigs here where owner broke corner off RF board

>>> trying to remove Molex connector and broke the FIX board trying to
>>> remove a seized molex connector. Just have to be damn careful.
>>>
>>> 4. Chinese tubes. They have a bad reputation for arc over. I have
>>> never run them but do find them in customers rigs. Have had
>>> opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf
>>> volts swing so need to be able to hold off that level. I have DC
>>> hi-pot and test a lot of 6146 finals. Good RCA and Sylvania will
>>> usually hold off 2000 to 2500 volts. I have tested couple of sets of
>>> Chinese and one arced over at 1100 and the other at 1500. So I dont
>>> have a lot of experience with them. They just do not have a good
>>> reputation. Maybe they are getting better?
>>>
>>> 5. I wont go into a long debate over cathode resistors designed as
>>> fuses in detail here as it has been discussed numerous times on this
>>> forum. You can search the forum and find all of the previous debate.
>>> It is one area where Ken and I agree to disagree. Briefly:
>>>
>>> A. When 6146 tubes go into thermal runaway due to loss of operating
>>> bias and plates are glowing cherry red why dont the cathode resistor
>>> blow open? Run your bias voltage down and watch what happens (I
>>> dont really recommend this).
>>>
>>> B. Carbon resistors can stand extreme over current and wattage
>>> dissipation for a very long time. Have you ever connected DC supply
>>> or Variac to a carbon resistor on your bench and run the current up?
>>> You can get them to start smoking and eventually glowing so that you
>>> literally see color in them. They wont pop open under those
>>> conditions. I would not want enough plate current to flow in my PA
>>> to cause the cathode resistors to glow. What would they be
>>> protecting then?
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>>> C. When is last time you blew a cathode resistor open on your
>>> HW-101, or SB-102, or Drake T4X or any other 6146 boat anchor
>>> transmitter? They all typically measure plate current the same way.
>>> Seldom see any post or discussion about cathode resistors popping
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>>> D. Only way to experience an instantaneous cathode resistor failure
>>> is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180
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>>> additional current limiting during the fault). This did not happen
>>> back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It
>>> is only a more recent phenomenon due to 35 to 40 year old NOS and
>>> pulls available that have off gassed and/or have some ingress around
>>> tube pin seals after all these years.
>>>
>>> E. Lastly you never want your cathode to become open circuited. As I
>>> previously mentioned in other response. When tube arcs over and
>>> momentarily have 160 amps fault current flowing thru 5 ohms then the

>>> IR drop is approx 800vdc. The maximum voltage your panel meter can
>>> stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc
>>> meter isnt going to like it when it now tries to measure 800vdc!. If
>>> it survives the initial fault now you have an open cathode and it
>>> will rise quickly toward Screen grid voltage. The only thing
>>> limiting it is the operating bias voltage. It will rise to over 100
>>> vdc (I have measured it). When you place the meter to IP during
>>> attempt to reload after you hear that pop the meter will be stressed
>>> again.
>>>
>>> Kenwood engineers would never fuse the cathode to save "other
>>> components" at risk of sacrificing the plate meter. Meter is far
>>> more delicate and expensive component.
>>>
>>> Suggest you figure this out for yourself. Put four 20 ohm carbon
>>> resistors in parallel on your service bench and load them up and
>>> find out what it takes to get them to "fuse". You are going to see
>>> smoke and color before that happens.
>>>
>>> If I failed to answer one of your questions let me know.
>>>
>>> Terry K9TW
>>>
>>>
>>
>>
>>
>> <http://www.avast.com/>
>> This email is free from viruses and malware because avast! Antivirus
>> <http://www.avast.com/> protection is active.
>>
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>
>
>
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>

46451. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 13:11:10 UTC
From: <rrmvargo@...>
Topic: 46429 Message: 46451

Now if I could just get Mark to call me before the Net.... I keep forgetting to get on. 73 - Bob

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

46452. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 14:12:01 UTC
From: Mark Gilger
Topic: 46429 Message: 46452

That's what alarm clocks are for. Maybe a wrist
watch with an alarm would work.

Mark

At 08:11 AM 12/16/2013, rrmvargo@... wrote:
>
>
>Now if I could just get Mark to call me before
>the Net.... I keep forgetting to get on. 73 - Bob
>
>
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>>>>Sunday: 14.316 @ 1800 UTC following the ICOM net
>>>>
>>>>Web Site:
>>>><http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwodHomePage.htm
>>>>
>>>>73's,
>>>>Mark, WB0IQK
>

46453. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 14:43:39 UTC
From: Gregory Graham
Topic: 46429 Message: 46453

It was interesting to me that Mark uses EST to schedule the net
instead of GMT time. Some states change to daylight time and some do
not, so the offset from local time changes. Also a good thing is to
advertise, putting the NET schedules (GMT) and WEB site with the reports
is always a good idea. Mark does a good job, Cudos to him for his work.

Gregory, NR6C

On 12/16/2013 6:12 AM, Mark Gilger wrote:
>
> That's what alarm clocks are for. Maybe a wrist watch with an alarm
> would work.
>
> Mark
>
> At 08:11 AM 12/16/2013, rrmvargo@... wrote:
>
>>
>>
>> Now if I could just get Mark to call me before the Net.... I keep
>> forgetting to get on. 73 - Bob
>>
>>
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>>>>> Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
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>>>>> Web Site:
>>>>> http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>>> <http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>
>>>>>
>>>>> 73's,
>>>>> Mark, WB0IQK
>
>

46454. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 15:50:27 UTC
From: Michael Sylvester
Topic: 46351 Message: 46454

To:
Mike W5RKL

I have downloaded MOST of Gordon's (right name?) webpage.
I prefer paper however, wish the darn service manual for TS-830 Gold Label would show up, ordered from Jim at Hybrid almost 3 weeks ago (they are out).
I'd love to sort out the rest of the mods the "Golden Screwdriver" previous owner did to her. Install new tubes and get that baby on air!!
Also bought K4EAA's 3'X4'schenatic. Colored pencils and have clear taped my older manuals where they rip apart at the folds....have begun coloring alot of the circuit traces to faciclitate easier visual usage....

Wasn't aware of all of the different designs (obviously).
Thanks for all your helpful information. I DO learn pretty quick but I'm sure I've been a bit aggravating in my ignorance. Also you men having to cover ground covered numerous times before, at the cost of how many worn out keyboards?

How many newbies have you fellows had to edumacate over the years?
I'll try to get up to speed quickly.
Before all you old farts go SK.
Just kidding.

Man my back is sore today. Too much time in the chair.
Haven't had this much seat time since my NASA test pilot days......

Actually it's the wear and tear of my YL, she's fine looking but sure puts some rough miles on me sometimes..been a busy weekend..Hi Hi

Thanks for all the knowledge Gentlemen, It is much appreciated.

"All it takes for evil to succeed is for good men to do nothing"
Michael///KD0WSJ

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 16, 2013 6:59 AM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael,

There's nothing wrong with not knowing the differences in cathode resistors in the TS-520/TS-820 final amplifier cathode circuits when compared to the TS-530 and TS-830 final amplifier cathode circuit, especially if you have never own/worked on or studied the 520 and 820 manuals and schematics.The important thing to understand is, there are differences.

The different cathode resistor circuits in all of the KW hybrids, 520, 820, 530, and 830, perform the same thing, the cathode resistors are meter shunts. When current flows in the

cathode circuit a voltage is present. This voltage is referred to as "the cathode voltage". This voltage is then applied to the hybrid's meter circuit (meter switch set to IP and the hybrid is in transmit) where the voltage is then displayed on the meter as "current", using the top scale on the meter.

To understand power dissipation in resistors and how power dissipated in a resistor, I recommend you watch my parallel resistor video which is accessed by clicking on the "Basic Ohms Law" link:

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I recommend you download the manuals for the TS-520 and TS-820 along with the various high resolution schematics for all the KW hybrids. Review/study the 520 and 820 final amplifier schematic which will show you there are only two "10 ohm 1 watt" cathode resistors, not four 20 ohm 1/2 watt resistors. As I said, the TS-530 and TS-830 have four 20 ohm 1/2 watt cathode resistors. The bottom line, the different cathode resistor circuits perform the exact same thing, they use the final tube's cathode voltage that is applied to the "IP" meter circuit to measure voltage and display that voltage on the meter's top scale as "current".

73
Mike W5RKL

On 12/16/2013 12:29 AM, Michael Sylvester wrote:

>To:
>Mike W5RKL
>
>Darnit, showing my ignorance again.
>I don't have a 520 yet or any books on them.
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>
>
>
>

>Michael,
>
>You said the cathodes resistors are 20 ohms times 4. That's true in the "TS-530 and TS-830 but it is not true in the TS-520 and TS-820. The TS-520 and TS-820 both have only "2" 10 ohm 1 watt cathode resistors.
>
>I recommend you spend some time studying the final amplifier schematics of the TS-520, TS-820, TS-530 and the TS-830. I specifically said the operator was improperly tuning a "TS-520" which has "2" 10 ohm 1 watt cathode resistors not four 20 ohm cathode resistors.
>
>The final tubes are connected in parallel and there is only "1" cathode circuit connected to both tubes. Therefore, both final tubes will see "5 ohms" of cathode resistance.
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>
>http://www.n6wk.com/w5rkl/TS-520%20and%20TS-820%20Cathode%20and%20IP%20metering%20circuit/
>
>73
>Mike W5RKL
>
>
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>
>
>
>
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>
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>>Mike W5RKL
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>>Let's assume an operator has improperly tuned their TS-520 resulting in 275ma of IP current.
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>>.350 x .350 = .1225 x 10 = 1.225 watts
>>
>>The additional .225 watts over the 1 watt power rating of each cathode resistor will not result in either of the cathode resistors to blow like a fuse.
>>
>>You can also calculate the approximately cathode voltage using any value of IP cathode current by simply using the formula:
>>
>>E = I x R
>>
>>where "E" is the "unknown" cathode voltage, "I" is the value of IP cathode current, and R is the approximate 5 ohms of cathode resistance.

>>
>>For example, if the IP cathode current is "60ma", what will the cathode voltage be and what will the power dissipated in each 10 ohm cathode resistor be? The cathode voltage will be approximately "+.3VDC" or "+300mv":
>>
>>.06 x 5 = .3
>>
>>The approximate power dissipated in each cathode resistor will be .036 watts or 36mw
>>
>>.06 x .06 = .0036 x 10 = .036
>>
>>This same math calculations can be performed on the TS-530 and TS-830 in the same way, using the same formulas.
>>
>>73
>>Mike W5RKL
>>
>>
>>
>>On 12/15/2013 11:54 AM, Michael Sylvester wrote:
>>
>>
>>>>To:
>>>>Terry K9TW ,
>>>>
>>>>Thank you for your thorough explanation.
>>>>Between you and Wes I am now thoroughly edumacated on these particular subjects.
>>>>Whether I retain this detailed voluminous instruction we will see.
>>>>
>>>>I much appreciate your kind and generous sharing of your wealth of knowlege
>>>>and the giving of your valuable time Sir.
>>>>Break is over, now finish that radio.
>>>>
>>>>"Communications gear will be vital"
>>>>Michael///KD0WSJ
>>>>
>>>>
>>>>
>>>>
>>>>From: mailto:wagstw46@... mailto:wagstw46@yahoo.com
>>>>To: TS-520_820_530_830@yahoogroups.com
>>>>Sent: Sunday, December 15, 2013 8:58 AM
>>>>Subject: Re: [TS-520_820_530_830] What's wrong with this board?
>>>>
>>>>
>>>>
>>>>
>>>>Michael
>>>>
>>>>

>>>You have covered a lot of ground here. Will attempt to address it all. If not we can take this off list or start new post?
>>>
>>>
>>>
>>>1. Use of Artist brushes very good idea. I try not to spray anything as hard to control amount and really direct it and to clean off all the residue.
>>>
>>>
>>>2. OK to try different contact cleaners. Everyone has there favorite. Fader lube is good for carbon trace pots. Usual weak link is the rivet to pc trace interface and not the actual contact fingers unless someone has been in there and pressed on them. They are phosphor bronze with spring temper and can take thousands of spread cycles.Never attempt screwdriver to close them. Only way to change that gap is perhaps attempt a twist. Best to measure contact resistance by applying approx 6 vdc and 1 amp and measuring the millivolt drop across the contacts. Ohm meter test is not good way to find bad contact as no current is used.
>>>
>>>
>>>3. Molex connector is the brand name. The large white connectors on the TS820 are Molex connectors. Just much heavier. A smaller version is used on the TS530 and TS830. You havent lived until you pull 5 or 6 off a board. The pins and sockets in the two connectors are plated and should last long time, but cleaning with contact cleaners and wiping them by multiple cycling can help, but it comes with some risk especially on the TS530 and TS830. I always inspect the connector body pins on foil side of the boards under magnification when board is removed. I insert a plug back on the connector and gently rock back and forth and observe and not uncommon to see a complete 360 degree circumferential crack around the pin and solder "cone".. The pin is floating and can see it moving. In some cases the solder never wetted to the pin. The pin has now developed oxide coating and you cannot simply resolder it. Need to remove the old solder and clean the pin and
resolder.
>>>
>>>
>>>Other problem with repeated cleaning and plug and unplug cycles of these molex connectors is you can rock the connector body and induce a crack in the foil trace right at the pin pad junction. That crack is hard to see due to the solder mask and it can cause you fits.
>>>
>>>
>>>So with 30 to 40 year old radios best not to fix things that are not broken.
>>>
>>>
>>>I have had TS820 rigs here where owner broke corner off RF board trying to remove Molex connector and broke the FIX board trying to remove a seized molex connector. Just have to be damn careful.
>>>
>>>
>>>4. Chinese tubes. They have a bad reputation for arc over. I have never run them but do find them in customers rigs. Have had opportunity to dc hi-pot them. Your 6146 finals see approx 1600 rf volts swing so need to be able to hold off that level. I have DC hi-pot and

test a lot of 6146 finals. Good RCA and Sylvania will usually hold off 2000 to 2500 volts. I have tested couple of sets of Chinese and one arced over at 1100 and the other at 1500. So I dont have a lot of experience with them. They just do not have a good reputation. Maybe they are getting better?
>>>
>>>
>>>5. I wont go into a long debate over cathode resistors designed as fuses in detail here as it has been discussed numerous times on this forum. You can search the forum and find all of the previous debate. It is one area where Ken and I agree to disagree. Briefly:
>>>
>>>
>>>A. When 6146 tubes go into thermal runaway due to loss of operating bias and plates are glowing cherry red why dont the cathode resistor blow open? Run your bias voltage down and watch what happens (I dont really recommend this).
>>>
>>>
>>>B. Carbon resistors can stand extreme over current and wattage dissipation for a very long time. Have you ever connected DC supply or Variac to a carbon resistor on your bench and run the current up? You can get them to start smoking and eventually glowing so that you literally see color in them. They wont pop open under those conditions. I would not want enough plate current to flow in my PA to cause the cathode resistors to glow. What would they be protecting then?
>>>
>>>
>>>C. When is last time you blew a cathode resistor open on your HW-101, or SB-102, or Drake T4X or any other 6146 boat anchor transmitter? They all typically measure plate current the same way. Seldom see any post or discussion about cathode resistors popping open on these other forums.
>>>
>>>
>>>D. Only way to experience an instantaneous cathode resistor failure is to have a 6146 anode to cathode arc over. 900 vdc / 5 ohms = 180 amps. (not considering the power supply esr that would add some additional current limiting during the fault). This did not happen back in the KW hybrid heyday with brand new S2001 or 6146B tubes. It is only a more recent phenomenon due to 35 to 40 year old NOS and pulls available that have off gassed and/or have some ingress around tube pin seals after all these years.
>>>
>>>
>>>E. Lastly you never want your cathode to become open circuited. As I previously mentioned in other response. When tube arcs over and momentarily have 160 amps fault current flowing thru 5 ohms then the IR drop is approx 800vdc. The maximum voltage your panel meter can stand is approx 0.40vdc (it is a ua meter movement). A 0,4 vdc meter isnt going to like it when it now tries to measure 800vdc!. If it survives the initial fault now you have an open cathode and it will rise quickly toward Screen grid voltage. The only thing limiting it is the operating bias voltage. It will rise to over 100 vdc (I have measured it). When you place the meter to IP during attempt to reload after you hear that pop the meter will be stressed again.
>>>
>>>
>>>Kenwood engineers would never fuse the cathode to save "other components" at risk of sacrificing the plate meter. Meter is far more delicate and expensive component.

>>>
>>>
>>>Suggest you figure this out for yourself. Put four 20 ohm carbon resistors in parallel on your service bench and load them up and find out what it takes to get them to "fuse". You are going to see smoke and color before that happens.
>>>
>>>
>>>If I failed to answer one of your questions let me know.
>>>
>>>
>>>Terry K9TW
>>>
>>>
>>
>>
>>
>> This email is free from viruses and malware because avast! Antivirus protection is active.
>>
>>
>>
>
>
>
> This email is free from viruses and malware because avast! Antivirus protection is active.
>
>
>

46455. TRIO TS-510 serial number

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 16:07:51 UTC
From: <ct1ect@...>
Topic: 46455 Message: 46455

Dear Fellows, I bought at a garage sale, a TRIO TS-510 in mint conditions, serial number is 20378, does anybody know a way to find the manufacture year? Thanks in advance. 73 de CT1ECT

46456. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 16:00:50 UTC
From: Michael Sylvester
Topic: 46429 Message: 46456

Or do what I do, post it notes on the front of my rig's speaker!!

Does this stupid Yahoo system work as slow for you guys as it does for me?
About one letter per second.....
Takes forever to do my my "walls of text"
Frustrating. I would think it's my compiuter but it's only a problem on this yahoo. all of my yahoo mail replies, not just here.
Yahoo is junk. Yes, I know I could do "Word" or a notepad, copy and paste.
There is no excuse for the crappy yahoo system but I geuss I'm stuck with it.
All you men have a great day.
Michael///KD0WSJ

_____
From: Mark Gilger <mgilger@...>
To: TS-520_820_530_830@yahoogroups.com; TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 16, 2013 8:12 AM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

That's what alarm clocks are for. Maybe a wrist watch with an alarm would work.

Mark

At 08:11 AM 12/16/2013, rrmvargo@... wrote:

>
>Now if I could just get Mark to call me before the Net.... I keep forgetting to get on.
73 - Bob
>
>
>Net Info:
>
>Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
>>>>Sunday: 14.316 @ 1800 UTC following the ICOM net
>>>>
>>>>Web Site:
>>>>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>>
>>>>73's,
>>>>Mark, WB0IQK

46457. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 19:02:39 UTC
From: <rrmvargo@...>
Topic: 46429 Message: 46457

Maybe just a good dope slap...

46458. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 19:18:35 UTC
From: Gordon JC Pearce
Topic: 46429 Message: 46458

On Mon, Dec 16, 2013 at 08:00:50AM -0800, Michael Sylvester wrote:
> Or do what I do, post it notes on the front of my rig's speaker!!
> ?
> Does this stupid Yahoo system work as slow?for you guys as it does for me?
> About one letter per second.....
> Takes forever to do my my "walls of text"
> Frustrating. I would think it's my compiuter but it's only a problem on this yahoo. all of my yahoo mail replies, not just here.
> Yahoo is junk. Yes, I know I could do "Word" or a notepad, copy and paste.
> There is no excuse for the crappy yahoo system but?I geuss I'm stuck with it.
> All you men have a great day.
> Michael///KD0WSJ

Why not use a proper mail client, instead of the crappy web page?

--
Gordonjcp MM0YEQ

46459. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 19:21:13 UTC
From: <n6wk@...>
Topic: 46351 Message: 46459

Michael, This Service Manual is for the 830 version

http://www.benjamins.us/n6wk/kenwood/TS-830S%20Service%20Manual-1.pdf

73,
Gordon

46460. Re: [TS-520_820_530_830] Replacement Fan

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 19:52:11 UTC
From: John Davidson
Topic: 46425 Message: 46460

I had the original fan on my TS520(noS) go bad and replaced it with a nice metal frame muffin fan from the big junk box that just fit the mounting holes. I hooked it to the 120V switch and it does just fine.

On Sunday, December 15, 2013 3:24 PM, Joseph Stiles <stilesjoseph@...> wrote:

Frank,

  If you look at the schematic of the 520 AND the 530/830, you will see that they run off the 100V tap on the transformer. The motors are I believe, wound for 120V...but the lower 100V
has them spinning a bit slower/quieter. I can not remember IF the fan mounting holes have the same dimensions regarding the mounting holes..but as stated earlier...they use the SAME voltage

73 Joe
WB7UQU

On Sunday, December 15, 2013 12:13 PM, "radiovintage2000@..." <radiovintage2000@...> wrote:

>I want to know if the fan TS520 (first series), you can replace it with a more recent fan (type TS830 / Ts530) that are less nois
>thanks Frank
>
>

46461. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 20:23:22 UTC
From: Mark Gilger
Topic: 46429 Message: 46461

We have to use EST for the Saturday net as we
follow the Swan net that is in EST. So we butt
right up to the end of their net. They sort of
clear the freq. for us. I like EST better than
GMT for the simple reason the time never changes.
It's always 3:30 Eastern. If it was in GMT, like
the Sunday net, the local time would always be
changing, making it harder for guys to remember, including me.

The Sunday net is GMT because the Icom net that
is in front of us is also on GMT.

So that's the reasoning behind the EST/GMT time.

Mark, WB0IQK

At 09:43 AM 12/16/2013, Gregory Graham wrote:
>
>
> It was interesting to me that Mark uses
> EST to schedule the net instead of GMT
> time. Some states change to daylight time and
> some do not, so the offset from local time
> changes. Also a good thing is to advertise,
> putting the NET schedules (GMT) and WEB site
> with the reports is always a good idea. Mark
> does a good job, Cudos to him for his work.
>
>Gregory, NR6C
>
>On 12/16/2013 6:12 AM, Mark Gilger wrote:
>>
>>
>>That's what alarm clocks are for. Maybe a wrist
>>watch with an alarm would work.
>>
>>Mark
>>
>>At 08:11 AM 12/16/2013, <mailto:rrmvargo@...>rrmvargo@... wrote:
>>>
>>>
>>>Now if I could just get Mark to call me before
>>>the Net.... I keep forgetting to get on. 73 - Bob
>>>
>>>

>>>Net Info:
>>>>>>Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
>>>>>>Sunday: 14.316 @ 1800 UTC following the ICOM net
>>>>>>
>>>>>>Web Site:
>>>>>><http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/Ken
woodHomePage.htm
>>>>>>
>>>>>>73's,
>>>>>>Mark, WB0IQK
>
>

46462. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 20:27:45 UTC
From: Mark Gilger
Topic: 46429 Message: 46462

Michael,
What you need to start doing is typing up your
message in say MS Word, then cut and paste it
into the Yahoo email address and there is no
delay. If you look at the bottom of the group
home page, the email address are near the bottom
under "Group Email Addresses". So if you want to
post a message to the group, it's:

Post
Message:<mailto:ts-520_820_530_830@yahoogroups.com>ts-520_820_530_830@yahoogroups.com

That's the way I do it for the net update that I
post once per week. No way would I sit there and
type out the whole thing each week.

Mark, WB0IQK

At 11:00 AM 12/16/2013, Michael Sylvester wrote:
>
>
>Or do what I do, post it notes on the front of my rig's speaker!!
>
>Does this stupid Yahoo system work as slow for you guys as it does for me?
>About one letter per second.....
>Takes forever to do my my "walls of text"
>Frustrating. I would think it's my compiuter but
>it's only a problem on this yahoo. all of my yahoo mail replies, not just here.
>Yahoo is junk. Yes, I know I could do "Word" or a notepad, copy and paste.
>There is no excuse for the crappy yahoo system but I geuss I'm stuck with it.
>All you men have a great day.
>Michael///KD0WSJ
>
>From: Mark Gilger <mgilger@...>
>To: TS-520_820_530_830@...m; TS-520_820_530_830@yahoogroups.com
>Sent: Monday, December 16, 2013 8:12 AM
>Subject: Re: [TS-520_820_530_830] Kenwood Hybrid
>Net Update (December 15, 2013)
>
>
>That's what alarm clocks are for. Maybe a wrist
>watch with an alarm would work.
>
>Mark
>

>At 08:11 AM 12/16/2013, rrmvargo@aol.com wrote:
>>
>>
>>Now if I could just get Mark to call me before
>>the Net.... I keep forgetting to get on. 73 - Bob
>>
>>
>>Net Info:
>>>>>Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
>>>>>Sunday: 14.316 @ 1800 UTC following the ICOM net
>>>>>
>>>>>Web Site:
>>>>><http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/Kenw
oodHomePage.htm
>>>>>
>>>>>73's,
>>>>>Mark, WB0IQK
>
>
>
>

46463. Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 21:15:02 UTC
From: <geekorama@...>
Topic: 46463 Message: 46463

Other than these radio's are fun to operate, a lot of people store these radio's especially if they are collector quality or just have them sitting on shelves for decades. I'm curious as to peoples opinions if it is better on them to keep them operating now and then.
73 Jim, N7JS

46464. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 21:29:49 UTC
From: Craig Roberts
Topic: 46463 Message: 46464

Operate them!

Case in point. A few months ago I bought a couple of TS-530Ss and a TS-830S. One 530 was pretty shabby looking and filthy inside. However, it worked near perfectly and, after I cleaned it up and did a little preventative maintenance on it, it looked and worked like new.

The other 530 was delivered in its original boxes and looked showroom new. The seller explained that the original owner used it for a few weeks, then put it in "dry, temperature controlled, smoke free" storage (for many years). The radio was completely dead and took a LOT of work to get it going again. At the very least many, many connectors had corroded and required disassembly and cleaning. The band switch was especially troublesome.

The TS-830S had also been a victim of disuse. The previous owner testified that for the past 20 years or so he had only used the radio once a year -- on Field Day weekend -- and on only one band, 20 meters. Sure enough, it worked on 20 meters -- and hardly anywhere else. I'm still working on that one. I am happy to report that it's fully functional except for 10 meters now, but it also took a lot of work to make it 100 percent.

Radios are just like any other device. They need to be used in order to be useable.

73,

Craig
W3CRR

46465. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 21:24:15 UTC
From: Michael Sylvester
Topic: 46351 Message: 46465

Thank you Kind Sir.
Michael

From: "n6wk@n6wk.com" <n6wk@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 16, 2013 1:21 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael, This Service Manual is for the 830 version

http://www.benjamins.us/n6wk/kenwood/TS-830S%20Service%20Manual-1.pdf

73,
Gordon

46466. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 21:20:03 UTC
From: Michael Sylvester
Topic: 46429 Message: 46466

I have no idea, you know how ignorant I am.

From: Gordon JC Pearce <gordon@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 16, 2013 1:18 PM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

On Mon, Dec 16, 2013 at 08:00:50AM -0800, Michael Sylvester wrote:
> Or do what I do, post it notes on the front of my rig's speaker!!
>
> Does this stupid Yahoo system work as slow for you guys as it does for me?
> About one letter per second.....
> Takes forever to do my my "walls of text"
> Frustrating. I would think it's my compiuter but it's only a problem on this yahoo. all of my yahoo mail replies, not just here.
> Yahoo is junk. Yes, I know I could do "Word" or a notepad, copy and paste.
> There is no excuse for the crappy yahoo system but I geuss I'm stuck with it.
> All you men have a great day.
> Michael///KD0WSJ

Why not use a proper mail client, instead of the crappy web page?

--
Gordonjcp MM0YEQ

46467. RE: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 21:31:31 UTC
From: W1NV qrv
Topic: 46463 Message: 46467

de w1nv, Jim, I just picked up a stored for centuries TS-520 in mint condition and I'm using it as a daily talker.......The grandfather shelved it and passed several radios onto his son who then passed it on to his son who passed these on to the first ham that would take them........The ham that I received it from said that no one could fix it and thus he was giving it to me......He has a mint TS-440at that is in the shop currently......

If you shelve it then it just gets passed on and not used.......I have a 8 out of 10 FT-101EE that I will be selling as the Kenwood is heads and shoulders above the Yakkie Doo.....

73,

don

To: TS-520_820_530_830@yahoogroups.com
From: geekorama@...
Date: Mon, 16 Dec 2013 13:15:02 -0800
Subject: [TS-520_820_530_830] Hybrids: Store it or operate it?

Other than these radio's are fun to operate, a lot of people store these radio's especially if they are collector quality or just have them sitting on shelves for decades. I'm curious as to peoples opinions if it is better on them to keep them operating now and then.

73 Jim, N7JS

46468. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 21:42:19 UTC
From: Michael Sylvester
Topic: 46429 Message: 46468

Need to do something cause it sure is God awful slow.
Annoyingly so. I'll try that, thanks
Michael///KD0WSJ

From: Mark Gilger <mgilger@...>
To: TS-520_820_530_830@yahoogroups.com; TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 16, 2013 2:27 PM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Michael,
What you need to start doing is typing up your message in say MS Word, then cut and paste it into the Yahoo email address and there is no delay. If you look at the bottom of the group home page, the email address are near the bottom under "Group Email Addresses". So if you want to post a message to the group, it's:

Post Message:mailto:ts-520_820_530_830@yahoogroups.com

That's the way I do it for the net update that I post once per week. No way would I sit there and type out the whole thing each week.

Mark, WB0IQK

At 11:00 AM 12/16/2013, Michael Sylvester wrote:

>
>Or do what I do, post it notes on the front of my rig's speaker!!
>
>Does this stupid Yahoo system work as slow for you guys as it does for me?
>About one letter per second.....
>Takes forever to do my my "walls of text"
>Frustrating. I would think it's my compiuter but it's only a problem on this yahoo. all of my yahoo mail replies, not just here.
>Yahoo is junk. Yes, I know I could do "Word" or a notepad, copy and paste.
>There is no excuse for the crappy yahoo system but I geuss I'm stuck with it.
>All you men have a great day.
>Michael///KD0WSJ
>
>From: Mark Gilger <mgilger@...>
>To: TS-520_820_530_830@yahoogroups.com; TS-520_820_530_830@yahoogroups.com
>Sent: Monday, December 16, 2013 8:12 AM
>Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)
>
>
>That's what alarm clocks are for. Maybe a wrist watch with an alarm would work.

>
>Mark
>
>At 08:11 AM 12/16/2013, rrmvargo@... wrote:
>
>
>>
>>Now if I could just get Mark to call me before the Net.... I keep forgetting to get on. 73 - Bob
>>
>>
>>Net Info:
>>
>>Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
>>>>>Sunday: 14.316 @ 1800 UTC following the ICOM net
>>>>>
>>>>>Web Site:
>>>>>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm
>>>>>
>>>>>73's,
>>>>>Mark, WB0IQK
>
>
>

46469. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 22:48:50 UTC
From: Joseph Stiles
Topic: 46463 Message: 46469

I'll offer my $1.00 worth here. Things go bad from lack of use..check out the "viagra" commercials! hihi

 Rigs are not much different from cars..another form of entertainment for "guys." If you let it sit,
the seals dry up and leak, the tire rubber rots, the left over gas in the tank turns into gooo..you paid for something you are not using....hoping that sometime in the future you can sell it as a "stored in a climate controlled environment for ????? classic...never abused...never raced
came from a smoke free environment...etc." If you have it...pull it out a couple of times a year and give it a "good operating" for a few days.

  But that's just me...........

73 Joe
WB7UQU

On Monday, December 16, 2013 2:38 PM, W1NV qrv <w1nv@...> wrote:

>de w1nv, Jim, I just picked up a stored for centuries TS-520 in mint condition and I'm using it as a daily talker.......The grandfather shelved it and passed several radios onto his son who then passed it on to his son who passed these on to the first ham that would take them........The ham that I received it from said that no one could fix it and thus he was giving it to me......He has a mint TS-440at that is in the shop currently......
>
>If you shelve it then it just gets passed on and not used.......I have a 8 out of 10 FT-101EE that I will be selling as the Kenwood is heads and shoulders above the Yakkie Doo.....
>
>73,
>
>don
>
>
>
>_________________________________
>To: TS-520_820_530_830@yahoogroups.com
>From: geekorama@...
>Date: Mon, 16 Dec 2013 13:15:02 -0800
>Subject: [TS-520_820_530_830] Hybrids: Store it or operate it?
>
>
>Other than these radio's are fun to operate, a lot of people store these radio's especially if they are collector quality or just have them sitting on shelves for decades. I'm curious as to peoples opinions if it is better on them to keep them operating now and then.

>
>
>73 Jim, N7JS
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>

46470. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 23:20:26 UTC
From: Ronald Robinson
Topic: 46463 Message: 46470

my opinion is to operate them

On Monday, December 16, 2013 3:15 PM, "geekorama@..." <geekorama@...> wrote:

Other than these radio's are fun to operate, a lot of people store these radio's especially if they are collector quality or just have them sitting on shelves for decades. I'm curious as to peoples opinions if it is better on them to keep them operating now and then.
73 Jim, N7JS

46471. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 23:42:33 UTC
From: Gordon JC Pearce
Topic: 46429 Message: 46471

On Mon, Dec 16, 2013 at 01:20:03PM -0800, Michael Sylvester wrote:
>
> I have no idea, you know how ignorant I am.
>

Just set up Outlook or Thunderbird or whatever you have to handle mail, or even use gmail. Whatever you do, get off the Yahoo! Groups web interface.

--
Gordonjcp MM0YEQ (on Mutt for 15 years or so)

46472. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 23:49:26 UTC
From: Gordon JC Pearce
Topic: 46463 Message: 46472

On Mon, Dec 16, 2013 at 02:48:50PM -0800, Joseph Stiles wrote:
> the seals dry up and leak, the tire rubber rots, the left over gas in the tank turns into gooo..you paid for something you are not using....hoping that sometime in the future you can sell it as a "stored in a climate controlled environment for ????? classic...never abused...never raced
> came from a smoke free environment...etc."? If you have it...pull it out a couple of times a year and give it a "good operating" for a few days.

My TS-520 gets really crackly and intermittent unless it's run and run hard at least once a week to get it good and hot. After it's been running for a while, all the crackly pots and switches seem to magically clean up and it works just fine. Leave it for more than a couple of weeks, and it's back to sulking and crackling.

Old stuff needs to be run regularly.

I fired up my 1988 Citro?n CX 22TRS for the first time in a few months, and it made some terribly arthritic noises as the hydraulic pressure came up. Not to mention the characteristic "paint-y" smell of stale petrol. After a bit of a run up and down the farm track the creaks had settled down a bit.

Old stuff needs to be run regularly.

Now, all I need to do is get on my bike and go for a cycle for the first time in a few months, to see if I can shake off all my squeaks, rattles and clunks. I'd better just top up the lubrication first, though - sl?inte!

--
Gordonjcp MM0YEQ

46473. Re: [TS-520_820_530_830] TRIO TS-510 serial number

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-16 23:48:36 UTC
From: Jim Lamanteer
Topic: 46455 Message: 46473

HAY DO U WANT TO SELL IT??? JIMMY WB2KNR

On Mon, 12/16/13, ct1ect@... <ct1ect@...> wrote:

Subject: [TS-520_820_530_830] TRIO TS-510 serial number
To: TS-520_820_530_830@yahoogroups.com
Date: Monday, December 16, 2013, 8:07 AM

Dear
Fellows, I bought at a garage sale, a TRIO TS-510 in mint
conditions, serial number is 20378, does anybody know a way
to find the manufacture year? Thanks in advance. 73 de
CT1ECT

46474. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 00:32:06 UTC
From: <wagstw46@...>
Topic: 46463 Message: 46474

I agree with Joe and his auto example is a perfect analogy.

Temperature and humidity controlled environment means different things to different people. Shelf of a closet does not qualify. Better than being out in the garage but will not prevent the chemical reactions and environmental processes that are taking place within the radio and select components.

A new KW hybrid bought in 1976 and stored all these years even in a temperature and humidity controlled environment will likely not perform flawlessly if energized today.

Tubes are off gassing, rubber will degrade, some components and lubricants have a volatile component that is being evaporated, electrolytic filter cap aluminum oxide dielectric layer loses homogeneous nature and will need to be reformed, carbon resistors are extremely hygroscopic and resistance values will increase and the lead to carbon interface can moisture corrode and develop high resistance contact, all the pots and switches are greased and lubricated and most forms of lubrication have definite shelf life with volatile component evaporating and hardening taking place with only the dryed out soap remaining, carbon pots left at one spot for many years can be a problem, fan bushing felts will be dried out, air variable capacitor phosphor bronze rotor shaft wiper contacts will show green oxide corrosion, mini-din switches have not been exercised, push button switches have not been exercised, band switch contacts can be darkened due to oxidation (we all experience this) .

It goes on and on.

Boat anchor refurb folks know all about carbon composition resistors and paper capacitors.

Putting machinery or electronics in long term storage presents a real challenge. That includes storage of spare parts. The military and the nuclear power industry are industry leaders and spend millions of dollars on this and they dont have all the answers. The nuclear industry has installed spares and has a surveillance program that essentially sees them operating and testing the spare equipment on a regular frequency. They also pull spares from the storeroom and run them. Spare power supplies come to mind. These are pulled and brought up on variac and run on a schedule.

Opponents criticize that such programs test the new spares to death. Might be the case but that is cost of doing business.

I have 4 KW hybrids with one as a daily driver. All have been prepared the same. I do run the others from time to time and not unusual to experience things like a noisy and scratchy AF gain pot until exercised a few times. This is after a relatively short time of non use (several months).

So I say operate the radio and enjoy it unless you are a serious collector and want them as museum pieces and have no expectation of ever seeing them operate again.

Terry
K9TW

46475. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 06:50:26 UTC
From: <geekorama@...>
Topic: 46463 Message: 46475

Thanks all...very informative...and what I expected. Maybe a few people will dust these off and put them to work.
73 Jim, N7JS

46476. RE: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 08:36:25 UTC
From: fpath fpath
Topic: 46351 Message: 46476

Michael,

As I am about 100 emails behind and not sure if this has been answered. A very good way of cleaning some of these tarnished molex connector post is by using an eraser for ink, (gritty end of eraser). These are very easy to shape to fit in between the pins, you will find the method that suits you.

However, I am with Terry, that there is no need to remove molex connectors just for the sake of it. These board types and tracks\foils will easily crack, sometimes unless you using good magnification will not notice and then create another un-necessay problem. I for one when I do find dry joints around these post, completely remove the post, lightly sand\polish the pin and then flow new solder. So far this has not failed me, nor created new issues.

As for cleaning each to their own. I have removed filthy boards and soaked them in mild neutral detergent and then flicked dry. Then somehow the XYL's hairdryer finds its way into my hands and then I dry it off. Finally I have a high volume dog hair dryer, I use that for about 10 minutes to make sure no water is left.

73's

Dave

VK5PDL

From: sylvstrmchl@...
To: TS-520_820_530_830@yahoogroups.com
Date: Sat, 14 Dec 2013 22:37:42 -0800
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

To Terry K9TW ,
Thank you for your kind and considerate advice.
Wise words.
You said that I mentioned I'm cleaning the molex connectors, I don't know what a molex connector is. I could have looked it up and not admitted my ignorance.
"a TS-520 has no molex connectors as it uses wire wrap terminal posts."

What I'm doing is cleaning all the multiple wire plugs that are everywhere.
Coating them, gently wire brushing them then pushing and pulling the plugs on and off 3 times.
Cleaned and coated.
Mechanical connections are one of the biggest problem sources of these antique rigs, in my estimation.

With the wafer switches I'm making custom brushes, some just for particular switches, to gently rub the tarnish off the rotating discs, after spraying, cleaning and coating.
I'm trying Corrosion X after hearing a few Hams swear by that, others swear by Deoxit, I've

bought them all and will try them all and draw my own conclusions, hopefully I'll live long enough to see the differences.
I will be trying the Fader Lube now because you endorse it and seem knowledgable. Ken likes it too, good enough for you guys I'll at least try it.

I'm using small artists paint brushes to apply chems to just the areas I want coated. I don't like the idea of just bathing or spraying down an area with volumes of toxic, expensive chemicals. I know it can and does work to an extent.
Being very careful to avoid the contact fingers, I know how delicate they are, I've repaired a few using Sterling Silver wire, magnifier lamp while wearing 2.25 glasses and fine tip soldering tools. Like doing microsurgery. Quite the challenge. I think it was about 22 gauge silver, I had to restore the springy touch of the contact and solder to it's tip, tough job.

There are some Hams that "dip" or soak boards in chems.....with good results. I've read of using the dishwasher. I'm thinking of gently using the carwash on one I have that is filthy and letting it dry out for days near my woodburner.....
(I recall spraying tuners in the old tv's back in the day.)

(Still not sure what the molex are.)

The man that insisted (by email) the the GE 6146W has PROVEN to him they don't work real well in Kenwood transceivers was very adamant that he'd blown RF boards and Rectifier boards only when he'd used those tubes. He has done the repeated trial and error expensive test, in more than one radio.
For now I'll take his word for it and use other tubes.
Ok, it's not a bias difference (wrong terminology, yes, but HIS words), perhaps internal capacitance differences or I don't know what.
Biasing requirements of the tubes?

I'm surprised that there is such a divide on the opinion of the grid resistors being "pseudo fuses" or not. I understand they establish meter current levels acting as shunts in the cirquit.
(The cobwebs are slowly coming off my electronics memories.)
My impression of K4EAA was that he was one of the "gurus" and his statements were accepted Biblical truths. I geuss not!!!

So, long story short, Thanks Terry for GENTLY stating your position.
Also for tolerating an ignorant egotistical mechanical genius that doesn't know squat about Kenwoods.....
I will do my best in future to more specifically select my wording when writing of a technical nature and will try to not impress so needfully to gratify my ego.
!!!!??
I appreciate you guys putting up with me,
so far!......I'll attempt to not be so annoying in future (good luck with that) and to commit fewer errors to words here!

Answer for me, what is your objection to the Khainese tubes, other than country of origin? I've bought one set, I think that was the pair that one slipped out of my hand and I cracked the glass. I haven't had a set long enough to establish an opinion.

Second, explain Molex connector to me. You said:
"You recently talked about cleaning all the Molex connectors on a TS520 and applying

Corrosion X and presenting it as new idea. Well it is not a new idea."

What I think might be a new idea (I'm sure somebody has done it before) is using tiny brushes to remove even more tarnish off the rotating discs of the wafer switches that Deoxit spray didn't. While avoiding touching or damaging the fingers of the springy contacts. I really like the idea.
I seem to be having good success with rigs that are giving trouble from bad connections in this switching area.
Some discs are black with corrosion even after spraying, when I'm done most look like new.
The HV cage presents special challenges since it's so crowded. I'm making brushes for each area that are different as I find a way to get at them, away from the delicate contacts.

Also, what is your personal opinion of the apparent difference of opinion on whether the Cathode? resistors act as "pseudo fuses" as Ken calls them?

I'm running about 40 hours now on 2 hours sleep last night. Been doing that alot lately, pushing and testing myself mentally and physically, on purpose.
While it helps me to understand my limits and capabilities, it also turns me into a short tempered, dimwit a**hole, that's offended easily.

I'm expecting great turmoil in our country soon. I need to know my limits and also know I can "operate" under duress and for long hours.
I hope I'm wrong regarding the turmoil.

I pray I'm wrong.

In summation, answer about the Khainese tubes?
What are Molex connectors?
Your opinion on the "fuses" debate please.

Thank you for your time and patience Terry.

"Communications will be key"
Michael///KD0WSJ

From: "wagstw46@yahoo.com" <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 12:33 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael

I dont know you. I dont know your formal education level. I dont know your fundamental electronic knowledge. I dont know your fundamental radio theory knowledge, I do not know your KW hybrid knowledge or experience.

There is nothing wrong with being new. We all were at one time. However, a new person who listens and asks is far more likely to be taken seriously than one who speaks when clearly has little or no knowledge of the subject.

All I or anyone else on this forum can go by is what you say and how you say it in writing. After about 3 or 4 posts and responses a picture is painted. The perception may be wrong, but important for you to know what that perception is and to care about it and to take action to change it if it is wrong. Perception is always the other guys reality.

Regarding perception it is clear you have lots of zeal and are anxious to help, but it is also very obvious that you lack basic electronic knowledge, vacuum tube fundamentals, and KW hybrid knowledge and experience OR you have become very very rusty. Time will tell.

One of the very worst things any of us can do on this forum is bum dope people. Any and all of us should be corrected when we give out bad or just plain wrong technical advice. We are adults and should not take that as personal attack. Sometimes we just make a mistake or typo and other times we are out in left field. That includes me.

There will always be professional differences of opinion but those should be debated on the merits of the technical basis that each side presents and not on subjective or anecdotal or tribal myths and beliefs. Far too much of that abounds on the various ham radio forums today. For example, you will always have those who insist that matched pair finals are better or necessary and when quizzed about only one bias voltage pot and no ability to individually set the zero signal plate current they huff and puff and tap dance around.

You recently talked about cleaning all the Molex connectors on a TS520 and applying Corrosion X and presenting it as new idea. Well it is not a new idea. Many people recommend cleaning molex connectors as first step in resolving any and all operational issues with a hybrid. I am in the camp that this is silly and bad advice. It represents risk of immediate damage and introducing latent failure and simply is not required. Yes from time to time it will resolve an issue, but what really fixed the problem? Experiential based troubleshooting is fine, but once that is exhausted have to break out the schematic and test gear. Also, Corrosion X is commonly used by the RC model boat folks who routinely immerse their electronics. I never submerge any of my KW hybrids. Deoxit and Fader lube properly applied works great and no oily smelly greasy residue. By the way a TS-520 has no molex connectors as it uses wire wrap terminal posts.

So I appreciate your zeal and interest and eagerness to help, but it appears to me at this stage of your development you would be better served reading the post, asking questions, and learning. However, it is your call if you wish to continue responding as you have been. You need to earn respect and that will come with the quality of your questions and responses.

I am not telling you that you are not welcome on this forum. I am not the owner and not in position to say one way or another. What I can offer is if you want to learn there are people here with 40 to 50 years ham radio knowledge and experience who grew up in the tube era and who have 10 to 15 years of hands on KW hybrid repair and they freely share any and all of their knowledge and experience. Up to you if you want to avail yourself of that valuable resource. Of course as we age we are looking for new folks to take our place holding up the tent poles. Those people dont get produced over night.

Just dont be too thin skinned or have fragile self esteem. When someone corrects you it is meant to help you and every new person who is following along. This is a technical forum and a KW hybrid is a complex engineering marvel. To be taken seriously you need to be credible.

"Reburbing" KW hybrids by cleaning, lubing, and painting them does not make anyone a KW hybrid service tech. Yes cosmetic cleaning is a part of repair, but it takes knowledge, experience, proper test gear, and knowing how to use it to run the Service Manual steps to restore a KW hybrid to factory performance level. Sure you can run the Owner Instruction Manual Maintenance section steps and get rig in pretty good shape. It just depends on how many golden screw drivers have been inside the rig and what your definition of performance

and quality is.

Any technical discipline comes with its own parlance and jargon and using the terminology in the proper context speaks volumes about the persons knowledge and experience level.

So sorry if I hurt your feelings, but very hard to sit on sidelines and read advice that the goes way beyond not using the parlance properly. So to be 100% honest with you in my mind the jury is still out. Hopefully, you care enough to accept the challenge and prove me and others wrong.

Terry K9TW

46477. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 08:36:26 UTC
From: Wes Will
Topic: 46463 Message: 46477

On 12/17/2013 12:50 AM, geekorama@... wrote:
>
>
> Thanks all...very informative...and what I expected. Maybe a few people
> will dust these off and put them to work.
>
> 73 Jim, N7JS

The mind boggles. Several radios, On shelves, Doing nothing but corroding and deteriorating. Wow. Isn't there a better use for them? Door-stops perhaps?

Or maybe donate one (just a loan, at least to begin with) to a Boy Scout Troop or Explorer Post, or a 4-H group, To the Girl Scouts if there is a group of 'em with that sort of bent?

The local civic center teen hang-out place with a staff, or a school in your area? Offer to Elmer interested people using the donated/loaned gear? Teach a BSA Merit Badge class? Stir up a little new blood for this hobby?

Even take one to the local RETIREMENT HOME or "ELDER-CARE" facility, if you can't stand kids.

OR you could just leave 'em in the closet for someone to eventually throw in the dumpster or sell for a pittance on eBay, to be chopped uo for spares.

Is it a case of, "He who dies with the biggest pile of radios, unused, new or nearly, still in the box, wins a Kewpie Doll at the Pearly Gates," and, me being an agnostic, nobody ever told me?

I keep hearing about hams with MANY 'spare' rigs - not just two or three, but half a dozen and more - all just sitting there on shelves or in basements, doing nothing with them because they've 'moved on' to other things. It's a free country, do what you want with your stuff, of course. But isn't there a better use for it? (Donating it gets you a tax write-off, maybe, depending on to where. You don't have to store the stuff any more, either. This could make room to stash your twelfth set of golf clubs, maybe?)

I personally, being from the other side of the tracks, and someone who has had to scrape and scrimp and repair and scrimp some more just to get ONE barely-working rig, find this very confusing, to say the least. A surplus of equipment has never been a problem I've needed to deal with, truth be told. (Never had the handicap of being good-looking, either. I'm told that is quite the burden to bear.)

Enlighten me. Why would you just stockpile gear, and not find some way to get it USED, by someone, and perhaps get some new folks into the hobby?

Particularly the "other than usual" demographics kind of people.

I have been asking around, talking to High Schoolers and Junior High Schoolers ("Middle School" they call it now...) The answers I got were quite surprising. Most of the kids don't know the hobby even EXISTS, unless they have a relative, or the parent of a friend who is a Ham.

And it categorically is NOT the technical nature of the hobby which keeps them away, I am finding, Particularly the young, and even more specifically, young females, the ones who know what Ham radio actually IS, shy away from amateur radio for one main reason,

(Before I go on, know that I fit in here myself in all but ONE category they name, so don't get your knickers in a twist! I'm just putting out what the kids are telling me when I ask and they can't evade answering truthfully!)

Those who know about it at all perceive the hobby as being only, strictly, JUST, FOR:

OLD
FAT
GEEKY
GUY.

(I fit in three out of four of those myself, and at one point it was all four. But I've lost a lot of weight since I became crippled with arthritis. And please do NOT be offended. This was the result of a survey I did, and the question for those who knew what Ham radio was read, "Describe the typical Amateur Radio hobbyist." I made a sort of equivalency table, a lot of terms got lumped together, mainly things like "dork" and "dweeb" were all lumped into "geeky," for instance. Some of the terms were rather offensive, and I pruned those heavily. Leave it to "geeky" as a close enough descriptor.)

Why, please, can not some of us, despite our perceived 'handicap' take at least a few of these excess pieces of gear out of the basement, and spread a little radio frequency geekiness around?

Perhaps even move that demographic a tad, in some of those areas? We're sort of stuck with "GEEKY" I'm afraid, but the rest, well, can't we make an effort?

Wouldn't any of -you- enjoy a QSO with a young female once in awhile? I've almost got my cheerleading, blonde, sixteen-year-old grand-daughter convinced to give it a whirl......

She's a great kid, and I wouldn't mind a bit letting her chat with y'all. (For one thing, I -know- you'll be polite and perfect gentlemen, seeing as you're HAMS, and not CB-types. Best chaperone a grampa can get, don't you think? Besides the double-barreled 12-gauge, that is.)

I rather enjoy talking to kids, myself, of either gender. They have such different viewpoints. For instance, I volunteer at my wife's school, as often as there is a job needing done. (I fix a lot of computers and network issues, there's an iMac in need of a motherboard swap and I've got to dig one out of my junkbox, before the end of the week and get to that...)

There are definitely some fifth- and sixth- grade kids who could be easily Elmered to at least a Tech license, and mentored to General or higher before they got out of high school. And this is a tiny, rural school in farm and orchard country. What might be done at a big school?

If I can get a radio or two ahead - having only my one 520SE puts this out of reach at the moment - I have made arrangements with the high school in the town where my wife teaches elementary school. to try to start a club after school hours. The Superintendent has already signed off on it, at least to give it a try, and the Physics teacher will be helping me get it going. (He is studying for his Tech now. I'm helping out with his VHF gear, he likes the upper frequencies more than HF, he thinks, already. I hope to change that before it's over.)

Me only having one 2-meter FM mobile, and the 520SE, isn't enough to get the ball rolling; but for the moment it's all I have. (Hand-held, a VX7R, was stolen, my ex-wife sold my FT101Z for five bucks, right before she filed for divorce. I'm starting from behind the curve a bit, gear-wise.)

We're going to be trying to raise some money to buy used stuff for the kids to get started on. And I'm donating my extra VTVM, a signal generator, a soldering station, a power supply or two, and a DMM for the start of their work bench, too. All elderly junk I've refurbished over the summer, but it's a start.

If I can do it, and this WILL get done, starting with pretty much nothing and most assuredly with no money to speak of, why cannot some of the fraternity of amateurs, of which in my opinion this list is one of the better subsets, at least try to do the same in their own areas?

I know that not everyone has the time, nor the inclination, to mess with a bunch of snot-nosed, young, get-off-my-lawn whippersnappers. Kids take a lot of extra effort. But I can't be the ONLY one who thinks it would be a good idea to get the next generation involved in this stuff.

Or can I be?

Last I'll say about it, on the list. It's just something that has bothered me for quite awhile now, and I intend to do something about it. As it is NOT directly associated with hybrid Kenwoods, or even more than indirectly with old rigs of any sort, I won't continue this here. But anyone who wishes to discuss this with me is welcome to email me directly at the address this came from.

--
di di di dah dah dah dah di di dit
Wes Will
N9KDY

46478. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 10:39:59 UTC
From: Michael George
Topic: 46463 Message: 46478

By all means put these beautiful vintage radios to work. I have two working TS830s, and I rotate them every week along with my 590 and 480.

Enjoy the hobby as I do and the operators,

73,

Mike/K3MG

46479. Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 05:02:58 UTC
From: Michael Sylvester
Topic: 46429 Message: 46479

Anything would be better

Wut is MUTT???

From: Gordon JC Pearce <gordon@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 16, 2013 5:42 PM
Subject: Re: [TS-520_820_530_830] Kenwood Hybrid Net Update (December 15, 2013)

On Mon, Dec 16, 2013 at 01:20:03PM -0800, Michael Sylvester wrote:
>
> I have no idea, you know how ignorant I am.
>

Just set up Outlook or Thunderbird or whatever you have to handle mail, or even use gmail.
Whatever you do, get off the Yahoo! Groups web interface.

--
Gordonjcp MM0YEQ (on Mutt for 15 years or so)

46480. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 09:33:27 UTC
From: Michael Sylvester
Topic: 46351 Message: 46480

Thanks for the iseas.
I like the eraser method, the ink type are gritty and would work wonders on a heavily tarnished disc.

I concur on the Molex issue. I will certainly be more judicious in tampering with them.

(For cleaning heavily tarnished wafer discs)
What I keep thinking about for brushes is to take Bronze/brass type "toothbrush"" that you'll often see at gun shows.
Bristles are about 1/2' long.
Take one bundle of those bristles, wrap fine wire around them just to bundle them up.
These have been removed from a brush, OK?
Are you with me?

I have some 14 gauge brass sheet. I'll cut a strip about 3' or so long, maybe1/4" wide.
Drill a 1/8" hole in the end centered back 3/16" from the end.
Carefully grind or file to a rounded end. Remove all burrs, insert bundle of bristles so they are protruding through 1/16".
Whip out my high wattage solder iron, 4% silver solder, solder the 1/16" side.
Trim bristles to just under 1/4" on the other side.
Just short enough the brush will fit in between the closest wafer boards easily.
when brushing, each wafer has an area that is void of contact fingers.
This is the area to apply the brush while SLOWLY rotating the bandswitch, taking care not to pinch any bristles or snip off any brass wire from your brush.
Make double sure, no, triple sure you don't drop and leave any brush wires into the circuit for more fun later!!
I was using tapered handle stainless brushes. Big toothbrush on one end and narrow 1/4" wide on the other end.
I was trimming the small, narrower end of brush bristles to under 1/4", still a tight fit in alot of areas.
I found some on eBay that are just like what I was making!!
"Doc's Fly Box" has them. I just checked, his eBay ID is "sierraflyfish" and the item number is (390656564639), they are like $3.50 each.
Just got more in yesterday. Real handy they are.
I'm making different shapes of brushes for each wafer as each presents a different set of issues as far as avoiding damage to contact fingers.
I've been using some of my "pin vises" and trying different bronze gun bore cleaning brushes, bastardizing those, need to find something smaller than .22, maybe order some .17 brushes, do they make them that small?
The last RF board I worked on is out of a TS-820S. I found it very helpful to remove the board and place into a 3 axis "Panavise". I'm using a magnifying lamp, like you see on K4EAA's bench,
(his is gold though, I want a gold one....) with 2.00 reading glasses, 10X eyes?
I think I could spend voluminous time making a set just for the HV cage.
Dadgum crouded in there.
Thanks for the eraser idea. I like it.

I appreciate your help and everyones patience and guidance.
Now if you'd just fix this dang 820S dig readout for me.
I'll be doing my first "solder through hole" repair this morning on the X54-1160-00 board. Tried swapping the whole 2 board box out and it got me nowhere. I'm suspecting the dig display itself, or power input to boards.
Pulled the front off another 820S and yanked the dig display, plugged that one in, and still nadda. (My annonomous new freind said that the Casio CM 607 calculator display uses same tube, bought one cheap and have a bid on another, you know, the guy that doesn't like GE W tubes?).

My troubleshooting skills have always sucked.
Wonder if Jim at Hybrid or Ken could use somebody to sweep the floors??
My fine tip Weller iron is hot, about to start. Wish me luck.

Need a break.
You all have a great Day!!
Oh yeah, the "King of shipping", Johnathan at Hybrid said my dang 830S service manual finally came in. I want that one running!!! (Gold Label)

"Once it starts, Communications gear will be essential"
Michael///KD0WSJ

From: fpath fpath <fpath@hotmail.com>
To: "TS-520_820_530_830@yahoogroups.com" <ts-520_820_530_830@yahoogroups.com>
Sent: Tuesday, December 17, 2013 2:36 AM
Subject: RE: [TS-520_820_530_830] What's wrong with this board?

Michael,

As I am about 100 emails behind and not sure if this has been answered. A very good way of cleaning some of these tarnished molex connector post is by using an eraser for ink, (gritty end of eraser). These are very easy to shape to fit in between the pins, you will find the method that suits you.
However, I am with Terry, that there is no need to remove molex connectors just for the sake of it. These board types and tracks\foils will easily crack, sometimes unless you using good magnification will not notice and then create another un-necessay problem. I for one when I do find dry joints around these post, completely remove the post, lightly sand\polish the pin and then flow new solder. So far this has not failed me, nor created new issues.

As for cleaning each to their own. I have removed filthy boards and soaked them in mild neutral detergent and then flicked dry. Then somehow the XYL's hairdryer finds its way into my hands and then I dry it off. Finally I have a high volume dog hair dryer, I use that for about 10 minutes to make sure no water is left.

73's
Dave
VK5PDL

From: sylvstrmchl@...
To: TS-520_820_530_830@yahoogroups.com

Date: Sat, 14 Dec 2013 22:37:42 -0800
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

To Terry K9TW ,
Thank you for your kind and considerate advice.
Wise words.
You said that I mentioned I'm cleaning the molex connectors, I don't know what a molex connector is. I could have looked it up and not admitted my ignorance.
"a TS-520 has no molex connectors as it uses wire wrap terminal posts."

What I'm doing is cleaning all the multiple wire plugs that are everywhere.
Coating them, gently wire brushing them then pushing and pulling the plugs on and off 3 times.
Cleaned and coated.
Mechanical connections are one of the biggest problem sources of these antique rigs, in my estimation.

With the wafer switches I'm making custom brushes, some just for particular switches, to gently rub the tarnish off the rotating discs, after spraying, cleaning and coating.
I'm trying Corrosion X after hearing a few Hams swear by that, others swear by Deoxit, I've bought them all and will try them all and draw my own conclusions, hopefully I'll live long enough to see the differences.
I will be trying the Fader Lube now because you endorse it and seem knowledgable. Ken likes it too, good enough for you guys I'll at least try it.

I'm using small artists paint brushes to apply chems to just the areas I want coated. I don't like the idea of just bathing or spraying down an area with volumes of toxic, expensive chemicals. I know it can and does work to an extent.
Being very careful to avoid the contact fingers, I know how delicate they are, I've repaired a few using Sterling Silver wire, magnifier lamp while wearing 2.25 glasses and fine tip soldering tools. Like doing microsurgery. Quite the challenge. I think it was about 22 gauge silver, I had to restore the springy touch of the contact and solder to it's tip, tough job.

There are some Hams that "dip" or soak boards in chems.....with good results. I've read of using the dishwasher. I'm thinking of gently using the carwash on one I have that is filthy and letting it dry out for days near my woodburner.....
(I recall spraying tuners in the old tv's back in the day.)

(Still not sure what the molex are.)

The man that insisted (by email) the the GE 6146W has PROVEN to him they don't work real well in Kenwood transceivers was very adamant that he'd blown RF boards and Rectifier boards only when he'd used those tubes. He has done the repeated trial and error expensive test, in more than one radio.
For now I'll take his word for it and use other tubes.
Ok, it's not a bias difference (wrong terminology, yes, but HIS words), perhaps internal capacitance differences or I don't know what.
Biasing requirements of the tubes?

I'm surprised that there is such a divide on the opinion of the grid resistors being "pseudo fuses" or not. I understand they establish meter current levels acting as shunts in

the cirquit.
(The cobwebs are slowly coming off my electronics memories.)
My impression of K4EAA was that he was one of the "gurus" and his statements were accepted Biblical truths. I geuss not!!!

So, long story short, Thanks Terry for GENTLY stating your position.
Also for tolerating an ignorant egotistical mechanical genius that doesn't know squat about Kenwoods.....
I will do my best in future to more specifically select my wording when writing of a technical nature and will try to not impress so needfully to gratify my ego.
!!!!??
I appreciate you guys putting up with me,
so far!.....I'll attempt to not be so annoying in future (good luck with that) and to commit fewer errors to words here!

Answer for me, what is your objection to the Khainese tubes, other than country of origin? I've bought one set, I think that was the pair that one slipped out of my hand and I cracked the glass. I haven't had a set long enough to establish an opinion.

Second, explain Molex connector to me. You said:
"You recently talked about cleaning all the Molex connectors on a TS520 and applying Corrosion X and presenting it as new idea. Well it is not a new idea."

What I think might be a new idea (I'm sure somebody has done it before) is using tiny brushes to remove even more tarnish off the rotating discs of the wafer switches that Deoxit spray didn't. While avoiding touching or damaging the fingers of the springy contacts. I really like the idea.
I seem to be having good success with rigs that are giving trouble from bad connections in this switching area.
Some discs are black with corrosion even after spraying, when I'm done most look like new.
The HV cage presents special challenges since it's so crowded. I'm making brushes for each area that are different as I find a way to get at them, away from the delicate contacts.

Also, what is your personal opinion of the apparent difference of opinion on whether the Cathode? resistors act as "pseudo fuses" as Ken calls them?

I'm running about 40 hours now on 2 hours sleep last night. Been doing that alot lately, pushing and testing myself mentally and physically, on purpose.
While it helps me to understand my limits and capabilities, it also turns me into a short tempered, dimwit a**hole, that's offended easily.

I'm expecting great turmoil in our country soon. I need to know my limits and also know I can "operate" under duress and for long hours.
I hope I'm wrong regarding the turmoil.

I pray I'm wrong.

In summation, answer about the Khainese tubes?
What are Molex connectors?
Your opinion on the "fuses" debate please.

Thank you for your time and patience Terry.

"Communications will be key"
Michael///KD0WSJ

_____
From: "wagstw46@yahoo.com" <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 14, 2013 12:33 PM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael

I dont know you. I dont know your formal education level. I dont know your fundamental electronic knowledge. I dont know your fundamental radio theory knowledge, I do not know your KW hybrid knowledge or experience.

There is nothing wrong with being new. We all were at one time. However, a new person who listens and asks is far more likely to be taken seriously than one who speaks when clearly has little or no knowledge of the subject.

All I or anyone else on this forum can go by is what you say and how you say it in writing. After about 3 or 4 posts and responses a picture is painted. The perception may be wrong, but important for you to know what that perception is and to care about it and to take action to change it if it is wrong. Perception is always the other guys reality.

Regarding perception it is clear you have lots of zeal and are anxious to help, but it is also very obvious that you lack basic electronic knowledge, vacuum tube fundamentals, and KW hybrid knowledge and experience OR you have become very very rusty. Time will tell.

One of the very worst things any of us can do on this forum is bum dope people. Any and all of us should be corrected when we give out bad or just plain wrong technical advice. We are adults and should not take that as personal attack. Sometimes we just make a mistake or typo and other times we are out in left field. That includes me.

There will always be professional differences of opinion but those should be debated on the merits of the technical basis that each side presents and not on subjective or anecdotal or tribal myths and beliefs. Far too much of that abounds on the various ham radio forums today. For example, you will always have those who insist that matched pair finals are better or necessary and when quizzed about only one bias voltage pot and no ability to individually set the zero signal plate current they huff and puff and tap dance around.

You recently talked about cleaning all the Molex connectors on a TS520 and applying Corrosion X and presenting it as new idea. Well it is not a new idea. Many people recommend cleaning molex connectors as first step in resolving any and all operational issues with a hybrid. I am in the camp that this is silly and bad advice. It represents risk of immediate damage and introducing latent failure and simply is not required. Yes from time to time it will resolve an issue, but what really fixed the problem? Experiential based troubleshooting is fine, but once that is exhausted have to break out the schematic and test gear. Also, Corrosion X is commonly used by the RC model boat folks who routinely immerse their electronics. I never submerge any of my KW hybrids. Deoxit and Fader lube properly applied works great and no oily smelly greasy residue. By the way a TS-520 has no molex connectors as it uses wire wrap terminal posts.

So I appreciate your zeal and interest and eagerness to help, but it appears to me at this stage of your development you would be better served reading the post, asking questions,

and learning. However, it is your call if you wish to continue responding as you have been. You need to earn respect and that will come with the quality of your questions and responses.

I am not telling you that you are not welcome on this forum. I am not the owner and not in position to say one way or another. What I can offer is if you want to learn there are people here with 40 to 50 years ham radio knowledge and experience who grew up in the tube era and who have 10 to 15 years of hands on KW hybrid repair and they freely share any and all of their knowledge and experience. Up to you if you want to avail yourself of that valuable resource. Of course as we age we are looking for new folks to take our place holding up the tent poles. Those people dont get produced over night.

Just dont be too thin skinned or have fragile self esteem. When someone corrects you it is meant to help you and every new person who is following along. This is a technical forum and a KW hybrid is a complex engineering marvel. To be taken seriously you need to be credible.

"Reburbing" KW hybrids by cleaning, lubing, and painting them does not make anyone a KW hybrid service tech. Yes cosmetic cleaning is a part of repair, but it takes knowledge, experience, proper test gear, and knowing how to use it to run the Service Manual steps to restore a KW hybrid to factory performance level. Sure you can run the Owner Instruction Manual Maintenance section steps and get rig in pretty good shape. It just depends on how many golden screw drivers have been inside the rig and what your definition of performance and quality is.

Any technical discipline comes with its own parlance and jargon and using the terminology in the proper context speaks volumes about the persons knowledge and experience level.

So sorry if I hurt your feelings, but very hard to sit on sidelines and read advice that the goes way beyond not using the parlance properly. So to be 100% honest with you in my mind the jury is still out. Hopefully, you care enough to accept the challenge and prove me and others wrong.

Terry K9TW

Gonna go work some CW at 3.555 Mhz. My speed sux.

46481. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 09:55:29 UTC
From: Michael Sylvester
Topic: 46463 Message: 46481

To:

Wes Will
N9KDY

Or the other possibility that comes to my mind is get them to the patriot/militia movement. If I could get radios cheaper or free from damp dusty basements I could detail and service them and get them out cheap to those that will be there when it all goes south.

You letter brought a tear to my eye Wes.
You're a good man. I'm very impressed.
I hope to be be working with a teenager soon to try to teach him, I'm hearing he's real interested but we have to figure out how to get him around.
His grandfather is a nut but wants me to teach the kid. Keeps telling me about him but that's as far as it's gone....
Good luck with your project. It's a worthwhile endeavor.
You'll be blessed for your efforts I'm sure.

"All it takes for evil to suceed is for good men to do nothing".

You mature fellows not sharing your knowledge and your wealth of ratholed radios and assets that are going to waste (or about to be stolen by the banksters and politicians) is one of the things wrong
with this decaying country today.
Get off your butts.

I'm proud of you Wes.
Michael///KD0WSJ

From: Wes Will <wwill@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, December 17, 2013 2:36 AM
Subject: Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

On 12/17/2013 12:50 AM, geekorama@... wrote:
>
>
> Thanks all...very informative...and what I expected. Maybe a few people
> will dust these off and put them to work.
>
> 73 Jim, N7JS

The mind boggles. Several radios, On shelves, Doing nothing but
corroding and deteriorating. Wow. Isn't there a better use for them?
Door-stops perhaps?

Or maybe donate one (just a loan, at least to begin with) to a Boy Scout Troop or Explorer Post, or a 4-H group, To the Girl Scouts if there is a group of 'em with that sort of bent?

The local civic center teen hang-out place with a staff, or a school in your area? Offer to Elmer interested people using the donated/loaned gear? Teach a BSA Merit Badge class? Stir up a little new blood for this hobby?

Even take one to the local RETIREMENT HOME or "ELDER-CARE" facility, if you can't stand kids.

OR you could just leave 'em in the closet for someone to eventually throw in the dumpster or sell for a pittance on eBay, to be chopped uo for spares.

Is it a case of, "He who dies with the biggest pile of radios, unused, new or nearly, still in the box, wins a Kewpie Doll at the Pearly Gates," and, me being an agnostic, nobody ever told me?

I keep hearing about hams with MANY 'spare' rigs - not just two or three, but half a dozen and more - all just sitting there on shelves or in basements, doing nothing with them because they've 'moved on' to other things. It's a free country, do what you want with your stuff, of course. But isn't there a better use for it? (Donating it gets you a tax write-off, maybe, depending on to where. You don't have to store the stuff any more, either. This could make room to stash your twelfth set of golf clubs, maybe?)

I personally, being from the other side of the tracks, and someone who has had to scrape and scrimp and repair and scrimp some more just to get ONE barely-working rig, find this very confusing, to say the least. A surplus of equipment has never been a problem I've needed to deal with, truth be told. (Never had the handicap of being good-looking, either. I'm told that is quite the burden to bear.)

Enlighten me. Why would you just stockpile gear, and not find some way to get it USED, by someone, and perhaps get some new folks into the hobby?

Particularly the "other than usual" demographics kind of people.

I have been asking around, talking to High Schoolers and Junior High Schoolers ("Middle School" they call it now...) The answers I got were quite surprising. Most of the kids don't know the hobby even EXISTS, unless they have a relative, or the parent of a friend who is a Ham.

And it categorically is NOT the technical nature of the hobby which keeps them away, I am finding, Particularly the young, and even more specifically, young females, the ones who know what Ham radio actually IS, shy away from amateur radio for one main reason,

(Before I go on, know that I fit in here myself in all but ONE category they name, so don't get your knickers in a twist! I'm just putting out what the kids are telling me when I ask and they can't evade answering

truthfully!)

Those who know about it at all perceive the hobby as being only, strictly, JUST, FOR:

OLD
FAT
GEEKY
GUY.

(I fit in three out of four of those myself, and at one point it was all four. But I've lost a lot of weight since I became crippled with arthritis. And please do NOT be offended. This was the result of a survey I did, and the question for those who knew what Ham radio was read, "Describe the typical Amateur Radio hobbyist." I made a sort of equivalency table, a lot of terms got lumped together, mainly things like "dork" and "dweeb" were all lumped into "geeky," for instance. Some of the terms were rather offensive, and I pruned those heavily. Leave it to "geeky" as a close enough descriptor.)

Why, please, can not some of us, despite our perceived 'handicap' take at least a few of these excess pieces of gear out of the basement, and spread a little radio frequency geekiness around?

Perhaps even move that demographic a tad, in some of those areas? We're sort of stuck with "GEEKY" I'm afraid, but the rest, well, can't we make an effort?

Wouldn't any of -you- enjoy a QSO with a young female once in awhile? I've almost got my cheerleading, blonde, sixteen-year-old grand-daughter convinced to give it a whirl......

She's a great kid, and I wouldn't mind a bit letting her chat with y'all. (For one thing, I -know- you'll be polite and perfect gentlemen, seeing as you're HAMS, and not CB-types. Best chaperone a grampa can get, don't you think? Besides the double-barreled 12-gauge, that is.)

I rather enjoy talking to kids, myself, of either gender. They have such different viewpoints. For instance, I volunteer at my wife's school, as often as there is a job needing done. (I fix a lot of computers and network issues, there's an iMac in need of a motherboard swap and I've got to dig one out of my junkbox, before the end of the week and get to that...)

There are definitely some fifth- and sixth- grade kids who could be easily Elmered to at least a Tech license, and mentored to General or higher before they got out of high school. And this is a tiny, rural school in farm and orchard country. What might be done at a big school?

If I can get a radio or two ahead - having only my one 520SE puts this out of reach at the moment - I have made arrangements with the high school in the town where my wife teaches elementary school. to try to start a club after school hours. The Superintendent has already signed

off on it, at least to give it a try, and the Physics teacher will be helping me get it going. (He is studying for his Tech now. I'm helping out with his VHF gear, he likes the upper frequencies more than HF, he thinks, already. I hope to change that before it's over.)

Me only having one 2-meter FM mobile, and the 520SE, isn't enough to get the ball rolling; but for the moment it's all I have. (Hand-held, a VX7R, was stolen, my ex-wife sold my FT101Z for five bucks, right before she filed for divorce. I'm starting from behind the curve a bit, gear-wise.)

We're going to be trying to raise some money to buy used stuff for the kids to get started on. And I'm donating my extra VTVM, a signal generator, a soldering station, a power supply or two, and a DMM for the start of their work bench, too. All elderly junk I've refurbished over the summer, but it's a start.

If I can do it, and this WILL get done, starting with pretty much nothing and most assuredly with no money to speak of, why cannot some of the fraternity of amateurs, of which in my opinion this list is one of the better subsets, at least try to do the same in their own areas?

I know that not everyone has the time, nor the inclination, to mess with a bunch of snot-nosed, young, get-off-my-lawn whippersnappers. Kids take a lot of extra effort. But I can't be the ONLY one who thinks it would be a good idea to get the next generation involved in this stuff.

Or can I be?

Last I'll say about it, on the list. It's just something that has bothered me for quite awhile now, and I intend to do something about it. As it is NOT directly associated with hybrid Kenwoods, or even more than indirectly with old rigs of any sort, I won't continue this here. But anyone who wishes to discuss this with me is welcome to email me directly at the address this came from.

--
di di di dah dah dah dah di di dit
Wes Will
N9KDY

46482. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 14:39:55 UTC
From: <wagstw46@...>
Topic: 46351 Message: 46482

Michael

Just so you know there it nothing different or special about a Gold Emblem TS-830 other than the gold lettered emblem on bottom of the VFO face plate instead of a Silver emblem.

Some believe it meant that rig came full filtered from the factory and some say had different Murata 455khz ceramic filter (K12 instead of K5), but the Murata 2nd IF filter change came in about the 3 million series and had nothing to do with being a gold emblem rig. The gold emblem did not introduce any circuitry changes or performance enhancements.

You will even find original 1 million series TS-830s that people have installed gold emblem VFOs in them. Almost impossible to tell an original Gold Emblem TS-830 unless you know someone who bought factory new one and has the original invoice to share with you and can tell you the year they bought it and the serial number.

Of course good to mention it when you go to sell the rig as the uninformed buyer might pay extra on ebay to get a gold emblem TS-830 thinking it represents some thing special.

Terry K9TW

46483. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 17:59:50 UTC
From: <wagstw46@...>
Topic: 46463 Message: 46483

Might I suggest that the kids of today will be much more inclined to stay after school and work on Arduino projects or perhaps a RTL2832U dongle.

SDR will much more interesting to the average kid. They like computers and software and would take to this easily.

Cost would also be much much lower than KW hybrids and more hands on participation at same time.

I cant even spell "I/Q" so I could not lead such a youth group.

My guess is already being done in some middle and/or high schools.

I love KW hybrids but just dont see the youth of today being lead to them in any number that would make a difference.

Terry K9TW

46484. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 16:48:00 UTC
From: Kevin Kesler
Topic: 46463 Message: 46484

All good responses to this post. I'll put in my 2 cents in, as I have a TS-520 and been collecting some of the accessories that went with it, the matching speaker and VFO, and then some of the other parts as I can afford them.
I try to fire the '520 up at least once a month when possible for "grins & giggles" and have it and my regular workhorse rig (Icom IC-718) connected to an antenna switch. Then all I have to do is decide which radio I want to use that moment, flip the antenna switch to that radio, and get talking. My next project is a Yaesu FT-101E that a fellow ham gave to me due to he needed the room and didn't want it anymore. Once I go through it and have it back to running condition, I'll hook it up through my antenna switch, and then chose either it, the '520, or the '718 to get on the air.
I have a few old receivers that are sitting on a shelf that I need to do the same with, so they don't go bad.

On Tue, Dec 17, 2013 at 4:55 AM, Michael Sylvester <sylvstrmchl@...>wrote:

>
>
> To:
>
> Wes Will
> N9KDY
>
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> patriot/militia movement.
> If I could get radios cheaper or free from damp dusty basements I could
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> You're a good man. I'm very impressed.
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> Good luck with your project. It's a worthwhile endeavor.
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> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, December 17, 2013 2:36 AM
> *Subject:* Re: [TS-520_820_530_830] Hybrids: Store it or operate it?
>
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> > Thanks all...very informative...and what I expected. Maybe a few people
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> > 73 Jim, N7JS
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> The local civic center teen hang-out place with a staff, or a school in
> your area? Offer to Elmer interested people using the donated/loaned
> gear? Teach a BSA Merit Badge class? Stir up a little new blood for
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> survey I did, and the question for those who knew what Ham radio was
> read, "Describe the typical Amateur Radio hobbyist." I made a sort of
> equivalency table, a lot of terms got lumped together, mainly things
> like "dork" and "dweeb" were all lumped into "geeky," for instance.
> Some of the terms were rather offensive, and I pruned those heavily.
> Leave it to "geeky" as a close enough descriptor.)
>
> Why, please, can not some of us, despite our perceived 'handicap' take
> at least a few of these excess pieces of gear out of the basement, and
> spread a little radio frequency geekiness around?

>
> Perhaps even move that demographic a tad, in some of those areas? We're
> sort of stuck with "GEEKY" I'm afraid, but the rest, well, can't we make
> an effort?
>
> Wouldn't any of -you- enjoy a QSO with a young female once in awhile?
> I've almost got my cheerleading, blonde, sixteen-year-old grand-daughter
> convinced to give it a whirl......
>
> She's a great kid, and I wouldn't mind a bit letting her chat with
> y'all. (For one thing, I -know- you'll be polite and perfect gentlemen,
> seeing as you're HAMS, and not CB-types. Best chaperone a grampa can
> get, don't you think? Besides the double-barreled 12-gauge, that is.)
>
> I rather enjoy talking to kids, myself, of either gender. They have such
> different viewpoints. For instance, I volunteer at my wife's school, as
> often as there is a job needing done. (I fix a lot of computers and
> network issues, there's an iMac in need of a motherboard swap and I've
> got to dig one out of my junkbox, before the end of the week and get to
> that...)
>
> There are definitely some fifth- and sixth- grade kids who could be
> easily Elmered to at least a Tech license, and mentored to General or
> higher before they got out of high school. And this is a tiny, rural
> school in farm and orchard country. What might be done at a big school?
>
> If I can get a radio or two ahead - having only my one 520SE puts this
> out of reach at the moment - I have made arrangements with the high
> school in the town where my wife teaches elementary school. to try to
> start a club after school hours. The Superintendent has already signed
> off on it, at least to give it a try, and the Physics teacher will be
> helping me get it going. (He is studying for his Tech now. I'm helping
> out with his VHF gear, he likes the upper frequencies more than HF, he
> thinks, already. I hope to change that before it's over.)
>
> Me only having one 2-meter FM mobile, and the 520SE, isn't enough to get
> the ball rolling; but for the moment it's all I have. (Hand-held, a
> VX7R, was stolen, my ex-wife sold my FT101Z for five bucks, right before
> she filed for divorce. I'm starting from behind the curve a bit,
> gear-wise.)
>
> We're going to be trying to raise some money to buy used stuff for the
> kids to get started on. And I'm donating my extra VTVM, a signal
> generator, a soldering station, a power supply or two, and a DMM for the
> start of their work bench, too. All elderly junk I've refurbished over
> the summer, but it's a start.
>
> If I can do it, and this WILL get done, starting with pretty much
> nothing and most assuredly with no money to speak of, why cannot some of
> the fraternity of amateurs, of which in my opinion this list is one of

> the better subsets, at least try to do the same in their own areas?
>
> I know that not everyone has the time, nor the inclination, to mess with
> a bunch of snot-nosed, young, get-off-my-lawn whippersnappers. Kids
> take a lot of extra effort. But I can't be the ONLY one who thinks it
> would be a good idea to get the next generation involved in this stuff.
>
> Or can I be?
>
> Last I'll say about it, on the list. It's just something that has
> bothered me for quite awhile now, and I intend to do something about it.
> As it is NOT directly associated with hybrid Kenwoods, or even more
> than indirectly with old rigs of any sort, I won't continue this here.
> But anyone who wishes to discuss this with me is welcome to email me
> directly at the address this came from.
>
> --
> di di di dah dah dah dah di di dit
> Wes Will
> N9KDY
>
>
>
>
>

46485. RE: TS520 relays not operating when go to TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 15:46:59 UTC
From: <peterlake2003@...>
Topic: 46355 Message: 46485

Thanks again Terry it would appear that Q8 is open circuit I am now sourcing a new transistor and diode
Best 73s Happy Xmas and a good new year
Peter
G8zzl

46486. RE: TS520 relays not operating when go to TX

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 18:30:56 UTC
From: <wagstw46@...>
Topic: 46355 Message: 46486

Peter

Same holiday wishes for you and your family. The back emf diode may check good but I would take this opportunity to replace it.

Thanks for the closure.

Best 73s
Terry K9TW

46487. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 18:32:26 UTC
From: <wagstw46@...>
Topic: 46463 Message: 46487

Just be careful that your antenna switching arrangement is fool proof and will not allow accidental transmit RF to front end of either rig. Some fellows use patch cords and swap them around and more than one KW hybrid Ant Step Up Transformer and RF Amp mosfet has bit the dust.

Terry K9TW

46488. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 18:59:05 UTC
From: Craig Roberts
Topic: 46463 Message: 46488

Terry, as usual, displays great wisdom.

I became a big fan of "fail safe" patch cords during my broadcasting days. When used for radio selection, antenna switches -- especially the common, run-of-the-mill ones -- scare me.

73 and Happy Holidays to all!

Craig
W3CRR

46489. repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 20:10:14 UTC
From: <bozo231@...>
Topic: 46489 Message: 46489

IF anyone needs a radio repaired or serviced i highly recommend Group member Terry K9TW

46490. Hanging boards

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 20:12:19 UTC
From: <bozo231@...>
Topic: 46490 Message: 46490

Bob do u have a good set with all good coil and good centers if i do i could use a set for the 520 thanks Ron KK4PWF

46491. my 520

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 20:17:13 UTC
From: <bozo231@...>
Topic: 46491 Message: 46491

thanks to all who have given me guidance on my hacked up 520 it is finally going !!!!!!!
thanks Terry ,Mike an everyone else that helped i have learned a wealth of information on this unit an look forward to the next one again. its not 100% yet but i"ll get it there,
Thanks Ron KK4PWF

46492. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 20:30:09 UTC
From: Gordon JC Pearce
Topic: 46463 Message: 46492

On Tue, Dec 17, 2013 at 01:59:05PM -0500, Craig Roberts wrote:
> Terry, as usual, displays great wisdom.
>
> I became a big fan of "fail safe" patch cords during my broadcasting
> days. When used for radio selection, antenna switches -- especially the
> common, run-of-the-mill ones -- scare me.
>
> 73 and Happy Holidays to all!

Clearly labelling your cables with something that won't come off - like those PVC letter sleeves that slip over cable ties, they're good - is always a decent plan too.

Turns out TS520s don't load up too well into a 440-470MHz folded dipole. No harm done, fortunately.

--
Gordonjcp MM0YEQ

46493. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 21:12:34 UTC
From: GEAgent21@...
Topic: 46489 Message: 46493

I will second that.

73
Greg
KC9VVU

In a message dated 12/17/2013 3:18:01 P.M. Eastern Standard Time,
bozo231@... writes:

IF anyone needs a radio repaired or serviced i highly recommend Group
member Terry K9TW

46494. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 23:01:38 UTC
From: <wagstw46@...>
Topic: 46463 Message: 46494

Craig

I know you are fully aware, but if going to make a patch panel or patch cables good idea to use different connectors on opposite ends of the jumper. For example could use BNC on one end and UHF on the other. Then connect the transceivers to the BNC ends and antennas to the UHF ends. Pretty fool proof system.

Also some cheap antenna switches may not have good port to port isolation.

Some mfg. list it in terms of db. For example 60 db would mean if you were transmitting on one transceiver at 100 watts out the other transceiver connected to this switch in RX mode would see RF voltage at 1000/1. 100 watts would be approx 71 rf volts and the other port would see approx 71mv of rf. That would not hurt a KW hybrid front end.

I just know I have made a little money repairing KW hybrids that experienced accidental transmit rf.

Of course it can be done safely. Just has to be done smartly.

In one case a fellow went to hamfest with some buddies. One of them brought home a boat anchor treasure to this fellows shack and put it at the operating position to test it. After they left this fellow went to use his KW hybrid and found he no longer had receive. Seems his buddies took care of his Ant Step Up transformer for him!

Terry K9TW

46495. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 23:24:23 UTC
From: <wagstw46@...>
Topic: 46489 Message: 46495

Fellows:

I certainly appreciate the endorsements, but before you pack up your rig with intentions of sending it my way best to contact me off list first.

I am doing a little more work now as we are not going to Florida this year as I remain under care of hemotologist from my lung clot episode back in June. So good to have something to do other than staring out the window at the snow.

While I am doing more work I am getting a little bit picky about what I take on so please contact off list to discuss. Sometimes I may be able to help talk you through a repair. Also I no longer just do what I call cafeteria or menu style repairs. Only doing repairs followed by complete service manual alignment. I do not perform refurbishments or restoration. For that I think KE7OAY Jim Showker or W0NTA Dick Housden may be ones you should contact. WB0IQK Mark Gilger also maintains a list of techs.

Once again I really appreciate your business and the recommendations.

Happy Holidays and Best 73s
Terry K9TW

46496. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-18 00:33:40 UTC
From: Gordon JC Pearce
Topic: 46463 Message: 46496

On Tue, Dec 17, 2013 at 03:01:38PM -0800, wagstw46@... wrote:
>
> I know you are fully aware, but if going to make a patch panel or patch cables good idea to use different connectors on opposite ends of the jumper. For example could use BNC on one end and UHF on the other. Then connect the transceivers to the BNC ends and antennas to the UHF ends. Pretty fool proof system.

Even safer - never allow any lesser rig to share aerials with your Trio hybrid. Don't even have them in the same shack.

What do you mean, you've only got one shack in the house?

--
Gordonjcp

46497. Re: [TS-520_820_530_830] TRIO TS-510 serial number

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 19:42:32 UTC
From: <ct1ect@...>
Topic: 46455 Message: 46497

Hi Jim, how are you? I don't want to sell it, just to know what year was manufactured, for curiosity. I bought it for 35€, without power suply and microphone, in a garege sale, it is just in mint conditions, like new. A close friend of mine it will provide me a PS to check it, I opened it, and it seems in perfect conditions, I am not sure about the tubes, but is is easy to get a new ones. Kindest regards, Merry Christmas, 73 de CT1ECT

46498. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 23:14:35 UTC
From: Michael Sylvester
Topic: 46489 Message: 46498

I'll third it.
While I've got you men here,
What is the logical train of looking into a failed 820S dig display?
I wish the manuals had a block troubleshooting diagram.
I'll figger it out but I like to cheat.
Save me a day of work and study please?
Didn't get to the solder-through-boards repair this morning. Got tied up on microeffect.com talking comms and nwo stuff. Also my shortcuts for studying the ham tests, DON'T READ THE WRONG ANSWERS!!
For eham.net, don't take the test, scroll down to bottom, click "grade my test'
Read only correct answers.cut learning curve in half.
With books same thing, read question, read answer paragraph, read correct answer. Learning rate more than doubled.
You don't befuddle your mind with 75% wrong info!!!
(3 out of 4 answers wrong or 75% wrong info and wasted time).
Learn more than twice as fast, much less confusion and mental effort.
Michael///KD0WSJ

From: "GEAgent21@..." <GEAgent21@aol.com>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, December 17, 2013 3:12 PM
Subject: Re: [TS-520_820_530_830] repairs

I will second that.

73
Greg
KC9VVU

In a message dated 12/17/2013 3:18:01 P.M. Eastern Standard Time, bozo231@... writes:

>IF anyone needs a radio repaired or serviced i highly recommend Group member Terry K9TW

46499. Re: [TS-520_820_530_830] What's wrong with this board?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 22:01:00 UTC
From: Michael Sylvester
Topic: 46351 Message: 46499

Shucks.

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, December 17, 2013 8:39 AM
Subject: Re: [TS-520_820_530_830] What's wrong with this board?

Michael

Just so you know there it nothing different or special about a Gold Emblem TS-830 other than the gold lettered emblem on bottom of the VFO face plate instead of a Silver emblem.

Some believe it meant that rig came full filtered from the factory and some say had different Murata 455khz ceramic filter (K12 instead of K5), but the Murata 2nd IF filter change came in about the 3 million series and had nothing to do with being a gold emblem rig. The gold emblem did not introduce any circuitry changes or performance enhancements.

You will even find original 1 million series TS-830s that people have installed gold emblem VFOs in them. Almost impossible to tell an original Gold Emblem TS-830 unless you know someone who bought factory new one and has the original invoice to share with you and can tell you the year they bought it and the serial number.

Of course good to mention it when you go to sell the rig as the uninformed buyer might pay extra on ebay to get a gold emblem TS-830 thinking it represents some thing special.

Terry K9TW

46500. RE: Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-18 11:21:01 UTC
From: <glene77is@...>
Topic: 46463 Message: 46500

to: Joe Viagra - WB7UQU

to: Wes di di di dah dah dah dah di di dit Will - N9KDY

I sat on the shelf so long
that I forgot how to tune the TS-830.

My desk shares a vintage HW8 and a TS-830.

The TS-830 is a 1985 Cadillac,
but
the HW8 has worked more states than the Knwd.

1958 = K4KKQ ..... 2012 = KK4LPG ..... QRP / CW
.
Rig #1: Vintage Retro Station, 2013, 1977 HeathKit HW8 , and 1940 Bug.
(The leather patch on the thumb was to keep the ARC-5 grid voltage from grabbing my hand !
)
(The Round devices are my Air-Column Audio Filters for 700Hz. Producing 6dB sideband drop.
)

Rig #2: Kenwood TS830S running 3 - 10W, 20M / 40M / 80M, CW only.
Antenna: Long-Wire, 225', sometimes a Vert on 20M.

glene77is --- {^,^} --- electricity is shocking !
Amateur General KK4LPG, QRP CW only !
ARRL, QRP-ARCI, SKCC , NAQCC . BIO at QRZ.com
webpage: www.GeoCities.WS/glene77is

Interests :

Electrical Science, Ham radio QRP, CW only,

Website: www.GeoCities.WS/glene77is
email: glene77is at Yahoo.com
ARRL American Radio Relay League
QRP-ARCI International
SKCC Straight Key Century Club
NAQCC North American QRP CW Club

46501. VFO and Display issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-18 12:35:33 UTC
From: <sylvstrmchl@...>
Topic: 46501 Message: 46501

First I'd like to thank you all for tolerating me (so far) and for the knowledge you have generously shared with me. I know your time is valuable, much more than so than mine and that most of the material I'm squeezing from you has been covered before at length.

I should, I geuss learn to search the archives to save you all the flustermation of my ignorance, confusions and diatribes.
What would be the fun in that? You Gentlemen would not get the satisfaction of leading a Newbie carefully through the learning curve and would not get the welcome break from the decades long task of the sometimes boring repetitive repairs.
Right?
(See, here I go again....).

I've got (5) TS-820S units now. Latest purchase came from California, kid couldn't sell it in 2 seperate week long sales attempts. Bid sales starting at $200 plus $40 shipping. I offered him $150 shipped he said he'd part it first, I showed him other "choppers" that weren't selling HARDLY ANYTHING in the last 2 weeks.
I offered him $200 shipped last week which he accepted.
Received yesterday.
Good job packing, 3 layers big bubbles and a tall stiff cup over the dial, good idea, a US flag sticker under my name and address label, nice touch.
He stuffed the remainder of the box with the "over pipe" type foam insulation, it performed well, never saw that before but it worked good.Single 3 layer box. Came in good condition through USPS in about 5-6 days from Cali to Missouri.

Radio is an old dog. Looks to have been stored in a basement or outdoor storage, quite alot of rust and lost case paint, exposed to moisture.
Display flickers alot at high end of dial. No transmit and sounds like some arcing.....
Meter stays up at 3db and no sig in receive in speakers.
Good parts radio candidate.
I think 3 Of my units do the flickering......

The radio presently being serviced, detailed (cleaned) was flickering and quit altogether last time on the bench. K4EAA pulls the VFO side cover and douses with Deoxit. I'd like to do more than that. While doing my brushing microsurgery on the RF board Wafers with it out of the radio, I am able to easily remove VFO side cover and almost stick my head into the VFO.
What is it in there that causes the problems?
I observe a leaf spring loooking copper 1/2" X 1/2" sheet metal curved piece on the back end of the variable cap center shaft.
Is this a mechanical electrical connection?
What needs cleaning and what causes the flickering display? I've scratched under the points where the "leaf spring" touches the shaft and where it touches the back wall of the shaft mount or chassis. Carefully bent it to add some arch, or spring tension, it seemed tired and not much spring or pressure against the shoulder on the shaft.
This display quit completely shortly after unit arrived. Alot of flicker then quit entirely.

I've tried swapping the entire "metel box" the display plugs into with a "known working" set from another radio, no change.
I pulled the front off that parts radio and pulled the tube display itself, plugged it into the board, no display, does it need to be well grounded? (I don't think so, the brackets that the display is mounted in are heavily black oxide coated, ground through wiring and board it plugs into I would assume).
I had been up for way too many hours (over 30 with the last 8 into the radio) and said that's enough for one day.
The box and set of boards I pulled have been removed from the metal box and I'm ready to do the "solder through board" connections repair. Holding board 1160 up to the light I see 15 of these "through board solder connections. Is 15 all of them?
On the 1150 board I'm not seeing any through board connections, correct?
Checking pins to board solder joints under magnification I find one loose pin, Pin 1, "CVC" on the portion of the board that protrudes through bottom of Chassis to lower part of radio.
I'll have to strip some insulated solid copper 22 gauge wire for now, to do the solder through board repairs. (just ordered some bare copper 22 gauge for these repairs on eBay).

So, questions are, what inside VFO is causing these problems, what is best way to fix, spray with Deoxit and pray?
Is there an easier way to remove Dig display other than pulling knobs and face? What a pain. (I did buy one casio calculator and have a bid on another to steal those displays)
I've had the vernier and all off down to the gears, how tough is it to get the VFO out of these old dogs? Pull that alumnum box and get at whatever is causing trouble easier and achieve a more permanent fix?
Am I right about that "leaf spring"? Is it a connection? or
what do I burn with my 15 gigawatt laser?
I'll get around to troubleshooting by checking what is supposed to be on what pins....only if I have to, after eliminating all mechanical issues, which I think ARE the VFO/display problems for the most part.
My initial understanding is that most display problems are in the VFO and most are cured by a good dose of Deoxit.
Gotta be a better solution than spray.....
Also aware the Modex plug for display is often troublesome.

Thanks beforehand Gentlemen,
Where do I send the check?
Michael///KD0WSJ

PS. This window (Post new Topic) functioned much better than the reply window....without the nauseating delays. Gotta be a better way without going to word or notepad.....WAIT!!! That's why all you guys do not have the previous messages when you post!! You are using a different route. You dogs. You let me suffer all this time.....

46502. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-17 22:08:17 UTC
From: Michael Sylvester
Topic: 46463 Message: 46502

How about maybe introducing them to the Baofang type radios?
I dicussed with Mark Koernke on the microeffectlive.com this morning how the locals around here are using 462+ for local comms.
I bought a bao and a cheapy base 5db antenna. real impresed with it.
for $110 bucks not a bad setup. It is also monitoring the local sheriff and EMS.
Heard it can be setup to scan but I'm not that far in yet.
$40 for radio, $50 for ant, $20 for 18' of coax. Charger incl.
I like it.

From: "wagstw46@yahoo.com" <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, December 17, 2013 11:59 AM
Subject: Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Might I suggest that the kids of today will be much more inclined to stay after school and work on Arduino projects or perhaps a RTL2832U dongle.

SDR will much more interesting to the average kid. They like computers and software and would take to this easily.

Cost would also be much much lower than KW hybrids and more hands on participation at same time.

I cant even spell "I/Q" so I could not lead such a youth group.

My guess is already being done in some middle and/or high schools.

I love KW hybrids but just dont see the youth of today being lead to them in any number that would make a difference.

Terry K9TW

46503. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-18 14:31:05 UTC
From: Mark Gilger
Topic: 46463 Message: 46503

You can get the BoaFeng UV-5R off of Amazon for $29.45. I bought 5 of them.

For the scan function, just press the SCN button
until you hear "Scanning Begin".

Mark

At 05:08 PM 12/17/2013, Michael Sylvester wrote:
>
>
>How about maybe introducing them to the Baofang type radios?
>I dicussed with Mark Koernke on the
>microeffectlive.com this morning how the locals
>around here are using 462+ for local comms.
>I bought a bao and a cheapy base 5db antenna. real impresed with it.
>for $110 bucks not a bad setup. It is also
>monitoring the local sheriff and EMS.
>Heard it can be setup to scan but I'm not that far in yet.
>$40 for radio, $50 for ant, $20 for 18' of coax. Charger incl.
>I like it.
>
>From: "wagstw46@..." <wagstw46@yahoo.com>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Tuesday, December 17, 2013 11:59 AM
>Subject: Re: [TS-520_820_530_830] Hybrids: Store it or operate it?
>
>
>Might I suggest that the kids of today will be
>much more inclined to stay after school and work
>on Arduino projects or perhaps a RTL2832U dongle.
>
>SDR will much more interesting to the average
>kid. They like computers and software and would take to this easily.
>
>Cost would also be much much lower than KW
>hybrids and more hands on participation at same time.
>
>I cant even spell "I/Q" so I could not lead such a youth group.
>
>My guess is already being done in some middle and/or high schools.
>
>I love KW hybrids but just dont see the youth of
>today being lead to them in any number that would make a difference.
>
>Terry K9TW
>

>
>

46504. Re: [TS-520_820_530_830] Hybrids: Store it or operate it?

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-18 16:49:37 UTC
From: W5RKL
Topic: 46463 Message: 46504

For those members wishing to discuss the UV-3 and UV-5 handie talkies, there are specific Yahoo groups devoted to those handie talkies. Any further discussions about the UV-3 and/or UV-5 handie talkies should be conducted either through private email or on the specific Yahoo group devoted to the UV-3 and UV-5 handie talkies.

Thank you and 73
Mike W5RKL

On 12/18/2013 8:31 AM, Mark Gilger wrote:
>
> You can get the BoaFeng UV-5R off of Amazon for $29.45. I bought 5 of
> them.
>
> For the scan function, just press the SCN button until you hear
> "Scanning Begin".
>
> Mark
>
> At 05:08 PM 12/17/2013, Michael Sylvester wrote:
>
>>
>>
>> How about maybe introducing them to the Baofang type radios?
>> I dicussed with Mark Koernke on the microeffectlive.com this morning
>> how the locals around here are using 462+ for local comms.
>> I bought a bao and a cheapy base 5db antenna. real impresed with it.
>> for $110 bucks not a bad setup. It is also monitoring the local
>> sheriff and EMS.
>> Heard it can be setup to scan but I'm not that far in yet.
>> $40 for radio, $50 for ant, $20 for 18' of coax. Charger incl.
>> I like it.
>>
>> *From:* "wagstw46@..." <wagstw46@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> *Sent:* Tuesday, December 17, 2013 11:59 AM
>> *Subject:* Re: [TS-520_820_530_830] Hybrids: Store it or operate it?
>>
>>
>> Might I suggest that the kids of today will be much more inclined to
>> stay after school and work on Arduino projects or perhaps a RTL2832U
>> dongle.
>>
>> SDR will much more interesting to the average kid. They like
>> computers and software and would take to this easily.

>>
>> Cost would also be much much lower than KW hybrids and more hands on
>> participation at same time.
>>
>> I cant even spell "I/Q" so I could not lead such a youth group.
>>
>> My guess is already being done in some middle and/or high schools.
>>
>> I love KW hybrids but just dont see the youth of today being lead to
>> them in any number that would make a difference.
>>
>> Terry K9TW
>>
>>
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46505. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 02:54:47 UTC
From: Wes Will
Topic: 46489 Message: 46505

> Read only correct answers.cut learning curve in half.

Or maybe perhaps kinds could be you MIGHT want to study the theory and the rest of the information BEHIND the questions, learn what the whole thing is about, and THEN take the test for whatever level license.

I can get a ten-year-old with a good memory through the EXTRA exam, but GOD help that ten-year-old kid when an "I actually studied the information" General license holder asks him a question that isn't one of the test questions.

The IDEA behind having an EXTRA license in the first place was NOT to churn out a lot of people with that license. It was to give a nod to those of the amateur community whom were diligent and capable enough to learn all there was to know (or all they could, anyway) about the hobby.

I waited TWENTY YEARS as a Tech licensee, before I took the General and on a lark, the Extra tests, knowing I was going to pass the General, easily. Getting through the Extra exam missing only two questions SCARED THE CRAP OUT OF ME. All I could think of was NOW WHAT DO I DO? SOMEBODY'S GONNA FIND OUT I'M A FRAUD! I DON'T KNOW ALL THAT STUFF THAT WELL!

I didn't change my call when I got the Extra license, because I didn't want to advertise my un-earned "Biggest Pig, County Fair" Blue Ribbon.

What it HAS done has made me study my head off, and when someone does ask something, I dig in to it and work like a nut to find the answer for them. I don't feel that I have yet earned the chops that have always been given to Extra licenses. But I'm trying, because I don't want to let the side down.

Please reconsider, think about NOT doing an exam-cram.

It thins the blood.

--
Wes Will
N9KDY
Amateur Extra

46506. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 03:14:29 UTC
From: Lou Blasco
Topic: 46489 Message: 46506

Well said Wes,

You've hit the nail on the head.

Lou
VK3ALB

At 13:54 19/12/2013, you wrote:
>
>
> > Read only correct answers.cut learning curve in half.
>
>Or maybe perhaps kinds could be you MIGHT want to study the theory and
>the rest of the information BEHIND the questions, learn what the whole
>thing is about, and THEN take the test for whatever level license.
>
>I can get a ten-year-old with a good memory through the EXTRA exam, but
>GOD help that ten-year-old kid when an "I actually studied the
>information" General license holder asks him a question that isn't one
>of the test questions.
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>The IDEA behind having an EXTRA license in the first place was NOT to
>churn out a lot of people with that license. It was to give a nod to
>those of the amateur community whom were diligent and capable enough to
>learn all there was to know (or all they could, anyway) about the hobby.
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>I waited TWENTY YEARS as a Tech licensee, before I took the General and
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>SCARED THE CRAP OUT OF ME. All I could think of was NOW WHAT DO I DO?
>SOMEBODY'S GONNA FIND OUT I'M A FRAUD! I DON'T KNOW ALL THAT STUFF THAT
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>want to advertise my un-earned "Biggest Pig, County Fair" Blue Ribbon.
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>ask something, I dig in to it and work like a nut to find the answer for
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>Please reconsider, think about NOT doing an exam-cram.
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>

>--
>Wes Will
>N9KDY
>Amateur Extra

46507. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 11:12:16 UTC
From: Michael Sylvester
Topic: 46489 Message: 46507

Odd, none of the buttons below are functioning.
 to:
Wes Will
N9KDY

I think You've earned your chops Will.
Being a "biggest Pig" blue ribbon winner, Hah! Is not my goal.
Yes I understand what you're saying. There's so much new technology these days compared to my novice year...42 years ago...I'll never understand it all and prolly never talk to the space station or do slow scan tv or bounce satellites....
I still maintain that even if you didn't take a test, using the books to learn, NOT reading 75% wrong information is a good thing. I'm done got old, my brain has been throwing out old files just to open memory space.......dangit sometimes the wrong files......
I don't want to clutter it and absorb useless confusing counterproductive data.......And YES, I do have tech manuals and I'm absorbing there....
Michael///KD0WSJ

From: Wes Will <wwill@siu.edu>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, December 18, 2013 8:54 PM
Subject: Re: [TS-520_820_530_830] repairs

> Read only correct answers.cut learning curve in half.

Or maybe perhaps kinds could be you MIGHT want to study the theory and the rest of the information BEHIND the questions, learn what the whole thing is about, and THEN take the test for whatever level license.

I can get a ten-year-old with a good memory through the EXTRA exam, but GOD help that ten-year-old kid when an "I actually studied the information" General license holder asks him a question that isn't one of the test questions.

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What it HAS done has made me study my head off, and when someone does ask something, I dig in to it and work like a nut to find the answer for them. I don't feel that I have yet earned the chops that have always been given to Extra licenses. But I'm trying, because I don't want to let the side down.

Please reconsider, think about NOT doing an exam-cram.

It thins the blood.

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Wes Will
N9KDY
Amateur Extra

46508. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 11:53:12 UTC
From: Mike
Topic: 46489 Message: 46508

If members wish to continue this discussion please take it off group.

Thank you and 73
Mike W5RKL
Moderator

On 12/19/2013 5:12 AM, Michael Sylvester wrote:
> Odd, none of the buttons below are functioning.
> to:
> Wes Will
> N9KDY
> I think You've earned your chops Will.
> Being a "biggest Pig" blue ribbon winner, Hah! Is not my goal.
> Yes I understand what you're saying. There's so much new technology
> these days compared to my novice year...42 years ago...I'll never
> understand it all and prolly never talk to the space station or do
> slow scan tv or bounce satellites....
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> absorbing there....
> Michael///KD0WSJ
>
> *From:* Wes Will <wwill@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Wednesday, December 18, 2013 8:54 PM
> *Subject:* Re: [TS-520_820_530_830] repairs
>
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> Please reconsider, think about NOT doing an exam-cram.
>
> It thins the blood.
>
> --
> Wes Will
> N9KDY
> Amateur Extra
>
>
>
>

46509. Recommended 'Classic' Keyer for TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 12:32:15 UTC
From: <michael.ponsford@...>
Topic: 46509 Message: 46509

Hi to the group and Seasons Greetings

I would like to add a Keyer (either with or without integral paddles) to my Kenwood TS-530S and would prefer to search for something of the same era, early 1980s.
Is there a recommended Keyer for the TS-530S, perhaps a design classic of the times, with Negative keying like the TS-530S requires?

I've noted that within the photos section of this group that the Heathkit Keyer with integral paddle is shown on at least one photo - perhaps something along these lines.

Suggestions would be appreciated.

Thanks in advance and Merry Christmas.

Mick - M0GWD
Portsmouth, UK

46510. Re: [TS-520_820_530_830] Recommended 'Classic' Keyer for TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 14:05:21 UTC
From: Mike
Topic: 46509 Message: 46510

Mick,

There are numerous keyers that will work with the KW hybrids. Below are a few keyers that I have used, including a couple of vintage "vacuum tuber" keyers.

MFJ 407B and 407D. MFJ has a series of CW keyers you can choose from, see their website for details on all models. Most all of MFJ's keyers have built in side tone oscillators that are adjustable in volume and tone, typically by front panel controls. Some MFJ keyers have an "internal" weight control that is accessible through a small hole on the cabinet or by removing the cabinet, while other MFJ keyers have the weight control on the front panel. The 407B and 407D can be powered by an external 12VDC power cube or by a 9 volt battery mounted internally. If you use a 12VDC power cube may sure you look at the brick. There are "AC" and "DC" cubes and if you apply 12VAC" to these keyers you can easily damage them. Also be aware that not all DC power cube's output voltage is regulated and will be exactly 12VDC. Unless the cube is a "regulated output voltage" power cube, the DC output voltages can be as high as "+19VDC".

Heathkit HD-10, Heathkit's first attempt at marketing a single lever non-Iambic keyer. The HD-10 keys negative "grid block" keying voltage up to -105VDC. The HD-10 has 3 controls, SPEED, WEIGHT, and VOLUME. The "WEIGHT" control is accessed through the screw driver slot on the top of the SPEED control knob using a small flat blade screw driver. Iambic paddles can be used with the HD-10 even though the HD-10 is not an Iambic keyer, they are connected to the terminal strip on the end of the keyer. I have an HD-10 that I use with my Heathkit HX-10 Marauder. The HD-10's side tone "frequency" is not readily adjustable without modifying the tone oscillator's circuit. The HD-10 has a built in 120VAC power supply.

Heathkit HD-1410 was Heathkit's first Iambic keyer with built in Iambic paddles. The HD-1410 can key both positive (+300VDC at 200ma) and negative (-200VDC at 10ma) by simply connecting the keyer to the transmitter using a 2 wire shielded cable. No internal jumpers to change. I use an HD-1410 with my Heathkit SB-400 xmtr. The HD-1410 does not have a weight control but it has front panel controls that adjust the "speed" (left control) and the side tone "volume" (right control). The "speed" control has a "Pull ON and Push OFF" switch that keys the "KEYER OUTPUT" socket on the rear panel. This is typically used for vintage transmitter tuning. The HD-1410 has a pot, accessed below the PC board (bottom half of the cabinet clam shell must be removed) that has a "limited" side tone frequency adjustment. The HD-1410 operates on either 120VAC or 240VAC, determine by jumper wires that connect the dual

primary 120VAC windings. These jumper wires are soldered so some soldering is required to change the primary voltage from 120VAC to 240VAC and vice verse. The HD-1410 can also be powered from an external 12VDC 100ma DC supply.

Heathkit SA-5010. This is a memory keyer with build in/slide in paddles. I have no experience with this keyer so I cannot comment on it's features and ease of use.

There are a few vintage "vacuum tube" keyers such as the Hallicrafters HO-1 and the Eico 717, both use a fast acting reed type relay to key the transmitter. Both have built in 120VAC power supplies and both have adjustable Weight, Speed, side tone frequency, and Volume controls. I use my Eico 717 to key my Heathkit Apache TX-1 that uses "cathode" keying. Cathode keying voltage can be approximately +130VDC which can give the operator quite a jolt. Not all modern keyers can accept/key cathode voltages at that level.

There are other keyers that you can use with the KW hybrid. The above keyers are the ones I have experience with and have owned.

73
Mike W5RKL

On 12/19/2013 6:32 AM, michael.ponsford@... wrote:
>
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>
> I would like to add a Keyer (either with or without integral paddles)
> to my Kenwood TS-530S and would prefer to search for something of the
> same era, early 1980s.
> Is there a recommended Keyer for the TS-530S, perhaps a design classic
> of the times, with Negative keying like the TS-530S requires?
>
> I've noted that within the photos section of this group that the
> Heathkit Keyer with integral paddle is shown on at least one photo -
> perhaps something along these lines.
>
> Suggestions would be appreciated.
>
> Thanks in advance and Merry Christmas.
>
> Mick - M0GWD
> Portsmouth, UK
>
>

46511. Re: [TS-520_820_530_830] Recommended 'Classic' Keyer for TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 14:18:11 UTC
From: <w5rkl@...>
Topic: 46509 Message: 46511

Mick,

If you decide on the Heathkit HD-1410, a good keyer, the complete assembly manual is available on the web at the following link

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CCsQFjAA&url=http%3A%2F%2Ftubularelectronics.com%2FHeath_Manual_Collection%2FHeath_Manuals_H-HM%2FHD-1410%2Fhd-1410.pdf&ei=r_6yUoIUhKzbBY6qgcgE&usg=AFQjCNH2E8oSbqBdQjCxt7O-GzBKfwzXHw&bvm=bv.58187178,d.b2I

A 3.5mm stereo socket can be mounted on the HD-1410 keyer's rear panel and connected to the internal paddle terminals. This will give the operator the ability/option to use an external Iambic or non-iambic paddle with the HD-1410. It's an easy addition to the HD-1410 keyer. I like the HD-1410 keyer and use mine a lot.

73
Mike W5RKL

46512. Re: [TS-520_820_530_830] Recommended 'Classic' Keyer for TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 14:31:36 UTC
From: Mick
Topic: 46509 Message: 46512

Hello Mike, good morning

Thank you for the extensive reply. What a great group this is.
I do like the look of the Heathkit HD-1410 and it has good reviews on eHam too.
I'm not sure how many found there way to the UK though and were built as kits.

Having the option to power from 12V D.C. is good too, and as you say the A.C supply voltage can be changed for 240V, so I'll keep my eye open for those on sale both here and in the U.S.A.

This is exactly what I wanted Mike. Suggestions from someone with experience in using these keyers.
Also I've just picked up your other posting ref. the manual. Thank you.

All the best Mike and Happy Christmas from the UK.

73

Mick
M0GWD

On 19/12/2013 14:05, Mike wrote:
>
> Mick,
>
> There are numerous keyers that will work with the KW hybrids. Below
> are a few keyers that I have used, including a couple of vintage
> "vacuum tuber" keyers.
>
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> "internal" weight control that is accessible through a small hole on
> the cabinet or by removing the cabinet, while other MFJ keyers have
> the weight control on the front panel. The 407B and 407D can be
> powered by an external 12VDC power cube or by a 9 volt battery mounted
> internally. If you use a 12VDC power cube may sure you look at the
> brick. There are "AC" and "DC" cubes and if you apply 12VAC" to these
> keyers you can easily damage them. Also be aware that not all DC power
> cube's output voltage is regulated and will be exactly 12VDC. Unless
> the cube is a "regulated output voltage" power cube, the DC output
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>
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> non-Iambic keyer. The HD-10 keys negative "grid block" keying voltage
> up to -105VDC. The HD-10 has 3 controls, SPEED, WEIGHT, and VOLUME.
> The "WEIGHT" control is accessed through the screw driver slot on the
> top of the SPEED control knob using a small flat blade screw driver.
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> of the keyer. I have an HD-10 that I use with my Heathkit HX-10
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> without modifying the tone oscillator's circuit. The HD-10 has a built
> in 120VAC power supply.
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> transmitter using a 2 wire shielded cable. No internal jumpers to
> change. I use an HD-1410 with my Heathkit SB-400 xmtr. The HD-1410
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> used for vintage transmitter tuning. The HD-1410 has a pot, accessed
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> HD-1410 operates on either 120VAC or 240VAC, determine by jumper wires
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> keyers are the ones I have experience with and have owned.
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> 73
> Mike W5RKL
>
>
>

>
> On 12/19/2013 6:32 AM, michael.ponsford@... wrote:
>>
>> Hi to the group and Seasons Greetings
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>> Is there a recommended Keyer for the TS-530S, perhaps a design
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>> Thanks in advance and Merry Christmas.
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>> Mick - M0GWD
>> Portsmouth, UK
>>
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46513. Re: [TS-520_820_530_830] Recommended 'Classic' Keyer for TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 14:52:50 UTC
From: Mike
Topic: 46509 Message: 46513

Mick,

You're welcome.

You can change the "range" of the "Speed" control by simply changing the value of resistor R9.

Speeds between 10 and 60 wpm - R9 is 5.6K 1/2 watt

Speeds between 10 and 35 wpm - R9 is 10K 1/2 watt.

I installed a 10K resistor for R9.

One word of caution I forgot to mention. The paddle travel is adjustable by removing the top cover (loosen the side screws), slide the top cover up, then loosen the paddle's black lever's hold down screw then move the black lever "left" or "right" to move the contacts farther apart or closer together. The Keyer's power cable should be "pulled" from the rear of the keyer BEFORE you attempt this mechanical adjustment as 120 or 240VAC is present near the lever and it's easy to receive a 120/240VAC electrical shock if you are not very careful.

73
Mike W5RKL

73
Mike W5RKL

On 12/19/2013 8:31 AM, Mick wrote:
>
> Hello Mike, good morning
>
> Thank you for the extensive reply. What a great group this is.
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>> transmitter using a 2 wire shielded cable. No internal jumpers to
>> change. I use an HD-1410 with my Heathkit SB-400 xmtr. The HD-1410
>> does not have a weight control but it has front panel controls that
>> adjust the "speed" (left control) and the side tone "volume" (right
>> control). The "speed" control has a "Pull ON and Push OFF" switch

>> that keys the "KEYER OUTPUT" socket on the rear panel. This is
>> typically used for vintage transmitter tuning. The HD-1410 has a pot,
>> accessed below the PC board (bottom half of the cabinet clam shell
>> must be removed) that has a "limited" side tone frequency adjustment.
>> The HD-1410 operates on either 120VAC or 240VAC, determine by jumper
>> wires that connect the dual primary 120VAC windings. These jumper
>> wires are soldered so some soldering is required to change the
>> primary voltage from 120VAC to 240VAC and vice verse. The HD-1410 can
>> also be powered from an external 12VDC 100ma DC supply.
>>
>> Heathkit SA-5010. This is a memory keyer with build in/slide in
>> paddles. I have no experience with this keyer so I cannot comment on
>> it's features and ease of use.
>>
>> There are a few vintage "vacuum tube" keyers such as the
>> Hallicrafters HO-1 and the Eico 717, both use a fast acting reed type
>> relay to key the transmitter. Both have built in 120VAC power
>> supplies and both have adjustable Weight, Speed, side tone frequency,
>> and Volume controls. I use my Eico 717 to key my Heathkit Apache TX-1
>> that uses "cathode" keying. Cathode keying voltage can be
>> approximately +130VDC which can give the operator quite a jolt. Not
>> all modern keyers can accept/key cathode voltages at that level.
>>
>> There are other keyers that you can use with the KW hybrid. The above
>> keyers are the ones I have experience with and have owned.
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>>
>> On 12/19/2013 6:32 AM, michael.ponsford@... wrote:
>>>
>>> Hi to the group and Seasons Greetings
>>>
>>> I would like to add a Keyer (either with or without integral
>>> paddles) to my Kenwood TS-530S and would prefer to search for
>>> something of the same era, early 1980s.
>>> Is there a recommended Keyer for the TS-530S, perhaps a design
>>> classic of the times, with Negative keying like the TS-530S requires?
>>>
>>> I've noted that within the photos section of this group that the
>>> Heathkit Keyer with integral paddle is shown on at least one photo -
>>> perhaps something along these lines.
>>>
>>> Suggestions would be appreciated.
>>>
>>> Thanks in advance and Merry Christmas.
>>>

>>> Mick - M0GWD
>>> Portsmouth, UK
>>>
>>
>
>
>
> ---
> <http://www.avast.com/>
>
> This email is free from viruses and malware because avast! Antivirus
> <http://www.avast.com/> protection is active.
>
>
>

46514. Re: [TS-520_820_530_830] Recommended 'Classic' Keyer for TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 15:01:52 UTC
From: Mick
Topic: 46509 Message: 46514

Hello Mike

Thanks for the extra info. It is appreciated.
Safety is paramount.

73

Mick
M0GWD

On 19/12/2013 14:52, Mike wrote:
>
> Mick,
>
> You're welcome.
>
> You can change the "range" of the "Speed" control by simply changing
> the value of resistor R9.
>
> Speeds between 10 and 60 wpm - R9 is 5.6K 1/2 watt
>
> Speeds between 10 and 35 wpm - R9 is 10K 1/2 watt.
>
> I installed a 10K resistor for R9.
>
> One word of caution I forgot to mention. The paddle travel is
> adjustable by removing the top cover (loosen the side screws), slide
> the top cover up, then loosen the paddle's black lever's hold down
> screw then move the black lever "left" or "right" to move the contacts
> farther apart or closer together. The Keyer's power cable should be
> "pulled" from the rear of the keyer BEFORE you attempt this mechanical
> adjustment as 120 or 240VAC is present near the lever and it's easy to
> receive a 120/240VAC electrical shock if you are not very careful.
>
> 73
> Mike W5RKL
>
>
> 73
> Mike W5RKL
>
>
>
> On 12/19/2013 8:31 AM, Mick wrote:
>>
>> Hello Mike, good morning

>>
>> Thank you for the extensive reply. What a great group this is.
>> I do like the look of the Heathkit HD-1410 and it has good reviews on
>> eHam too.
>> I'm not sure how many found there way to the UK though and were built
>> as kits.
>>
>> Having the option to power from 12V D.C. is good too, and as you say
>> the A.C supply voltage can be changed for 240V, so I'll keep my eye
>> open for those on sale both here and in the U.S.A.
>>
>> This is exactly what I wanted Mike. Suggestions from someone with
>> experience in using these keyers.
>> Also I've just picked up your other posting ref. the manual. Thank you.
>>
>> All the best Mike and Happy Christmas from the UK.
>>
>> 73
>>
>> Mick
>> M0GWD
>>
>>
>> On 19/12/2013 14:05, Mike wrote:
>>>
>>> Mick,
>>>
>>> There are numerous keyers that will work with the KW hybrids. Below
>>> are a few keyers that I have used, including a couple of vintage
>>> "vacuum tuber" keyers.
>>>
>>> MFJ 407B and 407D. MFJ has a series of CW keyers you can choose
>>> from, see their website for details on all models. Most all of MFJ's
>>> keyers have built in side tone oscillators that are adjustable in
>>> volume and tone, typically by front panel controls. Some MFJ keyers
>>> have an "internal" weight control that is accessible through a small
>>> hole on the cabinet or by removing the cabinet, while other MFJ
>>> keyers have the weight control on the front panel. The 407B and 407D
>>> can be powered by an external 12VDC power cube or by a 9 volt
>>> battery mounted internally. If you use a 12VDC power cube may sure
>>> you look at the brick. There are "AC" and "DC" cubes and if you
>>> apply 12VAC" to these keyers you can easily damage them. Also be
>>> aware that not all DC power cube's output voltage is regulated and
>>> will be exactly 12VDC. Unless the cube is a "regulated output
>>> voltage" power cube, the DC output voltages can be as high as "+19VDC".
>>>
>>> Heathkit HD-10, Heathkit's first attempt at marketing a single lever
>>> non-Iambic keyer. The HD-10 keys negative "grid block" keying
>>> voltage up to -105VDC. The HD-10 has 3 controls, SPEED, WEIGHT, and
>>> VOLUME. The "WEIGHT" control is accessed through the screw driver

>>> slot on the top of the SPEED control knob using a small flat blade
>>> screw driver. Iambic paddles can be used with the HD-10 even though
>>> the HD-10 is not an Iambic keyer, they are connected to the terminal
>>> strip on the end of the keyer. I have an HD-10 that I use with my
>>> Heathkit HX-10 Marauder. The HD-10's side tone "frequency" is not
>>> readily adjustable without modifying the tone oscillator's circuit.
>>> The HD-10 has a built in 120VAC power supply.
>>>
>>> Heathkit HD-1410 was Heathkit's first Iambic keyer with built in
>>> Iambic paddles. The HD-1410 can key both positive (+300VDC at 200ma)
>>> and negative (-200VDC at 10ma) by simply connecting the keyer to the
>>> transmitter using a 2 wire shielded cable. No internal jumpers to
>>> change. I use an HD-1410 with my Heathkit SB-400 xmtr. The HD-1410
>>> does not have a weight control but it has front panel controls that
>>> adjust the "speed" (left control) and the side tone "volume" (right
>>> control). The "speed" control has a "Pull ON and Push OFF" switch
>>> that keys the "KEYER OUTPUT" socket on the rear panel. This is
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>>> pot, accessed below the PC board (bottom half of the cabinet clam
>>> shell must be removed) that has a "limited" side tone frequency
>>> adjustment. The HD-1410 operates on either 120VAC or 240VAC,
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>>> windings. These jumper wires are soldered so some soldering is
>>> required to change the primary voltage from 120VAC to 240VAC and
>>> vice verse. The HD-1410 can also be powered from an external 12VDC
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>>>
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>>> paddles. I have no experience with this keyer so I cannot comment on
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>>> type relay to key the transmitter. Both have built in 120VAC power
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>>> frequency, and Volume controls. I use my Eico 717 to key my Heathkit
>>> Apache TX-1 that uses "cathode" keying. Cathode keying voltage can
>>> be approximately +130VDC which can give the operator quite a jolt.
>>> Not all modern keyers can accept/key cathode voltages at that level.
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>>> above keyers are the ones I have experience with and have owned.
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>>> Mike W5RKL
>>>
>>>
>>>
>>>
>>> On 12/19/2013 6:32 AM, michael.ponsford@... wrote:

>>>>
>>>> Hi to the group and Seasons Greetings
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>>>> paddles) to my Kenwood TS-530S and would prefer to search for
>>>> something of the same era, early 1980s.
>>>> Is there a recommended Keyer for the TS-530S, perhaps a design
>>>> classic of the times, with Negative keying like the TS-530S requires?
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>>>> I've noted that within the photos section of this group that the
>>>> Heathkit Keyer with integral paddle is shown on at least one photo
>>>> - perhaps something along these lines.
>>>>
>>>> Suggestions would be appreciated.
>>>>
>>>> Thanks in advance and Merry Christmas.
>>>>
>>>> Mick - M0GWD
>>>> Portsmouth, UK
>>>>
>>>
>>
>>
>>
>> --
>> <http://www.avast.com/>
>>
>> This email is free from viruses and malware because avast! Antivirus
>> <http://www.avast.com/> protection is active.
>>
>>
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46515. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 16:23:42 UTC
From: Michael Sylvester
Topic: 46489 Message: 46515

Sorry Mike, I'll try to stay on the preferred subject .
Michael
Does nobody know anything about VFOs and digital display repairs or ya gonna make me search the archives, huh?

From: Mike <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, December 19, 2013 5:53 AM
Subject: Re: [TS-520_820_530_830] repairs

If members wish to continue this discussion please take it off group.

Thank you and 73
Mike W5RKL
Moderator

On 12/19/2013 5:12 AM, Michael Sylvester wrote:

>Odd, none of the buttons below are functioning.
>
>to:
>Wes Will
>N9KDY
>
>I think You've earned your chops Will.
>Being a "biggest Pig" blue ribbon winner, Hah! Is not my goal.
>Yes I understand what you're saying. There's so much new technology these days compared to my novice year...42 years ago...I'll never understand it all and prolly never talk to the space station or do slow scan tv or bounce satellites....
>I still maintain that even if you didn't take a test, using the books to learn, NOT reading 75% wrong information is a good thing. I'm done got old, my brain has been throwing out old files just to open memory space.......dangit sometimes the wrong files......
>I don't want to clutter it and absorb useless confusing counterproductive data.......And YES, I do have tech manuals and I'm absorbing there....
>Michael///KD0WSJ
>
>
>From: Wes Will mailto:wwill@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Wednesday, December 18, 2013 8:54 PM
>Subject: Re: [TS-520_820_530_830] repairs
>
>
>
>

>> Read only correct answers.cut learning curve in half.
>
>Or maybe perhaps kinds could be you MIGHT want to study the theory and
>the rest of the information BEHIND the questions, learn what the whole
>thing is about, and THEN take the test for whatever level license.
>
>I can get a ten-year-old with a good memory through the EXTRA exam, but
>GOD help that ten-year-old kid when an "I actually studied the
>information" General license holder asks him a question that isn't one
>of the test questions.
>
>The IDEA behind having an EXTRA license in the first place was NOT to
>churn out a lot of people with that license. It was to give a nod to
>those of the amateur community whom were diligent and capable enough to
>learn all there was to know (or all they could, anyway) about the hobby.
>
>I waited TWENTY YEARS as a Tech licensee, before I took the General and
>on a lark, the Extra tests, knowing I was going to pass the General,
>easily. Getting through the Extra exam missing only two questions
>SCARED THE CRAP OUT OF ME. All I could think of was NOW WHAT DO I DO?
>SOMEBODY'S GONNA FIND OUT I'M A FRAUD! I DON'T KNOW ALL THAT STUFF THAT
>WELL!
>
>I didn't change my call when I got the Extra license, because I didn't
>want to advertise my un-earned "Biggest Pig, County Fair" Blue Ribbon.
>
>What it HAS done has made me study my head off, and when someone does
>ask something, I dig in to it and work like a nut to find the answer for
>them. I don't feel that I have yet earned the chops that have always
>been given to Extra licenses. But I'm trying, because I don't want to
>let the side down.
>
>Please reconsider, think about NOT doing an exam-cram.
>
>It thins the blood.
>
>--
>Wes Will
>N9KDY
>Amateur Extra
>
>
>
>

46516. Re: [TS-520_820_530_830] repairs

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 16:31:23 UTC
From: Joe - W7RKN
Topic: 46489 Message: 46516

Good luck searching the archives...This new NEO interface works wonders in 'searching'...Shortens the search time down to nothing....(That happens when one says, "Screw it!" I'll just ask the group.) <<GRIMACING>>

Anyone have any thoughts on why a VFO820 is not stable? My poor old, geezer fingers can't keep up with it when it starts to drift.....I am guessing leaky caps? Any other items to look at?

Joe - W7RKN
----- Original Message -----
From: Michael Sylvester
Subject: Re: [TS-520_820_530_830] repairs

Sorry Mike, I'll try to stay on the preferred subject .
Michael
Does nobody know anything about VFOs and digital display repairs or ya gonna make me search the archives, huh?

46517. Re: [TS-520_820_530_830] VFO and Display issues.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 16:46:02 UTC
From: Michael Sylvester
Topic: 46501 Message: 46517

Thought I would reply to myself to resubmit my question.
If no replies I'll say shucky darn and figger it out on my own.
I'm good at that but I do like shortcuts.
Learning from others that have been down the road before me.
Might have to learn how to use the archive search.
Thanks ahead of time.
Michael///KD0WSJ

From: "sylvstrmchl@yahoo.com" <sylvstrmchl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, December 18, 2013 6:35 AM
Subject: [TS-520_820_530_830] VFO and Display issues.

First I'd like to thank you all for tolerating me (so far) and for the knowledge you have generously shared with me. I know your time is valuable, much more than so than mine and that most of the material I'm squeezing from you has been covered before at length.

I should, I geuss learn to search the archives to save you all the flustermation of my ignorance, confusions and diatribes.
What would be the fun in that? You Gentlemen would not get the satisfaction of leading a Newbie carefully through the learning curve and would not get the welcome break from the decades long task of the sometimes boring repetitive repairs.
Right?
(See, here I go again....).

I've got (5) TS-820S units now. Latest purchase came from California, kid couldn't sell it in 2 seperate week long sales attempts. Bid sales starting at $200 plus $40 shipping. I offered him $150 shipped he said he'd part it first, I showed him other "choppers" that weren't selling HARDLY ANYTHING in the last 2 weeks.
I offered him $200 shipped last week which he accepted.
Received yesterday.
Good job packing, 3 layers big bubbles and a tall stiff cup over the dial, good idea, a US flag sticker under my name and address label, nice touch.
He stuffed the remainder of the box with the "over pipe" type foam insulation, it performed well, never saw that before but it worked good.Single 3 layer box. Came in good condition through USPS in about 5-6 days from Cali to Missouri.

Radio is an old dog. Looks to have been stored in a basement or outdoor storage, quite alot of rust and lost case paint, exposed to moisture.
Display flickers alot at high end of dial. No transmit and sounds like some arcing.....
Meter stays up at 3db and no sig in receive in speakers.
Good parts radio candidate.
I think 3 Of my units do the flickering......

The radio presently being serviced, detailed (cleaned) was flickering and quit altogether last time on the bench. K4EAA pulls the VFO side cover and douses with Deoxit. I'd like to do more than that. While doing my brushing microsurgery on the RF board Wafers with it out of the radio, I am able to easily remove VFO side cover and almost stick my head into the VFO.
What is it in there that causes the problems?
I observe a leaf spring loooking copper 1/2" X 1/2" sheet metal curved piece on the back end of the variable cap center shaft.
Is this a mechanical electrical connection?
What needs cleaning and what causes the flickering display? I've scratched under the points where the "leaf spring" touches the shaft and where it touches the back wall of the shaft mount or chassis. Carefully bent it to add some arch, or spring tension, it seemed tired and not much spring or pressure against the shoulder on the shaft.
This display quit completely shortly after unit arrived. Alot of flicker then quit entirely.
I've tried swapping the entire "metel box" the display plugs into with a "known working" set from another radio, no change.
I pulled the front off that parts radio and pulled the tube display itself, plugged it into the board, no display, does it need to be well grounded? (I don't think so, the brackets that the display is mounted in are heavily black oxide coated, ground through wiring and board it plugs into I would assume).
I had been up for way too many hours (over 30 with the last 8 into the radio) and said that's enough for one day.
The box and set of boards I pulled have been removed from the metal box and I'm ready to do the "solder through board" connections repair. Holding board 1160 up to the light I see 15 of these "through board solder connections. Is 15 all of them?
On the 1150 board I'm not seeing any through board connections, correct?
Checking pins to board solder joints under magnification I find one loose pin, Pin 1, "CVC" on the portion of the board that protrudes through bottom of Chassis to lower part of radio.
I'll have to strip some insulated solid copper 22 gauge wire for now, to do the solder through board repairs. (just ordered some bare copper 22 gauge for these repairs on eBay).

So, questions are, what inside VFO is causing these problems, what is best way to fix, spray with Deoxit and pray?
Is there an easier way to remove Dig display other than pulling knobs and face? What a pain. (I did buy one casio calculator and have a bid on another to steal those displays)
I've had the vernier and all off down to the gears, how tough is it to get the VFO out of these old dogs? Pull that alumnum box and get at whatever is causing trouble easier and achieve a more permanent fix?
Am I right about that "leaf spring"? Is it a connection? or
what do I burn with my 15 gigawatt laser?
I'll get around to troubleshooting by checking what is supposed to be on what pins....only if I have to, after eliminating all mechanical issues, which I think ARE the VFO/display problems for the most part.
My initial understanding is that most display problems are in the VFO and most are cured by a good dose of Deoxit.
Gotta be a better solution than spray.....
Also aware the Modex plug for display is often troublesome.

Thanks beforehand Gentlemen,
Where do I send the check?

Michael///KD0WSJ

PS. This window (Post new Topic) functioned much better than the reply window....without the nauseating delays. Gotta be a better way without going to word or notepad.......WAIT!!! That's why all you guys do not have the previous messages when you post!! You are using a different route. You dogs. You let me suffer all this time.....

46518. SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-19 18:32:29 UTC
From: Peter Ravn
Topic: 46257 Message: 46518

Mike,

Good news! My TS830S passed the first tests with driver and final tubes removed. No smoke or unusual sounds. Bias voltages run smoothly from - 40 VDC to - 110 VDC on FG. Screen voltages are + 265 VDC on SG. The panel meter works normally again, and so does the receiver. The next and final test will be with tubes installed.

I am waiting for the final cage kit from KE7OAY, and tomorrow I will have a new set of 6146B□s to replace the ones that turned RED. You stress that I should not reuse the same tubes. Why not?

Thanks a lot for your outstanding help.

73

Peter OZ8CTTH

Fra: Peter Ravn [mailto:fasan5@...]
Sendt: 14. december 2013 17:09
Til: 'TS-520_820_530_830@yahoogroups.com'
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I found the smoking gun today: R102, a 10 k ohms resistor connecting Q10 on the AF unit to the FG terminal on the board. The resistor is severely discoloured, but surprisingly not open. It will naturally be replaced.

73

Peter, OZ8CTH

a: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 14. december 2013 09:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY. When it is installed, and R11, R15 and R16 on the rectifier have been replaced, I will follow your instruction and let you know the result.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 11. december 2013 22:15
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices, www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02

Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal

noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either, so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to

"hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

46519. Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 03:27:22 UTC
From: W5RKL
Topic: 46257 Message: 46519

Peter,

That's great to hear your 830 is coming back to life.

You said the plates turned RED in the 6146s. You don't know what damage may have occurred in the tubes when that happened. You said with the tubes removed there is no smoke and no unusual sounds. You also said the voltages are changing as they should when testing between receive and transmit, at least that is what I got out of what you said. Therefore, that's why I would not use the original tubes. It's also possible the original tubes themselves may have caused some or all of your problems.

73
Mike W5RKL

On 12/19/2013 12:32 PM, Peter Ravn wrote:
>
> Mike,
>
> Good news! My TS830S passed the first tests with driver and final
> tubes removed. No smoke or unusual sounds. Bias voltages run smoothly
> from - 40 VDC to - 110 VDC on FG. Screen voltages are + 265 VDC on
> SG. The panel meter works normally again, and so does the receiver.
> The next and final test will be with tubes installed.
>
> I am waiting for the final cage kit from KE7OAY, and tomorrow I will
> have a new set of 6146B's to replace the ones that turned RED. You
> stress that I should not reuse the same tubes. Why not?
>
> Thanks a lot for your outstanding help.
>
> 73
>
> Peter OZ8CTTH
>
> *Fra:*Peter Ravn [mailto:fasan5@...]
> *Sendt:* 14. december 2013 17:09
> *Til:* 'TS-520_820_530_830@yahoogroups.com'
> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
> Mike,
>
> I found the smoking gun today: R102, a 10 k ohms resistor connecting
> Q10 on the AF unit to the FG terminal on the board. The resistor is
> severely discoloured, but surprisingly not open. It will naturally be
> replaced.

>
> 73
>
> Peter, OZ8CTH
>
> *a:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Peter Ravn
> *Sendt:* 14. december 2013 09:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Mike,
>
> I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY.
> When it is installed, and R11, R15 and R16 on the rectifier have been
> replaced, I will follow your instruction and let you know the result.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 11. december 2013 22:15
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> I made a couple of mistakes.
>
> First, I gave you the wrong final amplifier tube socket pin number to
> measure the final tube's screen voltage, it should be pin 3 instead of
> pin 5.
>
> I also left out, accidentally deleted it, where I asked you to check
> the bias voltage at the final amplifier's tube socket, pin 5, You
> should measure the grid voltage in transmit and adjust the bias pot.
> You should see a smooth increase and decrease in bias voltage on pin 5
> of the final tube socket when adjusting the bias pot.
>
> Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF

> choke along with a few other components. Check his website for prices,
> www.k4eaa.com <http://www.k4eaa.com> .
>
> Sorry for the mistakes.
>
> 73
> Mike W5RKL
>
> On 12/11/2013 12:30 PM, Peter Ravn wrote:
>
> Mike,
>
> This is what I found today. I rechecked the inside of the final
> amplifier and found no obvious signs of overheating. I measured
> the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I
> lifted the small RF choke (L1), which was 0.5 ohms and only 0.035
> uH instead of 470 uH. To be absolutely sure I repeated the
> measurement five or six times. So apparently L1 has gone bad and
> should be replaced. The thing is how to get it.
>
> In the RF unit I checked resistors R6 and R7, and they are ok. I
> also checked C181 and C182 in the IF unit. One was 27 uF, the
> other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16
> 70 K. They should be 57 K and will be replaced together with the
> infamous R11, which suddenly looked overheated though not open.
>
> To be continued...
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 11. december 2013 17:02
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Hi Peter,
>
> You said you checked the inside the final amplifier. Did you
> visually inspect the 2 RF chokes in the final amplifier? There are
> 2, the large vertical choke between the 2 final tubes and small
> choke on the chassis near the final tube sockets, it looks like a
> resistor. It's on the top of the final amplifier section of the
> chassis.

>
> Also, do you have a known good pair of 6146Bs? I wouldn't trust
> the ones that were in the 830 when the smoke and RED plates
> occurred. If not then obtain a known good pair of 6146Bs to
> replace the old 6146Bs.
>
> I recommend you leave the driver and both finals out of the 830.
> Make sure the final plate caps can't touch/short to anything, then
> connect a DC volt meter's Black lead to the Final Unit's "FG"
> terminal and the meter's Red lead to the chassis. Set the DC volt
> meter to measure a minimum of 200VDC. Set the Mode switch to USB
> or LSB, and power up the 830. If any abnormal noise are heard or
> you see smoke, turn the 830 off immediately and locate the source
> of the noise/smoke and fix it before proceeding. If everything
> appears normal then flip the SEND switch UP and note the bias
> voltage on the DC volt meter. Rotate the bias pot either side of
> center rotation, you should see a smooth increase and decrease of
> the bias voltage. Unkey the transmitter.
>
> Repeat the test except this time you will be measuring the final
> tube's screen voltage on pin 5 of the final tube socket. You
> should see approximately +265VDC. The screen voltage will not
> change much, if at all, when you switch from receive to transmit
> then back to receive. This is because there are no final tubes in
> the final amplifier so screen current will flow in the screen
> circuit. Unkey the 830 and power the 830 OFF.
>
> If there are no problems encountered during the above test,
> proceed to the next test. However, as I said above, if there are
> any problems encountered do NOT proceed with the next test,
> determine the cause of the problem and fix it before you proceed.
>
> Set the SG switch to "OFF", power up the 830, and note the final
> tube screen voltage, pin 5 on the tube socket and "SG" terminal on
> the Final Unit. The voltage should be approximately "-100VDC" and
> the Relay RL1 on the Rectifier Unit should be energized. Power the
> 830 OFF and set the SG Switch to ON and repeat the final tube
> screen voltage check, it should be approximately +265VDC and Relay
> RL1 on the Rectifier Unit should NOT be energized.
>
> If those test/checks are good then power off the 830, let the HV
> filter capacitors bleed to zero (check HV caps with a DC volt
> meter) then install the driver and a pair of "known good" 6146Bs
> in the final amplifier.
>
> Set the SG switch to OFF, power up the 830, and set HEATER switch
> to ON. Allow about an minute for tube warm up. Look and listen for
> any abnormal noises and smoke. If you see and/or hear any smoke
> and/or abnormal noise, power the 830 OFF immediately and locate
> the source of the problem and fix it before you proceed.

>
> Set meter switch to ALC, CAR knob full CW, DRIVE control to 12
> o'clock, band switch to 7, and SEND Switch UP. Again, if any
> problems such as abnormal sounds, smoke, etc., are seen/heard,
> turn the 830 OFF immediately. If no problems occur, adjust the
> DRIVE control for a peak indication. If meter pegs full to the
> right, reduce the CAR Control CCW so the meter pointer is pointing
> at or near 12 o'clock and continue adjusting DRIVE control for a
> peak ALC meter indication. Again, if any problems occur,
> regardless of what those problems may be, unkey the transmitter
> immediately!! If the problems continues, you smell something
> getting hot or you see smoke, power the 830 OFF immediately and
> determine the cause of the problem and fix it before you proceed
> any further.
>
> Measure all final tube socket and Final Unit voltages on the "foil
> side" of the Final Amplifier Unit. Attempting to measure the final
> tube's screen and grid voltage through the top of the tube sockets
> can easily result in your hand/fingers and meter probes coming in
> contact with the HV on the RF choke and the plate cap parasitic
> suppressors. Use caution when measure DC voltage, as you know
> there are voltages in the 830 that can easily kill you so take
> your time and pay attention to what you are doing. Do not attempt
> to perform any of these test/voltage measurements when you are tired.
>
>
> 73
> Mike W5RKL
>
> On 12/10/2013 12:03 PM, Peter Ravn wrote:
>
> Mike,
>
> I carefully followed your instructions, and this is what I
> have found:
>
> All four cathode resistors in the final unit are within specs:
> R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They
> didn't look overheated either, so there was no need to replace
> them. But the screen resistors looked somewhat bleak. R7 was
> 119 ohms and R8 109 ohms, so they were replaced. I carefully
> inspected the board and found no smoking gun. Finally I
> cleaned the board on both sides and replugged it.
>
> With my ohm meter I spotted the erratic behavior of the bias
> pot you mention. After a careful cleaning the pot now shows
> smooth change of resistance when rotated. The resistance is
> now also identical on both terminals.
>
> I opened the final cage and removed the final tubes. In the

> cage there was no sign of overheating. I also removed the
> driver tube.
>
> On the reticifier R11 survived the battle, but with clear
> traces of overheating.
>
> This is status until now. I will continue the troubleshooting
> as soon as I find time.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 10. december 2013 13:55
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> It appears the bias pot is the source of instability when
> setting the 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled down to
> zero before you attempt any of the following checks and
> cleaning steps.
>
> Before you perform the following cleaning and testing process,
> thoroughly check the Final Unit's Cathode and Screen
> resistors. If there is evidence the resistors are damaged
> (overheated) or any of the resistors are out of tolerance,
> replace all of them. For example, if you find 2 of the 4
> cathode resistors have overheated, replace all 4 of them with
> new resistors. The same for the screen resistors, if one if
> bad or out of tolerance then replace both with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner. Exercise
> the pot throughout it's travel, many times, during the
> cleaning process. I use DeoXit F5 Fader cleaner for pots then
> I use canned air to remove all cleaner residue and any dirt
> from the pot. I then test the pot using an ohm meter connected
> between the pot's wiper (center terminal) and any of the
> outside terminals. I rotate the pot slowly watching the ohm
> meter to see if any position results in erratic behavior. If I

> see erratic behavior I clean the pot again, thoroughly then
> retest the pot. Once the pot exhibits smooth resistance
> changes I consider the pot clean.
>
> Remove the Driver and both Final tubes and make sure the plate
> caps cannot touch anything or short to the chassis etc.
>
> You should use an analog DC volt meter for the following test.
> The meter should have a low voltage setting of approximately
> 200 to 250VDC. Set the meter to either low voltage setting,
> which ever your analog meter has.
>
> Connect the analog DC volt meter to the Final Unit's "FG"
> terminal and ground (RED lead to FG terminal and BLACK lead to
> the Chassis). With you finger on the main power switch, power
> up the 830. If you see smoke or hear unusual sounds turn the
> 830 off immediately and find what is causing the smoke and/or
> unusual sounds and eliminate the problem before proceeding. If
> there is no smoke and no unusual sounds, continue on to the
> next step.
>
> Set the mode switch to USB or LSB and set the SEND switch UP.
> Again, any unusual sounds or you see smoke, unkey the 830 and
> turn it off immediate. If all is okay so far then adjust the
> bias pot while watching the analog DC volt meter. The meter
> indication should rise and fall, depending on the direction
> you are rotating the bias pot indicating a smooth change in
> voltage as you rotate the bias pot. If this occurs, move the
> analog DC volt meter RED lead to pin 5 on the final tube
> socket foil side of the Final Unit PC board and repeat the
> bias pot adjustment, watching the meter closely, especially
> noting the volt meter movement at the low negative level of
> bias voltage, i.e., around the -50 to -70 VDC range. You
> should see the same results, a smooth increase and decrease of
> the bias voltage. If this test indicates a smooth change in
> bias voltage, no instability in the bias pot voltage indicated
> on your analog DC volt meter, then the bias circuit is working
> properly. The test results should be achieved using the analog
> DC volt meter connected to the AF Unit's "FG" terminal. The AF
> Unit and Final Unit "FG" terminals are connected together with
> a wire in the wiring harness. You can see this on the 830
> schematic.
>
> Do not reuse the same 6146 tubes, obtain known good 6146Bs.
>
> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>

>
>
>
>
> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit terminal,
> on terminals 210A and 210B on the rectifier and on SG on
> the final unit. After some time I managed to get 60 mA
> idle current and started tuning up. The transmitter seemed
> somewhat unstable, and the panel meter would not zero in
> STAND-BY. A scary noise was suddenly heard, whereupon the
> finals turned deadly red and the fuse on the rear blew.
> When I replaced the fuse and turned on the radio again,
> smoke came from somewhere between the AF and the RF unit.
> End of today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af
> *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You also might check the RF Unit's voltage divider
> resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me
> those resistors are some times changed to "hot rod" the
> hybrids. I wasn't aware those resistors were changed to
> "hot rod" the hybrids so check them.
>
> Also, check the final unit's R7 and R8, both 100 ohms.
> They are the final unit's "screen resistors". If they both
> measure within tolerance you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and R37 on the

> RF unit and R7 and R8 on the Final Unit board. Also let me
> know if you can tune your 830 up to full power into your
> dummy load.
>
> 73
> Mike W5RKL
>
>
>
> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the rectifier. On
> terminal 210A there are zero VDC, and on terminal 210B
> there are 264 DVC. If I bypass the open R11, I get 263
> DVC on terminal 210A. No wonder that I see no voltages
> on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Mike
> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will result in
> 210A voltage to be "0VDC" just as I said it would.
>
> I said you should recheck your voltages on the
> Rectifier Unit's 210A and 210B terminals, it appeared
> you had them "backwards". Once you found R11 was open,
> did you recheck the 210A and 210B voltages as I asked
> you do to? Since you say R11 is "open" then, as I
> indicated above, the voltage on the Rectifier Unit's
> "210A" terminal is "0VDC". You initially said the
> voltage on the Rectifier Unit's "210B" terminal was

> "0VDC" which I didn't believe you and so I asked you
> to recheck your voltages. What is the voltage on the
> Rectifier Unit's "210B" terminal?
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>
> Thanks to your patience and conscise instruction I
> found the culprit: R11 is open. I checked all the
> other diodes on the rectifier board, including the
> D6 you mentioned, and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace the
> bad one, but before doing so I should like to know
> what made R11 open. What else to check before
> firing up my TS830S?
>
> Once again thanks for your help. It is outstanding.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You measured +263VDC at 210A but zero VDC at 210B?
> That doesn't make sense. I think you have the
> voltage measurements at the Rectifier Unit's 210A
> and 210B "backwards". I think the Rectifier Unit's

> "210A" terminal voltage is "0VDC" and the
> Rectifier Unit's "210B" terminal voltage is
> "+263VDC". You need to "recheck" the voltages on
> the Rectifier Unit's "210A" and "210B" terminals.
>
> You also did not comment on the condition of "R11"
> (470 ohm) on the Rectifier Unit I asked you to do.
> Did you visual inspect R11? Did you measure the
> resistance of R11? If R11 is "open" then the
> Rectifier Unit's "210A" terminal voltage will be
> "0VDC" which will results in 0VDC on the RF Unit
> plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and
> the Final Unit's "SG" terminal and the final
> tube's screen, pin 3.
>
> Are you using the TS-830 schematic to troubleshoot
> this problem? You need to do that.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9 pin2
> (210A). On 210A on the rectifier there are 263
> DVC, but zero on 210B, so where does that
> leave us?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>

>
> Peter,
>
> The Rectifier Unit's HV supply is a "Voltage
> Doubling" supply. Therefore, you will not see
> 800VAC on the transformer's "800AC" terminal.
> I recommend you spend some time studying how
> voltage doubling supplies work. The ARRL
> handbook has a section that covers different
> types of power supplies, including voltage
> doubling supplies.
>
> Your problem does not appear to be a bias
> problem but rather a loss of screen voltage to
> the driver and both final tubes.
>
> Loss of screen voltage to the driver and both
> final tubes will shut those tubes "down", no
> conduction in the tubes will occur. That means
> you will not see any drive from the driver
> tube to the final amplifier, no final tube IP
> current indication of any kind in any mode,
> and the final amplifier's cathode voltage will
> be zero.
>
> The reason the final tube cathode voltage is
> zero is simply because there is no current
> flowing in the final tubes. This is part of
> vacuum tube theory which is discussed in the
> ARRL handbook, early editions are the best or
> you can study the same theory in John T.
> Fryes, Basic Radio Course which is available
> in CD form from a seller on eBay.
>
> Since you have already checked the final
> tube's screens for voltage and found it to be
> zero, now check the RF Unit plug 9 pin 2
> (210A). This is the driver tube's screen
> voltage from the Rectifier Unit's 210A source.
> If voltage is zero at RF Unit plug 9 pin 2, is
> zero check the Rectifier Unit's "210A" and
> "210B" supply outputs. If voltage at 210A
> "and" 210B are zero, check Rectifier Unit
> diode D6, it's most likely "open" resulting in
> zero voltage at 210A and 210B, hence zero
> screen voltage to the driver and both final
> tubes. Visually inspect R11, 470 ohm resistor
> on the Rectifier Unit. Resistor R11 is
> physically located on the Rectifier Unit but
> R11 is connected between the positive

> terminals of C180 and C181 which are on the IF
> Unit.
>
> If D6 is open, check C180 and C181, both are
> 22ufd 350VDC "Radial lead" capacitors on the
> IF unit, they are the filter capacitors for
> the Rectifier Unit's 210A and 210B supply, one
> or both could be shorted which would take out
> D6 resulting in zero Rectifier Unit 210A and
> 210B voltage, hence no screen voltage to the
> driver and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>
> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no
> voltages on TUNE, SG1, SG2, PD1 and PD2.
> On AC800 there are only 324 VAC instead of
> 800 VAC. Voltages on all other terminals
> on the rectifier board are ok, including
> the bias voltage which is -- 110 DVC. R15
> was checked and found ok. The preliminary
> conclusion is that the finals are getting
> no screen voltage from the rectifier.
>
> In TUNE/SEND the panel meter shows 900 DVC.
>
> When the HEATER is switched on, the
> filaments in the finals come alive.
> Voltages on the filaments are according to
> specs. There are -- 103 DVC on the grids
> (pins 5), and with the bias potentiometer
> on the rear the voltages can be adjusted
> from -- 93 to -103 VDC. So this part
> seems to work . But there are no voltages
> on the screen or on the cathode. Screen
> and cathode resistors were checked and
> found ok, so the problem must be somewhere

> else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830]
> TS830S no bias
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>
> Mike,
>
> A new careful measurement gave another
> result. On the rectifier there are -- 109
> DVC in STAND-BY and -- 107 DVC in TUNE. On
> pins 5 of the final unit there are -- 96
> DVC in STAND-BY and -- 57 DVC in TUNE. So
> apparently there is a loss, but not a
> complete loss of bias voltage, which might
> prove fatal.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> Loss of bias voltage to the final tubes

> will result in the final tubes conducting
> to saturation levels even in receive. Loss
> of bias voltage to the final tubes may
> have permanently damaged your final tubes.
>
> Have you checked/measured the bias voltage
> at the Rectifier Unit's "-C" terminal?
>
> I recommend you troubleshoot the bias
> supply from the Rectifier Unit "-C" to the
> final tubes to find where the loss of bias
> voltage is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>
> I followed the standard procedure. I
> turned the POWER and HEATER switches
> on, placed the MODE switch to SSB, the
> METER switch to lp, pushed the SEND
> button and adjusted the BIAS control,
> but there was no reading at all. I
> then measured pin 5 in in the finals
> and saw no voltages in STAND-BY or
> SEND position. The only deflection on
> the TS meter is in HV in SEND position
> with voltages about 820 DVC.
>
> A correction to my first mail. I /do/
> hear the t/r antenna relay when I key
> the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830]
> TS830S no bias
>
>

>
> Peter,
>
> You said you checked for bias voltage
> and found none. If I may ask, did you
> measure the bias voltage at the final
> tube grids, pin 5, and that is where
> you found no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
> On 12/8/2013 2:15 AM,
> ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE
> position on my TS830s. In SEND
> position there is no deflection on
> the meter and no noise from the
> t/r relay. The heater and SG
> switch are naturally on.
>
> I checked R15 in the rectifier,
> and it was okay. So were the
> cathode and plate resistors in the
> final unit. I then checked the
> bias and found no bias at all.
> Adjusting the the BIAS control had
> no effect.
>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
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> Antivirus <http://www.avast.com/> protection is active.
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> This email is free from viruses and malware because avast! Antivirus
> <http://www.avast.com/> protection is active.
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46520. 28 MHz band is at 22mhz on 820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 03:19:08 UTC
From: n8nma@...
Topic: 46520 Message: 46520

Hello all , got the "tune" issue fixed, broken D1 on CAR-2 unit. Now the issue is that 28 MHz is at 22 MHz and the freq readout from the VCO is 31 MHz so 5 MHz low??? Have looked on the VCO board and the PD board for bad parts but cannot find any. Even replaced D20 and D21 on the PD board as a test. This changed nothing. Wondering if the "5 MHz" issue is on the PD board or somewhere between the carrier mixer or the VFO since they are 5.5~5 MHz links. Any ideas?

Thanks

Tom Jones N8NMA

Sent from my iPad

46521. 28 MHz at 22 MHz on 820

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 03:26:42 UTC
From: n8nma@...
Topic: 46521 Message: 46521

One other note, it is just on the the 28 MHz band all other bands and freqs ok.

Tom Jones N8NMA

Sent from my iPad

46522. RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 12:22:52 UTC
From: <johng1409@...>
Topic: 43690 Message: 46522

Here's a variant on this problem: when returning from transmit, the receiver loses several S-points of sensitivity. It seems to affect all bands that I use. Now I have a rotator controller nearby, and if I momentarily flick the motor current, it's enough to "reset" the receiver to normal sensitivity. It's as though the motor cable transient induces a spike in the receiver front end that somehow offsets a charge somewhere.

I use a linear, but this problem occurs whether the linear is operating or not.

I have been advised about an inductor that normally shorts dc to ground which could be the culprit if it's gone open. Any thoughts about this one?

46523. Re: [TS-520_820_530_830] RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 13:39:17 UTC
From: Allan Bear
Topic: 43690 Message: 46523

More likely to be changeover relay contacts;a common stock fault with these rigs and easily cured by careful cleaning of contacts..regards Allan GM3VXI

From: "johng1409@..." <johng1409@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, 20 December 2013, 12:22
Subject: [TS-520_820_530_830] RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Here's a variant on this problem: when returning from transmit, the receiver loses several S-points of sensitivity. It seems to affect all bands that I use. Now I have a rotator controller nearby, and if I momentarily flick the motor current, it's enough to "reset" the receiver to normal sensitivity. It's as though the motor cable transient induces a spike in the receiver front end that somehow offsets a charge somewhere.

I use a linear, but this problem occurs whether the linear is operating or not.

I have been advised about an inductor that normally shorts dc to ground which could be the culprit if it's gone open. Any thoughts about this one?

46524. RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 13:57:38 UTC
From: <wagstw46@...>
Topic: 43690 Message: 46524

Try gently tapping on the Aux relay on the Audio board. This relay among other things switches the operating bias for front end RF amp Q1.

Can also monitor the bias voltage at RF board on Conn 8 Pin 2 RB1. Should see approx -3.3vdc in TX and approx +1.1vdc in RX mode.

Can also gently wiggle molex Conn 8.

The aux relay is commonly the problem. I have not had luck trying to clean the contacts. I recommend buying a sub relay from Ken K4EAA while they are still available.

Terry K9TW

46525. RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 14:05:33 UTC
From: <wagstw46@...>
Topic: 43690 Message: 46525

I forgot to mention I dont know who is telling you about a choke that shunts dc to ground and causing your problem. I suspect he may be talking about L5 470uhy choke at output of the Pi-network?

That choke is often referred to as the "safety" choke as it will prevent 900vdc anode voltage from appearing at the SO-239 connector and on the antenna and your fingers in event that C7 blocking/coupling cap should short. You would not want to be attempting to connect a PL-259 if there was 900vdc present!

This choke also serves as a DC return so that C1 tank cap and C2 load cap do not charge to anode dc level and see the capacitor plates arc over.

If L5 goes open it should have no effect on your receiver sensitivity.

Ask this fellow to tell you specifically which choke he suspects is causing receiver de-sensitivity.

Lastly, if you find you have good RB1 TR transition then check DRB at same Conn 8 on RF board as it is also switched by the Aux relay contact and if Driver tube isnt being biased off completely could also cause RX desens.

Terry K9TW

46526. Re: [TS-520_820_530_830] RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 14:26:11 UTC
From: Craig Roberts
Topic: 43690 Message: 46526

I -- and many others -- have experienced the same problem. In my case,
the easily accomplished replacement of RL1 on the audio board cured it.

Jim Showker has a nice presentation on relay issues posted here:

http://www.hybridrestore.com/359-2/

73,

Craig
W3CRR

46527. New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 19:16:03 UTC
From: kd8hmo_us
Topic: 46527 Message: 46527

Hi guys,

My 530S just started acting up recently. When I turn the power on, the display blips and goes dark and no sound from speaker. A minute or two later, it comes on again like normal with sound. Any idea what might be causing this?

Thanks

46528. RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 19:01:04 UTC
From: <johng1409@...>
Topic: 43690 Message: 46528

A variant on this is that my TS830S loses several S-points of sensitivity when returning to receive from transmit. Now I have a rotator controller nearby, and if I pulse the motor once, it seems to reset the receiver to normal. It's a bit annoying having to do this almost every over sometimes. It's as though the rotator cable transient induces enough in the receiver input to cancel a built-up charge and return some circuit to normal (MOSFET bias circuitry?). It seems to occur across all the bands that I use.

Any ideas as to what the problem might be?

Thanks.

46529. Re: [TS-520_820_530_830] RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 19:40:53 UTC
From: Gordon JC Pearce
Topic: 43690 Message: 46529

On Fri, Dec 20, 2013 at 11:01:04AM -0800, johng1409@... wrote:
> A variant on this is that my TS830S loses several S-points of sensitivity when returning to receive from transmit. Now I have a rotator controller nearby, and if I pulse the motor once, it seems to reset the receiver to normal. It's a bit annoying having to do this almost every over sometimes. It's as though the rotator cable transient induces enough in the receiver input to cancel a built-up charge and return some circuit to normal (MOSFET bias circuitry?). It seems to occur across all the bands that I use.
>

Do you get your hearing back if you waggle the cables about by other mechanical means?

Does switching any other spikey inductive load cause the same effect?

My 2 dogecoins are on a manky connection somewhere in your feeder. Horses, not Zebras...

--
Gordonjcp MM0YEQ

46530. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 20:12:30 UTC
From: <wagstw46@...>
Topic: 46527 Message: 46530

It sounds like you are losing VFO input to the PLL board. Can monitor VFO signal level at PLL board Conn 5 Pin 2. It should be approx 200mv rms rf volts.

This causes loss of VCO signal to the RF board which means no 8.830mhz RIF signal so no RX just noise. You can monitor VCO level at TP-3 on the RF board near the VCO plug. Test point looks like a small vertical mounted resistor. Should see minimum of 1.0 rms rf volts at TP-3.

One cause of this is dirty mini-din switch contacts in the Remote VFO jack on rear panel. Need to clean with Deoxit and exercise the switch by inserting and removing a din plug multiple times.

Terry K9TW

46531. RE: TS830S -Intermittant loss of RX sensitivity and TX output (and drive)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 19:47:27 UTC
From: <johng1409@...>
Topic: 43690 Message: 46531

Sorry, folks - ignore the repeat post. Thanks for the responses, I'll look into it more deeply on the bench.

73.

46532. WTB a DK-520 adapter

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 22:23:17 UTC
From: w1nv_qrv
Topic: 46532 Message: 46532

Need this DK-520 for a DG-5 display for a TS-520...Does anyone have one or a display that they would like to part with..Will be using it for digital such as PSK.....

73,

de winv Don

46533. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-20 23:14:27 UTC
From: <ka2knx@...>
Topic: 46527 Message: 46533

I just fixed a similar issue when restoring my TS-530S. I bet you the shaft coupling on the band switch is broken. They are usually cheap plastic and the set screw area cracks. Mine had the same symptoms.

46534. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 02:24:07 UTC
From: <wagstw46@...>
Topic: 46527 Message: 46534

Please help me understand how S22 has anything to do with a blanked display or dead receive? Very interested in how that works.

Terry K9TW

46535. My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 01:01:36 UTC
From: Tom Jones N8NMA
Topic: 46535 Message: 46535

Not sure if my questions are posting or not?

Tom N8NMA

46536. Re: [TS-520_820_530_830] My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 03:02:42 UTC
From: Joseph Stiles
Topic: 46535 Message: 46536

Tom,

  Since your are a newer member, your post(s) are "moderated." This was stated in the "welcome" message you should have received automatically upon your membership being approved. "Moderated" means that one of the "moderators" or "group co-owners" must approve yours or any other "moderated" members post PRIOR to them being sent to the groups main message area. This it not meant to be punitive, it just helps cut down on the spam, etc. The more active you are...ie..number of posts..etc, and the ability to play by the groups's policies will get you "un-moderated" quicker. The group moderators/co-owners are not around 24/7, so it may take possibly up to 24 hours for your post(s) to show up..

  Hope this answers your question.....Happy Holidays

73 Joe
WB7UQU
Group Co-owner

On Friday, December 20, 2013 6:53 PM, Tom Jones N8NMA <n8nma@...> wrote:

>Not sure if my questions are posting or not?
>
>Tom N8NMA
>
>
>
>

46537. [TS-520_820_530_830] TS-820S RF X44-1150-00 recap

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 02:56:27 UTC
From: Nick Morvay
Topic: 46087 Message: 46537

Hi,

I've been reading this news group for about a year, after purchasing an 820S that needed work. There is a gold mine of info here from a great group of people that has been most helpful. I've since re-capped the HV section and most of the boards. The HV re-cap made the biggest difference, no more voltage sag on key down and it's working at full power out.

Here is my question to this knowledgeable group. The circuit diagram/PC Board layout on page 56 of the Service Manual shows a 1uf 50V (C38) electrolytic capacitor but it is not installed on the circuit board. Which is correct, the diagram or my unit?

While the 820 works well, my curious side thought about installing the cap (the board has the location marked) to see what, if any, difference it would make. Possible that a manufacturing update was incorporated but failed to make the update to the manual. Any opinions?

The soldering iron is hot and ready. J

73 Nick

VE3EIB

http://www.qrz.com/db/VE3EIB

46538. Re: [TS-520_820_530_830] My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 11:09:27 UTC
From: Michael Sylvester
Topic: 46535 Message: 46538

I wondered the same thing. My post begging for help on VFO/digital display issues has had 00 rsponses.
I have begun searching archives, got side tracked downloading fixes and links and such. Maybe I don't know how to search, all I'm seeing are dated records.
Michael///KD0WSJ

From: Tom Jones N8NMA <n8nma@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Friday, December 20, 2013 7:01 PM
Subject: [TS-520_820_530_830] My post

Not sure if my questions are posting or not?

Tom N8NMA

46539. Re: [TS-520_820_530_830] My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 11:14:38 UTC
From: Michael Sylvester
Topic: 46535 Message: 46539

I too discovered that while trying to search the site. I remembered it from when I joined. I wonder when my probation is up and I can attempt to sell a radio?
Michael///KD0WSJ

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Friday, December 20, 2013 9:02 PM
Subject: Re: [TS-520_820_530_830] My post

Tom,

  Since your are a newer member, your post(s) are "moderated." This was stated in the "welcome" message you should have received automatically upon your membership being approved. "Moderated" means that one of the "moderators" or "group co-owners" must approve yours or any other "moderated" members post PRIOR to them being sent to the groups main message area. This it not meant to be punitive, it just helps cut down on the spam, etc. The more active you are...ie..number of posts..etc, and the ability to play by the groups's policies will get you "un-moderated" quicker. The group moderators/co-owners are not around 24/7, so it may take possibly up to 24 hours for your post(s) to show up..

  Hope this answers your question.....Happy Holidays

73 Joe
WB7UQU
Group Co-owner

On Friday, December 20, 2013 6:53 PM, Tom Jones N8NMA <n8nma@...> wrote:

>Not sure if my questions are posting or not?
>
>Tom N8NMA
>
>
>

46540. Re: [TS-520_820_530_830]My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 13:21:14 UTC
From: Mike
Topic: 46535 Message: 46540

Every person who applies for membership to this group and when their membership application is approved, receives a message explaining this very subject. The message clearly states that every new members is "Moderated" and the new member's messages must be approved by a Co-owner or Moderator before they are sent on to the group's message server for dissemination to all members.

For those new members who, for what ever reason, did not take the time to read that message, here is the segment of that message that outlines this subject:

"/*New member posts will be "moderated." This means that; your posts/messages will be reviewed and either approved or disapproved, by a Group Co-owner or Moderator PRIOR to being sent to the groups main message area.*//*How long this "moderation" last is up to you. The more active you are(numerous posts..etc.)*//**//*and your ability to "play by the rules", your "moderation time" will be short.*//*"*//*
*/

You can read the entire message that was sent to you and all new members by simply logging onto the group's homepage then click on "Files". The message is located in the group's "Files" section under "AUTOTEXT MSGS". The message is titled "Message on Approved Membership".

73
Mike W5RKL

On 12/21/2013 5:09 AM, Michael Sylvester wrote:
> I wondered the same thing. My post begging for help on VFO/digital
> display issues has had 00 rsponses.
> I have begun searching archives, got side tracked downloading fixes
> and links and such.
> Maybe I don't know how to search, all I'm seeing are dated records.
> Michael///KD0WSJ
>
> *From:* Tom Jones N8NMA <n8nma@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Friday, December 20, 2013 7:01 PM
> *Subject:* [TS-520_820_530_830] My post
>
> Not sure if my questions are posting or not?
>
> Tom N8NMA
>
>
>

46541. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 13:21:56 UTC
From: <ka2knx@...>
Topic: 46527 Message: 46541

I will need to examine the schematic for a a detailed explanation. However, I just thought that my case would possibly save some troubleshooting time. The symptoms were exactly the same. In fact, when I rocked the bandswitch ever so gently, or put the heater switch in the on position, the display would light up and sound would return! There was something mechanically intermittent. I replaced the coupling and gave the bandswitch a good cleaning resulting in perfect operation. I stumbled upon a webpage that showed some common TS-530 issues, and that is what led me to the bandswitch coupling. The wafers were not engaging in unison.

Please excuse me if I ventured a response without a complete electronically based rationale. I will consult the schematic to attempt an explanation for what I observed empirically. (I'm new, so thanks for your patience.)

KA2KNX

46542. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 04:14:35 UTC
From: <ka2knx@...>
Topic: 46527 Message: 46542

I will have to look at the schematic in order to justify the relationship, but I did experience the same symptoms until stumbling upon this webpage: http://www.k4eaa.com/examples.html. The hint for me was the fact that if I were to very gently rock the bandswitch, the display would go out just as it often did when the receiver was cold. It turned out that all contacts on the wafers were not engaging in unison. I replaced the coupling and cleaned the switch, resulting in perfect performance once again.

Please excuse if my answer was incomplete due to a lacking electronic rationale. I just described what happened in my case, thinking it could save kd8hmo some time. I felt it was potentially related due to very similar symptoms. I will head to the schematic for a more precise explanation.

46543. SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 13:26:49 UTC
From: Peter Ravn
Topic: 46257 Message: 46543

Mike,

I had carefully followed your instructions and was now ready for the final test with a new set of 6146s plugged in. When I was adjusting the bias with the pot on the rear panel, there was a hardly audible crack. The meter said 60 mA, when I turned off the radio and started looking for a cracked resistor. I found none, so the crack might have come from somewhere else in my room. But when I resumed the bias adjustment, there was instantly a loud crack and a flash. I powered off the 830s immediately.

Upon closer inspection four cathode resistors on the final unit board were open. They had worked as fuses and hopefully saved the finals. In the morning I had replaced the old cathode resistors with new ones with the same specs, so why did they open?.

73

Peter OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 20. december 2013 04:27
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

That's great to hear your 830 is coming back to life.

You said the plates turned RED in the 6146s. You don't know what damage may have occurred in the tubes when that happened. You said with the tubes removed there is no smoke and no unusual sounds. You also said the voltages are changing as they should when testing between receive and transmit, at least that is what I got out of what you said. Therefore, that's why I would not use the original tubes. It's also possible the original tubes themselves may have caused some or all of your problems.

73
Mike W5RKL

On 12/19/2013 12:32 PM, Peter Ravn wrote:

Mike,

Good news! My TS830S passed the first tests with driver and final tubes removed. No smoke or unusual sounds. Bias voltages run smoothly from - 40 VDC to - 110 VDC on FG. Screen voltages are + 265 VDC on SG. The panel meter works normally again, and so does the receiver. The next and final test will

be with tubes installed.

I am waiting for the final cage kit from KE7OAY, and tomorrow I will have a new set of 6146B□s to replace the ones that turned RED. You stress that I should not reuse the same tubes. Why not?

Thanks a lot for your outstanding help.

73

Peter OZ8CTTH

Fra: Peter Ravn [mailto:fasan5@...]
Sendt: 14. december 2013 17:09
Til: 'TS-520_820_530_830@yahoogroups.com'
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I found the smoking gun today: R102, a 10 k ohms resistor connecting Q10 on the AF unit to the FG terminal on the board. The resistor is severely discoloured, but surprisingly not open. It will naturally be replaced.

73

Peter, OZ8CTH

a: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@...m] På vegne af Peter Ravn
Sendt: 14. december 2013 09:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY. When it is installed, and R11, R15 and R16 on the rectifier have been replaced, I will follow your instruction and let you know the result.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 11. december 2013 22:15
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices, www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the

final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is

pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either, so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55

Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias

voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up

to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend

you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND

position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

46544. RE: [TS-520_820_530_830] TS-820S RF X44-1150-00 recap

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 13:58:49 UTC
From: <wagstw46@...>
Topic: 46087 Message: 46544

If you install C38 you will change the ALC release or recovery time constant. It will lengthen the time it takes for the 3.5vdc ALC bus voltage to come back up to normal between words and syllables.

KW experimented with different AGC and ALC RC time constants in the 820 and other hybrids by installing or switching in different capacitors.

KW uses the ALC as form of compression by changing the time constants in SSB mode. Has very fast attack time and slower release or recovery time.

As part of the QRO mod sometimes people install different caps to shorten the delay or release time to increase average to peak output power ie get more talk power without regard for splatter.

I would leave C38 out as your rig has a good speech processor if needed and it uses RF negative feedback to improve linearity so the ALC time constant as is works in concert with that feature and if you adjust mic gain properly will have nice clean signal.

By the way when recapping these hybrid rigs you have to be careful not to lift a foil and have to observe how each cap is installed in the board. There are mistakes on the schematics and board silk screening. If you find a electrolytic that is installed reverse polarity make sure you study the circuit and dont automatically assume the as built config is wrong and reverse the replacement cap. You can shorten the life of that new cap.

Terry K9TW

46545. Re: [TS-520_820_530_830] My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 14:37:17 UTC
From: <wagstw46@...>
Topic: 46535 Message: 46545

Michael:

You posted that you had already used a metal instrument inside the VFO to modify the rotor shaft wiper contact by attempting to bend it. That is a "ham-fisted" thing to do and I have no idea what would prompt any tech to do that. I have even see some hams recommending that you solder a coax braid shield pigtail lead to this contact. Cardwell and others abandoned that approach and shaft brushes many years ago.

The rotor shaft wiper contacts in all the Hybrid air variable capacitors (depending on the cap and function will find more than one wiper) are made of phosphor bronze which have very high conductivity and are self-lubricating. They have been heat treated to have the proper spring temper.

The fingers run against a machined face on the end of the rotor shaft. No reason to suspect this wiper contact has lost its temper and need to bend it before doing proper cleaning.

The purpose or this contact is so that the RF current has a very low resistance path to circulate back and forth from the fixed to rotating plates. Without this contact arrangement the current would have to flow thru the rotor shaft bearing ball and race assembly which is not a good low resistance rf contact.

So with age as this contact darkens brown/black and maybe with traces of green oxide you need to apply Deoxit sparingly with an artist brush or tooth pick and exercise the rotor thru its complete range end to end. Common to have to do that multiple times. However, never never poke around or try to bend this contact. Also do not lubricate it with WD40 or any type of grease. You dont want grease or oil to migrate between contact finger face and shaft shoulder surface and introduce resistance.

As to cause and effect I dont know why you think you have a VFO problem? As I understand it you removed the RF board and began contact cleaning and I am not sure what TX or RX operational issues led you to diagnose bad bandswitch contacts?

Usually two operational issues with VFO. 1. Long term drift outside of spec OR 2. Output drops out or jumps in and out as turned thru its range.

Drift outside normal short term warm up drift and long term drift is usually caused by drift in the 9vdc regulated supply or a change to temp compensating capacitors in the VFO LC circuit. Cleaning the rotor wiper contact wont fix this. Using a remote VFO or powering the internal VFO with a fresh 9vdc battery will confirm or eliminate if the 9vdc regulated supply is causing the drift. The regulator is located on the AF-AVR board.

VFO frequency jumping or VFO rf output level coming and going is usually due to dirty rotor contact wiper. This assumes that you are losing the VFO output signal at the VFO and not in its path to where it is used. There are some places such as 8/9 jumper, molex connectors, and mini- din switches in KW hybrids which can be cause of loss of VFO signal where it is needed. For example if you lose the VFO signal to the PD you will get an unlock and blank the display. Measuring with RF millivolt meter or O-scope at the PD board will tell if VFO

signal is there consistently and at correct level.

The Service manual has a pretty good description of how the PLL functions.

Lastly, if you Google on 820 digital display problems you will find lots of info on resoldering all the connections on the counter mixer and counter unit boards and placing wires thru the vias.

That is the best I can do for you.

Terry K9TW

46546. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 15:47:24 UTC
From: <wagstw46@...>
Topic: 46527 Message: 46546

The S22 switch inside the PA cage selects the correct tank coil tap and correct padder caps for resonance on the selected bands. It must be synchronized with the TX Mixer and Drive stage tuned circuits that are switched in by the S1-4 and S1-7 band switch wafers on the RF board.

When you get these two shafts out of sync due to slippage in the white nylon coupler the result can be 6146 finals damaged due to high off resonance plate current.

As to your receive coming and going as you gently rock the bandswitch knob back and forth or turn the heaters on and off. You may have a bad/dirty molex connector contact on the RF board. Kind of unusual for touching the band switch knob to cause enough movement in the RF board to make this connection come and go. This is not what you saw.

Turning on the heater switch can produce minor physical vibration and some momentary voltage drop. Perhaps there is a momentary problem with bias voltage switching for the RF amp and/or Driver tube. You may also have a dirty VCO connector/plug interface on the RF board that is being disturbed.

I suspect you were not just rocking the bandswitch knob which is the normal way to feel for dead band or free play in the switch which is clear indication you have cracks at the set screw area which allow the two shafts to get out of sync.

The correlation between rocking the bandswitch knob or the cycling the heater switch that causes the receiver to go dead and the display to blank can be related to bandswitch deck S1-1 on the RF board. If you move the bandswitch knob off one detent and move it a couple of degrees between detents then you will of course cause the display to blank and the receiver to go dead. So what you have to do for example is move the bandswitch between 3.5 and 7 and receiver will go dead and display will blank.

This normally takes more knob rotation than just checking the dead band or free play. It requires moving the bandswitch to get the switch wiper to be between contacts. If the coupling to S22 is very loose then its shaft wont turn with the shaft from the knob and you will lose the normal band specific detent positions as the detent balls are located on S22.

What causes the display blanking is you have disrupted the 9vdc bias voltage to the diode switching matrix at S1-1 which provides bandswitch position information to the PLL. PLL will unlock.

So was not trying to give you a hard time. Any KW hybrid can be made to exhibit the operational issues you describe if you turn the bandswitch knob far enough between the normal band select detent positions.

Terry K9TW

.

46547. Re: [TS-520_820_530_830]My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 16:06:44 UTC
From: Michael Sylvester
Topic: 46535 Message: 46547

Thanks Mike.
I did read it when first joining, reread it yeaterday when looking throught the files. Read it again now.
Lack of sleep, long hours, too many tasks make me mentally sluggish.
(I'm s l o w anyhow....)
Working in my greenhouse, prepping for wood stove there, Ice on antennas this morning, eBay buiseness, not much time left over for radio troubleshoting.
Haven't touched the 820Sugar with VFO/display issues for 2 days......
Haven't received any advice either.
Spent 3 hours on the groups' page yesterday, mostly downloading files I didn't already have.
Don't have time to go through voluminous monthly files to find VFO/display titles....Or time do work on a radio right now. Took down my sweet fan dipole this morning, removed ice from G5 and Swedish dipoles. Gonna have to do that again this afternoon. May just leave them down till ice storm in SW Missouri is over.
Then, IF I still have electricity this evening, I MIGHT get to work on the radio again....

Is there a way to search those files?
I'm not seeing one.
Michael///KD0WSJ

From: Mike <w5rkl@...m>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 21, 2013 7:21 AM
Subject: Re: [TS-520_820_530_830]My post

Every person who applies for membership to this group and when their membership application is approved, receives a message explaining this very subject. The message clearly states that every new members is "Moderated" and the new member's messages must be approved by a Co-owner or Moderator before they are sent on to the group's message server for dissemination to all members.

For those new members who, for what ever reason, did not take the time to read that message, here is the segment of that message that outlines this subject:

"New member posts will be "moderated." This means that; your posts/messages will be reviewed and either approved or disapproved, by a Group Co-owner or Moderator PRIOR to being sent to the groups main message area.How long this "moderation" last is up to you. The more active you are(numerous posts..etc.)and your ability to "play by the rules", your "moderation time" will be short."

You can read the entire message that was sent to you and all new members by simply logging onto the group's homepage then click on "Files". The message is located in the group's "Files" section under "AUTOTEXT MSGS". The message is titled "Message on Approved Membership".

73
Mike W5RKL

On 12/21/2013 5:09 AM, Michael Sylvester wrote:

>I wondered the same thing. My post begging for help on VFO/digital display issues has had 00 rsponses.
>I have begun searching archives, got side tracked downloading fixes and links and such.
>Maybe I don't know how to search, all I'm seeing are dated records.
>Michael///KD0WSJ
>
>
>From: Tom Jones N8NMA mailto:n8nma@...
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Friday, December 20, 2013 7:01 PM
>Subject: [TS-520_820_530_830] My post
>
>
>
>
>Not sure if my questions are posting or not?
>
>Tom N8NMA
>
>
>

46548. Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 16:11:45 UTC
From: Mike
Topic: 46257 Message: 46548

Peter,

You should first think what "difference" or "change" has occurred since you replaced the 4 cathode resistor then performed the voltage measurements/test? The only change you have indicated is you replaced the 6146B final tubes. Yes, I said I didn't trust the original tubes, still don't, but now I don't trust the replacement tubes you used either! I suspect there are possibly shorts in the replacement 6146Bs which caused significant increases in voltage, current, and power dissipation in the cathode circuit with the replacement 6146Bs installed.

You should understand the 6146 has a "Beam Forming" plate that is connected both internally AND externally to the tube's "Cathode". This is required so the Beam Forming plate has the same potential as the Cathode, "negative in respects to the plate". So any short to the Beam Forming plate is also a short to the Cathode.

You can perform the calculations yourself, to see what happens when element short internally in the tube. All the voltage and resistance values you need to perform the calculations are shown on the final amplifier's schematic. The following is an example if a short occurs between the 6146 screen and beam forming plate/cathode and it clearly shows what voltage, current, and power values will be in the final amplifier's cathode circuit.

For example, if the screen shorts to the beam forming plate, the cathode voltage would "instantly" become "+265VDC" which will result in "53 amps" of cathode current (265 / 5 = 53) and 14,045 watts dissipated in the cathode circuit (53 x 53 x 5 = 14045)! That would result in 13.25 amps flowing through "each" 20 ohm 1/2 watt cathode resistor (265 / 20 = 13.25) and each cathode resistor dissipating 3,511.25 watts (13.25 x 13.25 x 20 = 3511.25).

73
Mike W5RKL

On 12/21/2013 7:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I had carefully followed your instructions and was now ready for the
> final test with a new set of 6146s plugged in. When I was adjusting
> the bias with the pot on the rear panel, there was a hardly audible
> crack. The meter said 60 mA, when I turned off the radio and started
> looking for a cracked resistor. I found none, so the crack might have
> come from somewhere else in my room. But when I resumed the bias

> adjustment, there was instantly a loud crack and a flash. I powered
> off the 830s immediately.
>
> Upon closer inspection four cathode resistors on the final unit board
> were open. They had worked as fuses and hopefully saved the finals. In
> the morning I had replaced the old cathode resistors with new ones
> with the same specs, so why did they open?.
>
> 73
>
> Peter OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 20. december 2013 04:27
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> That's great to hear your 830 is coming back to life.
>
> You said the plates turned RED in the 6146s. You don't know what
> damage may have occurred in the tubes when that happened. You said
> with the tubes removed there is no smoke and no unusual sounds. You
> also said the voltages are changing as they should when testing
> between receive and transmit, at least that is what I got out of what
> you said. Therefore, that's why I would not use the original tubes.
> It's also possible the original tubes themselves may have caused some
> or all of your problems.
>
> 73
> Mike W5RKL
>
>
>
> On 12/19/2013 12:32 PM, Peter Ravn wrote:
>
> Mike,
>
> Good news! My TS830S passed the first tests with driver and final
> tubes removed. No smoke or unusual sounds. Bias voltages run
> smoothly from - 40 VDC to - 110 VDC on FG. Screen voltages are +
> 265 VDC on SG. The panel meter works normally again, and so does
> the receiver. The next and final test will be with tubes installed.
>
> I am waiting for the final cage kit from KE7OAY, and tomorrow I
> will have a new set of 6146B's to replace the ones that turned

> RED. You stress that I should not reuse the same tubes. Why not?
>
> Thanks a lot for your outstanding help.
>
> 73
>
> Peter OZ8CTTH
>
> *Fra:*Peter Ravn [mailto:fasan5@...]
> *Sendt:* 14. december 2013 17:09
> *Til:* 'TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>'
> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
> Mike,
>
> I found the smoking gun today: R102, a 10 k ohms resistor
> connecting Q10 on the AF unit to the FG terminal on the board. The
> resistor is severely discoloured, but surprisingly not open. It
> will naturally be replaced.
>
> 73
>
> Peter, OZ8CTH
>
> *a:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Peter Ravn
> *Sendt:* 14. december 2013 09:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
>
> Mike,
>
> I have ordered The Final Cage Repair Kit (C7, C8 and L1) from
> KE7OAY. When it is installed, and R11, R15 and R16 on the
> rectifier have been replaced, I will follow your instruction and
> let you know the result.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL

> *Sendt:* 11. december 2013 22:15
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> I made a couple of mistakes.
>
> First, I gave you the wrong final amplifier tube socket pin number
> to measure the final tube's screen voltage, it should be pin 3
> instead of pin 5.
>
> I also left out, accidentally deleted it, where I asked you to
> check the bias voltage at the final amplifier's tube socket, pin
> 5, You should measure the grid voltage in transmit and adjust the
> bias pot. You should see a smooth increase and decrease in bias
> voltage on pin 5 of the final tube socket when adjusting the bias pot.
>
> Ken, K4EAA, sells an RF amplifier rebuild kit that has the small
> RF choke along with a few other components. Check his website for
> prices, www.k4eaa.com <http://www.k4eaa.com> .
>
> Sorry for the mistakes.
>
> 73
> Mike W5RKL
>
> On 12/11/2013 12:30 PM, Peter Ravn wrote:
>
> Mike,
>
> This is what I found today. I rechecked the inside of the
> final amplifier and found no obvious signs of overheating. I
> measured the big RF choke (L2). Unplugged it was 0.9 ohms and
> 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms
> and only 0.035 uH instead of 470 uH. To be absolutely sure I
> repeated the measurement five or six times. So apparently L1
> has gone bad and should be replaced. The thing is how to get it.
>
> In the RF unit I checked resistors R6 and R7, and they are ok.
> I also checked C181 and C182 in the IF unit. One was 27 uF,
> the other 18 uF, so they seem ok. In the rectifier R15 is 60 K
> and R16 70 K. They should be 57 K and will be replaced
> together with the infamous R11, which suddenly looked
> overheated though not open.
>
> To be continued...

>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 11. december 2013 17:02
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Hi Peter,
>
> You said you checked the inside the final amplifier. Did you
> visually inspect the 2 RF chokes in the final amplifier? There
> are 2, the large vertical choke between the 2 final tubes and
> small choke on the chassis near the final tube sockets, it
> looks like a resistor. It's on the top of the final amplifier
> section of the chassis.
>
> Also, do you have a known good pair of 6146Bs? I wouldn't
> trust the ones that were in the 830 when the smoke and RED
> plates occurred. If not then obtain a known good pair of
> 6146Bs to replace the old 6146Bs.
>
> I recommend you leave the driver and both finals out of the
> 830. Make sure the final plate caps can't touch/short to
> anything, then connect a DC volt meter's Black lead to the
> Final Unit's "FG" terminal and the meter's Red lead to the
> chassis. Set the DC volt meter to measure a minimum of 200VDC.
> Set the Mode switch to USB or LSB, and power up the 830. If
> any abnormal noise are heard or you see smoke, turn the 830
> off immediately and locate the source of the noise/smoke and
> fix it before proceeding. If everything appears normal then
> flip the SEND switch UP and note the bias voltage on the DC
> volt meter. Rotate the bias pot either side of center
> rotation, you should see a smooth increase and decrease of the
> bias voltage. Unkey the transmitter.
>
> Repeat the test except this time you will be measuring the
> final tube's screen voltage on pin 5 of the final tube socket.
> You should see approximately +265VDC. The screen voltage will
> not change much, if at all, when you switch from receive to
> transmit then back to receive. This is because there are no
> final tubes in the final amplifier so screen current will flow
> in the screen circuit. Unkey the 830 and power the 830 OFF.

>
> If there are no problems encountered during the above test,
> proceed to the next test. However, as I said above, if there
> are any problems encountered do NOT proceed with the next
> test, determine the cause of the problem and fix it before you
> proceed.
>
> Set the SG switch to "OFF", power up the 830, and note the
> final tube screen voltage, pin 5 on the tube socket and "SG"
> terminal on the Final Unit. The voltage should be
> approximately "-100VDC" and the Relay RL1 on the Rectifier
> Unit should be energized. Power the 830 OFF and set the SG
> Switch to ON and repeat the final tube screen voltage check,
> it should be approximately +265VDC and Relay RL1 on the
> Rectifier Unit should NOT be energized.
>
> If those test/checks are good then power off the 830, let the
> HV filter capacitors bleed to zero (check HV caps with a DC
> volt meter) then install the driver and a pair of "known good"
> 6146Bs in the final amplifier.
>
> Set the SG switch to OFF, power up the 830, and set HEATER
> switch to ON. Allow about an minute for tube warm up. Look and
> listen for any abnormal noises and smoke. If you see and/or
> hear any smoke and/or abnormal noise, power the 830 OFF
> immediately and locate the source of the problem and fix it
> before you proceed.
>
> Set meter switch to ALC, CAR knob full CW, DRIVE control to 12
> o'clock, band switch to 7, and SEND Switch UP. Again, if any
> problems such as abnormal sounds, smoke, etc., are seen/heard,
> turn the 830 OFF immediately. If no problems occur, adjust the
> DRIVE control for a peak indication. If meter pegs full to the
> right, reduce the CAR Control CCW so the meter pointer is
> pointing at or near 12 o'clock and continue adjusting DRIVE
> control for a peak ALC meter indication. Again, if any
> problems occur, regardless of what those problems may be,
> unkey the transmitter immediately!! If the problems continues,
> you smell something getting hot or you see smoke, power the
> 830 OFF immediately and determine the cause of the problem and
> fix it before you proceed any further.
>
> Measure all final tube socket and Final Unit voltages on the
> "foil side" of the Final Amplifier Unit. Attempting to measure
> the final tube's screen and grid voltage through the top of
> the tube sockets can easily result in your hand/fingers and
> meter probes coming in contact with the HV on the RF choke and
> the plate cap parasitic suppressors. Use caution when measure
> DC voltage, as you know there are voltages in the 830 that can
> easily kill you so take your time and pay attention to what

> you are doing. Do not attempt to perform any of these
> test/voltage measurements when you are tired.
>
>
> 73
> Mike W5RKL
>
> On 12/10/2013 12:03 PM, Peter Ravn wrote:
>
> Mike,
>
> I carefully followed your instructions, and this is what I
> have found:
>
> All four cathode resistors in the final unit are within
> specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9.
> They didn't look overheated either, so there was no need
> to replace them. But the screen resistors looked somewhat
> bleak. R7 was 119 ohms and R8 109 ohms, so they were
> replaced. I carefully inspected the board and found no
> smoking gun. Finally I cleaned the board on both sides and
> replugged it.
>
> With my ohm meter I spotted the erratic behavior of the
> bias pot you mention. After a careful cleaning the pot now
> shows smooth change of resistance when rotated. The
> resistance is now also identical on both terminals.
>
> I opened the final cage and removed the final tubes. In
> the cage there was no sign of overheating. I also removed
> the driver tube.
>
> On the reticifier R11 survived the battle, but with clear
> traces of overheating.
>
> This is status until now. I will continue the
> troubleshooting as soon as I find time.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 10. december 2013 13:55
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias

>
>
>
> Peter,
>
> It appears the bias pot is the source of instability when
> setting the 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled
> down to zero before you attempt any of the following
> checks and cleaning steps.
>
> Before you perform the following cleaning and testing
> process, thoroughly check the Final Unit's Cathode and
> Screen resistors. If there is evidence the resistors are
> damaged (overheated) or any of the resistors are out of
> tolerance, replace all of them. For example, if you find 2
> of the 4 cathode resistors have overheated, replace all 4
> of them with new resistors. The same for the screen
> resistors, if one if bad or out of tolerance then replace
> both with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner.
> Exercise the pot throughout it's travel, many times,
> during the cleaning process. I use DeoXit F5 Fader cleaner
> for pots then I use canned air to remove all cleaner
> residue and any dirt from the pot. I then test the pot
> using an ohm meter connected between the pot's wiper
> (center terminal) and any of the outside terminals. I
> rotate the pot slowly watching the ohm meter to see if any
> position results in erratic behavior. If I see erratic
> behavior I clean the pot again, thoroughly then retest the
> pot. Once the pot exhibits smooth resistance changes I
> consider the pot clean.
>
> Remove the Driver and both Final tubes and make sure the
> plate caps cannot touch anything or short to the chassis etc.
>
> You should use an analog DC volt meter for the following
> test. The meter should have a low voltage setting of
> approximately 200 to 250VDC. Set the meter to either low
> voltage setting, which ever your analog meter has.
>
> Connect the analog DC volt meter to the Final Unit's "FG"
> terminal and ground (RED lead to FG terminal and BLACK
> lead to the Chassis). With you finger on the main power
> switch, power up the 830. If you see smoke or hear unusual
> sounds turn the 830 off immediately and find what is
> causing the smoke and/or unusual sounds and eliminate the
> problem before proceeding. If there is no smoke and no

> unusual sounds, continue on to the next step.
>
> Set the mode switch to USB or LSB and set the SEND switch
> UP. Again, any unusual sounds or you see smoke, unkey the
> 830 and turn it off immediate. If all is okay so far then
> adjust the bias pot while watching the analog DC volt
> meter. The meter indication should rise and fall,
> depending on the direction you are rotating the bias pot
> indicating a smooth change in voltage as you rotate the
> bias pot. If this occurs, move the analog DC volt meter
> RED lead to pin 5 on the final tube socket foil side of
> the Final Unit PC board and repeat the bias pot
> adjustment, watching the meter closely, especially noting
> the volt meter movement at the low negative level of bias
> voltage, i.e., around the -50 to -70 VDC range. You should
> see the same results, a smooth increase and decrease of
> the bias voltage. If this test indicates a smooth change
> in bias voltage, no instability in the bias pot voltage
> indicated on your analog DC volt meter, then the bias
> circuit is working properly. The test results should be
> achieved using the analog DC volt meter connected to the
> AF Unit's "FG" terminal. The AF Unit and Final Unit "FG"
> terminals are connected together with a wire in the wiring
> harness. You can see this on the 830 schematic.
>
> Do not reuse the same 6146 tubes, obtain known good 6146Bs.
>
> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>
>
>
>
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>
> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit
> terminal, on terminals 210A and 210B on the rectifier
> and on SG on the final unit. After some time I managed
> to get 60 mA idle current and started tuning up. The
> transmitter seemed somewhat unstable, and the panel
> meter would not zero in STAND-BY. A scary noise was
> suddenly heard, whereupon the finals turned deadly red
> and the fuse on the rear blew. When I replaced the
> fuse and turned on the radio again, smoke came from

> somewhere between the AF and the RF unit. End of today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>
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> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You also might check the RF Unit's voltage divider
> resistors, R36 (100K) and R37 (3.3K). Terry, K9TW,
> told me those resistors are some times changed to "hot
> rod" the hybrids. I wasn't aware those resistors were
> changed to "hot rod" the hybrids so check them.
>
> Also, check the final unit's R7 and R8, both 100 ohms.
> They are the final unit's "screen resistors". If they
> both measure within tolerance you do NOT have to
> replace them!!!!
>
> Let me know what you find when checking R36 and R37 on
> the RF unit and R7 and R8 on the Final Unit board.
> Also let me know if you can tune your 830 up to full
> power into your dummy load.
>
> 73
> Mike W5RKL
>
>
>
>
> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the rectifier. On
> terminal 210A there are zero VDC, and on terminal

> 210B there are 264 DVC. If I bypass the open R11,
> I get 263 DVC on terminal 210A. No wonder that I
> see no voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *Mike
> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will result in
> 210A voltage to be "0VDC" just as I said it would.
>
> I said you should recheck your voltages on the
> Rectifier Unit's 210A and 210B terminals, it
> appeared you had them "backwards". Once you found
> R11 was open, did you recheck the 210A and 210B
> voltages as I asked you do to? Since you say R11
> is "open" then, as I indicated above, the voltage
> on the Rectifier Unit's "210A" terminal is "0VDC".
> You initially said the voltage on the Rectifier
> Unit's "210B" terminal was "0VDC" which I didn't
> believe you and so I asked you to recheck your
> voltages. What is the voltage on the Rectifier
> Unit's "210B" terminal?
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:

>
> Mike,
>
> Thanks to your patience and conscise
> instruction I found the culprit: R11 is open.
> I checked all the other diodes on the
> rectifier board, including the D6 you
> mentioned, and they are all ok.
>
> I have a new 470 ohms 1W resistor to replace
> the bad one, but before doing so I should like
> to know what made R11 open. What else to check
> before firing up my TS830S?
>
> Once again thanks for your help. It is
> outstanding.
>
> 73
>
> Peter, OZ8CTH
>
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> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You measured +263VDC at 210A but zero VDC at
> 210B? That doesn't make sense. I think you
> have the voltage measurements at the Rectifier
> Unit's 210A and 210B "backwards". I think the
> Rectifier Unit's "210A" terminal voltage is
> "0VDC" and the Rectifier Unit's "210B"
> terminal voltage is "+263VDC". You need to
> "recheck" the voltages on the Rectifier Unit's
> "210A" and "210B" terminals.
>
> You also did not comment on the condition of
> "R11" (470 ohm) on the Rectifier Unit I asked
> you to do. Did you visual inspect R11? Did you
> measure the resistance of R11? If R11 is
> "open" then the Rectifier Unit's "210A"

> terminal voltage will be "0VDC" which will
> results in 0VDC on the RF Unit plug 9 pin 2
> (210A) and 0VDC on SG1, SG2, PD2, and the
> Final Unit's "SG" terminal and the final
> tube's screen, pin 3.
>
> Are you using the TS-830 schematic to
> troubleshoot this problem? You need to do that.
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9 pin2
> (210A). On 210A on the rectifier there are
> 263 DVC, but zero on 210B, so where does
> that leave us?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> The Rectifier Unit's HV supply is a
> "Voltage Doubling" supply. Therefore, you
> will not see 800VAC on the transformer's
> "800AC" terminal. I recommend you spend
> some time studying how voltage doubling
> supplies work. The ARRL handbook has a

> section that covers different types of
> power supplies, including voltage doubling
> supplies.
>
> Your problem does not appear to be a bias
> problem but rather a loss of screen
> voltage to the driver and both final tubes.
>
> Loss of screen voltage to the driver and
> both final tubes will shut those tubes
> "down", no conduction in the tubes will
> occur. That means you will not see any
> drive from the driver tube to the final
> amplifier, no final tube IP current
> indication of any kind in any mode, and
> the final amplifier's cathode voltage will
> be zero.
>
> The reason the final tube cathode voltage
> is zero is simply because there is no
> current flowing in the final tubes. This
> is part of vacuum tube theory which is
> discussed in the ARRL handbook, early
> editions are the best or you can study the
> same theory in John T. Fryes, Basic Radio
> Course which is available in CD form from
> a seller on eBay.
>
> Since you have already checked the final
> tube's screens for voltage and found it to
> be zero, now check the RF Unit plug 9 pin
> 2 (210A). This is the driver tube's screen
> voltage from the Rectifier Unit's 210A
> source. If voltage is zero at RF Unit plug
> 9 pin 2, is zero check the Rectifier
> Unit's "210A" and "210B" supply outputs.
> If voltage at 210A "and" 210B are zero,
> check Rectifier Unit diode D6, it's most
> likely "open" resulting in zero voltage at
> 210A and 210B, hence zero screen voltage
> to the driver and both final tubes.
> Visually inspect R11, 470 ohm resistor on
> the Rectifier Unit. Resistor R11 is
> physically located on the Rectifier Unit
> but R11 is connected between the positive
> terminals of C180 and C181 which are on
> the IF Unit.
>
> If D6 is open, check C180 and C181, both
> are 22ufd 350VDC "Radial lead" capacitors

> on the IF unit, they are the filter
> capacitors for the Rectifier Unit's 210A
> and 210B supply, one or both could be
> shorted which would take out D6 resulting
> in zero Rectifier Unit 210A and 210B
> voltage, hence no screen voltage to the
> driver and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>
> Mike,
>
> Here is an update on my latest findings.
>
> On the rectifier board there are no
> voltages on TUNE, SG1, SG2, PD1 and
> PD2. On AC800 there are only 324 VAC
> instead of 800 VAC. Voltages on all
> other terminals on the rectifier board
> are ok, including the bias voltage
> which is -- 110 DVC. R15 was checked
> and found ok. The preliminary
> conclusion is that the finals are
> getting no screen voltage from the
> rectifier.
>
> In TUNE/SEND the panel meter shows 900
> DVC.
>
> When the HEATER is switched on, the
> filaments in the finals come alive.
> Voltages on the filaments are
> according to specs. There are -- 103
> DVC on the grids (pins 5), and with
> the bias potentiometer on the rear the
> voltages can be adjusted from -- 93 to
> -103 VDC. So this part seems to work
> . But there are no voltages on the
> screen or on the cathode. Screen and
> cathode resistors were checked and

> found ok, so the problem must be
> somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
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> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: [TS-520_820_530_830]
> TS830S no bias
>
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>
> Mike,
>
> A new careful measurement gave another
> result. On the rectifier there are --
> 109 DVC in STAND-BY and -- 107 DVC in
> TUNE. On pins 5 of the final unit
> there are -- 96 DVC in STAND-BY and --
> 57 DVC in TUNE. So apparently there is
> a loss, but not a complete loss of
> bias voltage, which might prove fatal.
>
> 73 Peter, OZ8CTH
>
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> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830]
> TS830S no bias

>
>
>
> Peter,
>
> Loss of bias voltage to the final
> tubes will result in the final tubes
> conducting to saturation levels even
> in receive. Loss of bias voltage to
> the final tubes may have permanently
> damaged your final tubes.
>
> Have you checked/measured the bias
> voltage at the Rectifier Unit's "-C"
> terminal?
>
> I recommend you troubleshoot the bias
> supply from the Rectifier Unit "-C" to
> the final tubes to find where the loss
> of bias voltage is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn wrote:
>
> Mike,
>
> I followed the standard procedure.
> I turned the POWER and HEATER
> switches on, placed the MODE
> switch to SSB, the METER switch to
> lp, pushed the SEND button and
> adjusted the BIAS control, but
> there was no reading at all. I
> then measured pin 5 in in the
> finals and saw no voltages in
> STAND-BY or SEND position. The
> only deflection on the TS meter is
> in HV in SEND position with
> voltages about 820 DVC.
>
> A correction to my first mail. I
> /do/ hear the t/r antenna relay
> when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>

> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: [TS-520_820_530_830]
> TS830S no bias
>
>
>
> Peter,
>
> You said you checked for bias
> voltage and found none. If I may
> ask, did you measure the bias
> voltage at the final tube grids,
> pin 5, and that is where you found
> no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
>
>
>
> On 12/8/2013 2:15 AM,
> ravnpeter@...
> <mailto:ravnpeter@...> wrote:
>
> There is no current in TUNE
> position on my TS830s. In SEND
> position there is no
> deflection on the meter and no
> noise from the t/r relay. The
> heater and SG switch are
> naturally on.
>
> I checked R15 in the
> rectifier, and it was okay. So
> were the cathode and plate
> resistors in the final unit. I
> then checked the bias and
> found no bias at all.
> Adjusting the the BIAS control
> had no effect.

>
> Any advice will be appreciated.
> Thanks.
>
> Peter, OZ8CTH
>
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46549. Re: [TS-520_820_530_830] RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 16:24:25 UTC
From: Michael Sylvester
Topic: 46527 Message: 46549

To:KA2KNX

Could you post a link to that web page with KWTS-530 fixes?

TNX,
Michael///KD0WSJ

From: "ka2knx@..." <ka2knx@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 21, 2013 7:21 AM
Subject: [TS-520_820_530_830] RE: New Problem With TS-530S

I will need to examine the schematic for a a detailed explanation. However, I just thought that my case would possibly save some troubleshooting time. The symptoms were exactly the same. In fact, when I rocked the bandswitch ever so gently, or put the heater switch in the on position, the display would light up and sound would return! There was something mechanically intermittent. I replaced the coupling and gave the bandswitch a good cleaning resulting in perfect operation. I stumbled upon a webpage that showed some common TS-530 issues, and that is what led me to the bandswitch coupling. The wafers were not engaging in unison.

Please excuse me if I ventured a response without a complete electronically based rationale. I will consult the schematic to attempt an explanation for what I observed empirically. (I'm new, so thanks for your patience.)

KA2KNX

46550. RE: [TS-520_820_530_830] TS-820S RF X44-1150-00 recap

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 15:44:53 UTC
From: Nick Morvay
Topic: 46087 Message: 46550

Thanks for the info, Terry.

The pads for C38 are solder filled, doesn’t look like a component was missed so will leave it as is. Two more boards to recap (IF X48-1150 and FIX-VOX X50-1350). I’m moving on to the VOX board. When pulling a cap, I check it against the schematic and have not found any discrepancies so far. While desoldering a component using a desoldering wick, one of the pads lifted. Fixed it by bending the new component leg down on the trace to keep it from moving and breaking off. I’ve also been reflowing the dubious solder connections I’ve noticed in this old rig. The radio is tested after each board is recapped so that I can narrow down any problems that may arise. No problems so far. The biggest difference was after replacing the HV caps. No more HV sag on key down and RF output is much higher, near 100W. Planning to finish with this over the weekend, in time for the RAC Winter Contest, December 28.

73, Nick

VE3EIB

http://www.qrz.com/db/VE3EIB

46551. SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 17:46:09 UTC
From: Peter Ravn
Topic: 46257 Message: 46551

Mike,

I did perform voltage test after I replaced the four cathode resistors. Voltages were according to specs. Then I plugged in the new final tubes. Again bias and screen voltages on FG and SG on the final unit board were according to specs. Then I switched on the HEATER and after a few minutes the SG SWITCH as well. Voltages still normal, no smoke, no unusual sounds. It was not until I keyed the transmitter and started the standard bias adjustment procedure that the cathode resistors opened. I did no more than that.

The finals (6146W JAN) were shipped from RF parts through a local shop and arrived yesterday. They are unused/new and quite expensive. If they are bad and have shorts, I will naturally lodge a complaint. But how to prove they were bad on arrival?

73

Peter OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 21. december 2013 17:12
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You should first think what "difference" or "change" has occurred since you replaced the 4 cathode resistor then performed the voltage measurements/test? The only change you have indicated is you replaced the 6146B final tubes. Yes, I said I didn't trust the original tubes, still don't, but now I don't trust the replacement tubes you used either! I suspect there are possibly shorts in the replacement 6146Bs which caused significant increases in voltage, current, and power dissipation in the cathode circuit with the replacement 6146Bs installed.

You should understand the 6146 has a "Beam Forming" plate that is connected both internally AND externally to the tube's "Cathode". This is required so the Beam Forming plate has the same potential as the Cathode, "negative in respects to the plate". So any short to the Beam Forming plate is also a short to the Cathode.

You can perform the calculations yourself, to see what happens when element short internally in the tube. All the voltage and resistance values you need to perform the calculations are shown on the final amplifier's schematic. The following is an example if a short occurs between the 6146 screen and

beam forming plate/cathode and it clearly shows what voltage, current, and power values will be in the final amplifier's cathode circuit.

For example, if the screen shorts to the beam forming plate, the cathode voltage would "instantly" become "+265VDC" which will result in "53 amps" of cathode current (265 / 5 = 53) and 14,045 watts dissipated in the cathode circuit (53 x 53 x 5 = 14045)! That would result in 13.25 amps flowing through "each" 20 ohm 1/2 watt cathode resistor (265 / 20 = 13.25) and each cathode resistor dissipating 3,511.25 watts (13.25 x 13.25 x 20 = 3511.25).

73
Mike W5RKL

On 12/21/2013 7:26 AM, Peter Ravn wrote:

Mike,

I had carefully followed your instructions and was now ready for the final test with a new set of 6146s plugged in. When I was adjusting the bias with the pot on the rear panel, there was a hardly audible crack. The meter said 60 mA, when I turned off the radio and started looking for a cracked resistor. I found none, so the crack might have come from somewhere else in my room. But when I resumed the bias adjustment, there was instantly a loud crack and a flash. I powered off the 830s immediately.

Upon closer inspection four cathode resistors on the final unit board were open. They had worked as fuses and hopefully saved the finals. In the morning I had replaced the old cathode resistors with new ones with the same specs, so why did they open?.

73

Peter OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 20. december 2013 04:27
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

That's great to hear your 830 is coming back to life.

You said the plates turned RED in the 6146s. You don't know what damage may have occurred in the tubes when that happened. You said with the tubes removed there is no smoke and no unusual sounds. You also said the voltages are changing as they should when testing between receive and transmit, at least that is what I got out of what you said. Therefore, that's why I would not use the original tubes. It's also possible the original tubes themselves may have caused some or all of your problems.

73
Mike W5RKL

On 12/19/2013 12:32 PM, Peter Ravn wrote:

Mike,

Good news! My TS830S passed the first tests with driver and final tubes removed. No smoke or unusual sounds. Bias voltages run smoothly from - 40 VDC to - 110 VDC on FG. Screen voltages are + 265 VDC on SG. The panel meter works normally again, and so does the receiver. The next and final test will be with tubes installed.

I am waiting for the final cage kit from KE7OAY, and tomorrow I will have a new set of 6146B□s to replace the ones that turned RED. You stress that I should not reuse the same tubes. Why not?

Thanks a lot for your outstanding help.

73

Peter OZ8CTTH

Fra: Peter Ravn [mailto:fasan5@...]
Sendt: 14. december 2013 17:09
Til: 'TS-520_820_530_830@yahoogroups.com'
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I found the smoking gun today: R102, a 10 k ohms resistor connecting Q10 on the AF unit to the FG terminal on the board. The resistor is severely discoloured, but surprisingly not open. It will naturally be replaced.

73

Peter, OZ8CTH

a: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 14. december 2013 09:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY. When it is installed, and R11, R15 and R16 on the rectifier have been replaced, I will follow your instruction and let you know the result.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 11. december 2013 22:15
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices, www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02

Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal

noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either, so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@...m
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to

"hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus <http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

46552. Re: [TS-520_820_530_830] RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 17:59:54 UTC
From: <wagstw46@...>
Topic: 46527 Message: 46552

Be very careful executing any of the advice found on any of these mod or service bulletin sites. Really need to study all and see if there is sound technical basis.

Much bad and flat wrong info to be found. There is no reason to place a star lock washer on every board hold down screw! This is fairly benign recommendation and others not so much so.

Most of the service bulletins are really "psuedo" service bulletins that just contain long lists of one line entries that are owner provided fixes. No 21 bulletin is one of the worse that has you essentially replace all active devices anytime you have a receiver or transmitter issue.

There is a very bad one for the TS-530 that has you replace TIF amp mosfet and S-meter FET due to nearby lightning or ESD (high voltage transients at the antenna) coming thru the Pi-network and FG line back to the ALC bus. They even added a VDR to the FG line on the audio board to suppress this. This is silliness. No way for ESD to come back to the ALC bus thru the 6146 control grids to the FG line.

This is classic case of mistaken cause and effect correlation.

What really happened was a 6146 arc over. Normal arc over occurs from Anode to Cathode and seldom affects the control grid. Beam plates are physically closest to the anode.

You will notice that the TS830 which is the same circuit as the TS530 that the VDR on the FG line has been removed and no such recommendation to mod the TS830.

I have had more than one fellow tell me how they replaced the TS530 TIF amp mosfet and S-meter FET based on this KW mod only to find it did not restore the receive function.

So OK to collect up all the KW documentation that you can, but strongly recommend that you read these things and put on your thinking hat before executing any of them.

Terry K9TW

46553. RE: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 18:14:31 UTC
From: <wagstw46@...>
Topic: 46257 Message: 46553

I dont want to jump in on Mikes thread. Will just offer that I also buy and use 6146W JAN (Sylvania) finals from RF Parts Co. and yes expensive state side so imagine even more expensive for you. I have had very good experience with them.

My experience with RF Parts is that they will replace defective tubes without much fuss. Even if NOS it means they are still 30 plus years old so have been sitting on the shelf off gassing and perhaps ingress around the pin seals? You might write Tom Rauch W8JI. He purchased the Sylvania JAN 6146Ws in carton lots years ago and he tell me he experiences a level of failure with these tubes when he performs hi-pot screening before installing in his many 6146 vintage rigs. I cant recall the exact percentage that wont hold off even 1500 vdc. I think you can get his email address off QRZ.

As I mention probably one of best ways to tell is to DC hi-pot all 6146 finals before installing and most hams have no access to a hi-pot. Good tube should hold off 2000 to 2500 vdc. Tubes see approx 1600 volts swing in service.

One last thing are you 125% certain you have no bad spot on the bias voltage adjust pot? Loss of bias voltage can cause thermal runaway and tubes to glow red. However, I have never experienced blown cathode resistors due to thermal runaway. Not saying it cant happen. I just have never experienced it.

My money is on arc over that Mike explained in his response to you.

Good luck.

Terry K9TW

46554. unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 18:26:53 UTC
From: Joseph Stiles
Topic: 46554 Message: 46554

Tom- n8nma & Michael-kd0wsj

The benevolent, great and powerful Co-owner of OZ, has granted your request for "un-moderation."

At times the Wiz gets behind.

Thanks for joining and being a part of this great group. Remember, the policies still apply.

Happy Holidays

73 Joe
WB7UQU
Group Co-OZ

46555. Re: [TS-520_820_530_830] My post

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 18:46:34 UTC
From: Michael Sylvester
Topic: 46535 Message: 46555

To:Terry K9TW
Thank you Sir, that bunch of info is more than I would have deduced in 40 hours. It's what I wanted and needed. Yes the wiper had corrosion and yes had almost no temper or contact pressure. In fact there was a 1/32" gap....away from the contact shoulder and I think it appeared to have been lubed.
The display had flicker and had quit last time I tried to use the radio. No other history, I didn't have any Knwds before September, now I have 8.

There were no issues with wafer switches. I did not diagnose bad wafer contacts.
Perhaps I have exceded the level of "Golden Screwdriver" to a new level of "Golden Hemostat"

I'm attempting Preventive Maintenance. When I finish my "unnessary maintenance" on the wafers they look new (the ones I can get at).
I did damage two of the contact fingers on one of the first radios, "Old Dog", the one with bad soldering, unhooked wiring, burned rf and rectifier baoads...and (10) 33 ohm resistors instead of (4) 20's......5 hours doing microsurgery to use 22 gauge sterling silver wire and silver solder to repair damaged wafer finger contacts
I won't make that mistake again.

From what I have gleaned since joining you wonderful Gentlmen most if not all of you prescribe to the theory of "if it ain't broke, don't fix it". While generally I can agree with this I'd like to go beyond that myself. These rigs are 35 years old. Just spraying them with deoxit may keep them going for awhile, but the way things are going I don't see us being able to buy a new can of deoxit next year.....
I'd like to think that I'll get another 10-20 years out of mine because I went beyond the "spray and pray" method.....We'll see, I plan to live well beyond 100.

I have an idiosyncracy in that I try to redesign or re-engineer EVERYTHING, always have. Sometimes it's a Blessing, sometimes it's a curse.
I won't give the voluminous history of figuring out things on Turbine jobs engineers had given up on, or how many of my patent ideas have been stolen because I couldn't "keep my mouth shut", (some were thought up by others during same time period, coincidence).
Not saying much there, many of the engineers I've met are real dimwits.

Based on past my performance of modifications and untraditional redesigns and repairs of everything from chainsaws to tractors, hydraulics and electromechanical devices, even moster trucks to motorcycles, since early childhood, I am confident that my fresh ideas will produce excellent results.

Time will tell if I'm as sharp as I think I am and extending the life span of the rigs or producing
"badly damaged parts radios"!.....hi....hi....
I consider myself a mechanical genius, I have been tested 3 times, 99.9 percentile, tests were therefore inadequate to measure abilities.
 I think in mechanical ways, does that make sense?

I'm somewhat of an idiot Savant, just leave out the Savant part sometimes!!

"Ham fisted" HAH!! That's funny.

I understand the undesired curent path through bearings, it has been a problem with motor designs for over 100 years.
Or welding when a shaft supported by bearings is involved, welding current passing through bearings, damaging them, from a ground cable misplaced.

What is "PD"?
Vias? Is that correct terminology for 2 sided board?

I will do a Google search for VFO and display info, thank you, I forget sometimes this computer has amazing knowledge resources.

Is there no search feature to peruse the monthly records of this groups' history? I didn't see a way, other than scanning all the titles and haven't had the time yet.
Which I assure you all I will be doing as time permits.

I have had difficulty remembering what conditions exist in what radios. I have been taking detailed notes and numbering the rigs to alleviate this problem

Thank you for your valuable time and advice Terry.
I appreciate it more than you will ever know.

Everyone have a super weekend!

"Once it starts Communications will be vital"
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 21, 2013 8:37 AM
Subject: Re: [TS-520_820_530_830] My post

Michael:

You posted that you had already used a metal instrument inside the VFO to modify the rotor shaft wiper contact by attempting to bend it. That is a "ham-fisted" thing to do and I have no idea what would prompt any tech to do that. I have even see some hams recommending that you solder a coax braid shield pigtail lead to this contact. Cardwell and others abandoned that approach and shaft brushes many years ago.

The rotor shaft wiper contacts in all the Hybrid air variable capacitors (depending on the cap and function will find more than one wiper) are made of phosphor bronze which have very high conductivity and are self-lubricating. They have been heat treated to have the proper spring temper.

The fingers run against a machined face on the end of the rotor shaft. No reason to suspect this wiper contact has lost its temper and need to bend it before doing proper cleaning.

The purpose or this contact is so that the RF current has a very low resistance path to circulate back and forth from the fixed to rotating plates. Without this contact

arrangement the current would have to flow thru the rotor shaft bearing ball and race assembly which is not a good low resistance rf contact.

So with age as this contact darkens brown/black and maybe with traces of green oxide you need to apply Deoxit sparingly with an artist brush or tooth pick and exercise the rotor thru its complete range end to end. Common to have to do that multiple times. However, never never poke around or try to bend this contact. Also do not lubricate it with WD40 or any type of grease. You dont want grease or oil to migrate between contact finger face and shaft shoulder surface and introduce resistance.

As to cause and effect I dont know why you think you have a VFO problem? As I understand it you removed the RF board and began contact cleaning and I am not sure what TX or RX operational issues led you to diagnose bad bandswitch contacts?

Usually two operational issues with VFO. 1. Long term drift outside of spec OR 2. Output drops out or jumps in and out as turned thru its range.

Drift outside normal short term warm up drift and long term drift is usually caused by drift in the 9vdc regulated supply or a change to temp compensating capacitors in the VFO LC circuit. Cleaning the rotor wiper contact wont fix this. Using a remote VFO or powering the internal VFO with a fresh 9vdc battery will confirm or eliminate if the 9vdc regulated supply is causing the drift. The regulator is located on the AF-AVR board.

VFO frequency jumping or VFO rf output level coming and going is usually due to dirty rotor contact wiper. This assumes that you are losing the VFO output signal at the VFO and not in its path to where it is used. There are some places such as 8/9 jumper, molex connectors, and mini- din switches in KW hybrids which can be cause of loss of VFO signal where it is needed. For example if you lose the VFO signal to the PD you will get an unlock and blank the display. Measuring with RF millivolt meter or O-scope at the PD board will tell if VFO signal is there consistently and at correct level.

The Service manual has a pretty good description of how the PLL functions.

Lastly, if you Google on 820 digital display problems you will find lots of info on resoldering all the connections on the counter mixer and counter unit boards and placing wires thru the vias.

That is the best I can do for you.

Terry K9TW

46556. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 19:20:46 UTC
From: W5RKL
Topic: 46257 Message: 46556

Peter,

The only "new" 6146" vacuum tubes I know of that are being manufactured "new", come from China. It is quite possible the 6146Ws you received from RF Parts were made in China.

I have no experience with RF Parts vacuum tubes. I have been buying all my 6146 tubes from:

www.vacuumtubes.net

I have never received a bad tube from them. I recently purchased six 6146A that were installed in my Heathkit HW-101, SB-100 transceivers and SB-400 and SB-401 transmitters. None of them have failed and are still being used today at full output. The HW-101 sat for "20 years" in the owner garage. After a lengthy time period of cleaning testing, etc, the "original" 6146As produced 100 watts output for "4 days" and on the "5th day" one of the 6146As "arced" causing the HP-23 power supply breaker to trip. The breaker tripping prevented the "2.2 ohm 2 watt" cathode resistor from failing due to the high current flowing in the cathode circuit. If the breaker would not have tripped, I suspect the 2.2 ohm 2 watt cathode resistor would have failed, permanently damaged!

Speaking of a breaker tripping, did the fuse blow in the 830 when the problem occurred? If it didn't. why didn't it? Was the fuse rating wrong? The fuse should have blow with that high current flowing in the cathode circuit!

I would write and ask RF Parts, informing them of the failure that occurred in your 830, using their 6146Ws. I also would ask them if the 6146Ws they sold you were manufactured in China. With all the failures of Chinese vacuum tubes these days, I stay away from any Chinese vacuum tube.

73
Mike W5RKL

On 12/21/2013 11:46 AM, Peter Ravn wrote:
>
> Mike,
>
> I did perform voltage test /after/ I replaced the four cathode
> resistors. Voltages were according to specs. Then I plugged in the new
> final tubes. Again bias and screen voltages on FG and SG on the final
> unit board were according to specs. Then I switched on the HEATER and
> after a few minutes the SG SWITCH as well. Voltages still normal, no
> smoke, no unusual sounds. It was not until I keyed the transmitter and

> started the standard bias adjustment procedure that the cathode
> resistors opened. I did no more than that.
>
> The finals (6146W JAN) were shipped from RF parts through a local shop
> and arrived yesterday. They are unused/new and quite expensive. If
> they are bad and have shorts, I will naturally lodge a complaint. But
> how to prove they were bad on arrival?
>
> 73
>
> Peter OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 21. december 2013 17:12
> *Til:* TS-520_820_530_830@yahoogroups.com
> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You should first think what "difference" or "change" has occurred
> since you replaced the 4 cathode resistor then performed the voltage
> measurements/test? The only change you have indicated is you replaced
> the 6146B final tubes. Yes, I said I didn't trust the original tubes,
> still don't, but now I don't trust the replacement tubes you used
> either! I suspect there are possibly shorts in the replacement 6146Bs
> which caused significant increases in voltage, current, and power
> dissipation in the cathode circuit with the replacement 6146Bs installed.
>
> You should understand the 6146 has a "Beam Forming" plate that is
> connected both internally AND externally to the tube's "Cathode". This
> is required so the Beam Forming plate has the same potential as the
> Cathode, "negative in respects to the plate". So any short to the Beam
> Forming plate is also a short to the Cathode.
>
> You can perform the calculations yourself, to see what happens when
> element short internally in the tube. All the voltage and resistance
> values you need to perform the calculations are shown on the final
> amplifier's schematic. The following is an example if a short occurs
> between the 6146 screen and beam forming plate/cathode and it clearly
> shows what voltage, current, and power values will be in the final
> amplifier's cathode circuit.
>
> For example, if the screen shorts to the beam forming plate, the
> cathode voltage would "instantly" become "+265VDC" which will result
> in "53 amps" of cathode current (265 / 5 = 53) and 14,045 watts
> dissipated in the cathode circuit (53 x 53 x 5 = 14045)! That would
> result in 13.25 amps flowing through "each" 20 ohm 1/2 watt cathode

> resistor (265 / 20 = 13.25) and each cathode resistor dissipating
> 3,511.25 watts (13.25 x 13.25 x 20 = 3511.25).
>
> 73
> Mike W5RKL
>
> On 12/21/2013 7:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I had carefully followed your instructions and was now ready for
> the final test with a new set of 6146s plugged in. When I was
> adjusting the bias with the pot on the rear panel, there was a
> hardly audible crack. The meter said 60 mA, when I turned off the
> radio and started looking for a cracked resistor. I found none, so
> the crack might have come from somewhere else in my room. But when
> I resumed the bias adjustment, there was instantly a loud crack
> and a flash. I powered off the 830s immediately.
>
> Upon closer inspection four cathode resistors on the final unit
> board were open. They had worked as fuses and hopefully saved the
> finals. In the morning I had replaced the old cathode resistors
> with new ones with the same specs, so why did they open?.
>
> 73
>
> Peter OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 20. december 2013 04:27
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> That's great to hear your 830 is coming back to life.
>
> You said the plates turned RED in the 6146s. You don't know what
> damage may have occurred in the tubes when that happened. You said
> with the tubes removed there is no smoke and no unusual sounds.
> You also said the voltages are changing as they should when
> testing between receive and transmit, at least that is what I got
> out of what you said. Therefore, that's why I would not use the
> original tubes. It's also possible the original tubes themselves
> may have caused some or all of your problems.

>
> 73
> Mike W5RKL
>
>
>
>
> On 12/19/2013 12:32 PM, Peter Ravn wrote:
>
> Mike,
>
> Good news! My TS830S passed the first tests with driver and
> final tubes removed. No smoke or unusual sounds. Bias
> voltages run smoothly from - 40 VDC to - 110 VDC on FG.
> Screen voltages are + 265 VDC on SG. The panel meter works
> normally again, and so does the receiver. The next and final
> test will be with tubes installed.
>
> I am waiting for the final cage kit from KE7OAY, and tomorrow
> I will have a new set of 6146B's to replace the ones that
> turned RED. You stress that I should not reuse the same tubes.
> Why not?
>
> Thanks a lot for your outstanding help.
>
> 73
>
> Peter OZ8CTTH
>
> *Fra:*Peter Ravn [mailto:fasan5@...]
> *Sendt:* 14. december 2013 17:09
> *Til:* 'TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>'
> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
> Mike,
>
> I found the smoking gun today: R102, a 10 k ohms resistor
> connecting Q10 on the AF unit to the FG terminal on the board.
> The resistor is severely discoloured, but surprisingly not
> open. It will naturally be replaced.
>
> 73
>
> Peter, OZ8CTH
>
> *a:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af
> *Peter Ravn

> *Sendt:* 14. december 2013 09:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
>
>
> Mike,
>
> I have ordered The Final Cage Repair Kit (C7, C8 and L1) from
> KE7OAY. When it is installed, and R11, R15 and R16 on the
> rectifier have been replaced, I will follow your instruction
> and let you know the result.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
> *Sendt:* 11. december 2013 22:15
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> I made a couple of mistakes.
>
> First, I gave you the wrong final amplifier tube socket pin
> number to measure the final tube's screen voltage, it should
> be pin 3 instead of pin 5.
>
> I also left out, accidentally deleted it, where I asked you to
> check the bias voltage at the final amplifier's tube socket,
> pin 5, You should measure the grid voltage in transmit and
> adjust the bias pot. You should see a smooth increase and
> decrease in bias voltage on pin 5 of the final tube socket
> when adjusting the bias pot.
>
> Ken, K4EAA, sells an RF amplifier rebuild kit that has the
> small RF choke along with a few other components. Check his
> website for prices, www.k4eaa.com <http://www.k4eaa.com> .
>
> Sorry for the mistakes.

>
> 73
> Mike W5RKL
>
> On 12/11/2013 12:30 PM, Peter Ravn wrote:
>
> Mike,
>
> This is what I found today. I rechecked the inside of the
> final amplifier and found no obvious signs of overheating.
> I measured the big RF choke (L2). Unplugged it was 0.9
> ohms and 137 uH. I lifted the small RF choke (L1), which
> was 0.5 ohms and only 0.035 uH instead of 470 uH. To be
> absolutely sure I repeated the measurement five or six
> times. So apparently L1 has gone bad and should be
> replaced. The thing is how to get it.
>
> In the RF unit I checked resistors R6 and R7, and they are
> ok. I also checked C181 and C182 in the IF unit. One was
> 27 uF, the other 18 uF, so they seem ok. In the rectifier
> R15 is 60 K and R16 70 K. They should be 57 K and will be
> replaced together with the infamous R11, which suddenly
> looked overheated though not open.
>
> To be continued...
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
> *Sendt:* 11. december 2013 17:02
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>
>
>
> Hi Peter,
>
> You said you checked the inside the final amplifier. Did
> you visually inspect the 2 RF chokes in the final
> amplifier? There are 2, the large vertical choke between
> the 2 final tubes and small choke on the chassis near the
> final tube sockets, it looks like a resistor. It's on the
> top of the final amplifier section of the chassis.
>
> Also, do you have a known good pair of 6146Bs? I wouldn't

> trust the ones that were in the 830 when the smoke and RED
> plates occurred. If not then obtain a known good pair of
> 6146Bs to replace the old 6146Bs.
>
> I recommend you leave the driver and both finals out of
> the 830. Make sure the final plate caps can't touch/short
> to anything, then connect a DC volt meter's Black lead to
> the Final Unit's "FG" terminal and the meter's Red lead to
> the chassis. Set the DC volt meter to measure a minimum of
> 200VDC. Set the Mode switch to USB or LSB, and power up
> the 830. If any abnormal noise are heard or you see smoke,
> turn the 830 off immediately and locate the source of the
> noise/smoke and fix it before proceeding. If everything
> appears normal then flip the SEND switch UP and note the
> bias voltage on the DC volt meter. Rotate the bias pot
> either side of center rotation, you should see a smooth
> increase and decrease of the bias voltage. Unkey the
> transmitter.
>
> Repeat the test except this time you will be measuring the
> final tube's screen voltage on pin 5 of the final tube
> socket. You should see approximately +265VDC. The screen
> voltage will not change much, if at all, when you switch
> from receive to transmit then back to receive. This is
> because there are no final tubes in the final amplifier so
> screen current will flow in the screen circuit. Unkey the
> 830 and power the 830 OFF.
>
> If there are no problems encountered during the above
> test, proceed to the next test. However, as I said above,
> if there are any problems encountered do NOT proceed with
> the next test, determine the cause of the problem and fix
> it before you proceed.
>
> Set the SG switch to "OFF", power up the 830, and note the
> final tube screen voltage, pin 5 on the tube socket and
> "SG" terminal on the Final Unit. The voltage should be
> approximately "-100VDC" and the Relay RL1 on the Rectifier
> Unit should be energized. Power the 830 OFF and set the SG
> Switch to ON and repeat the final tube screen voltage
> check, it should be approximately +265VDC and Relay RL1 on
> the Rectifier Unit should NOT be energized.
>
> If those test/checks are good then power off the 830, let
> the HV filter capacitors bleed to zero (check HV caps with
> a DC volt meter) then install the driver and a pair of
> "known good" 6146Bs in the final amplifier.
>
> Set the SG switch to OFF, power up the 830, and set HEATER
> switch to ON. Allow about an minute for tube warm up. Look

> and listen for any abnormal noises and smoke. If you see
> and/or hear any smoke and/or abnormal noise, power the 830
> OFF immediately and locate the source of the problem and
> fix it before you proceed.
>
> Set meter switch to ALC, CAR knob full CW, DRIVE control
> to 12 o'clock, band switch to 7, and SEND Switch UP.
> Again, if any problems such as abnormal sounds, smoke,
> etc., are seen/heard, turn the 830 OFF immediately. If no
> problems occur, adjust the DRIVE control for a peak
> indication. If meter pegs full to the right, reduce the
> CAR Control CCW so the meter pointer is pointing at or
> near 12 o'clock and continue adjusting DRIVE control for a
> peak ALC meter indication. Again, if any problems occur,
> regardless of what those problems may be, unkey the
> transmitter immediately!! If the problems continues, you
> smell something getting hot or you see smoke, power the
> 830 OFF immediately and determine the cause of the problem
> and fix it before you proceed any further.
>
> Measure all final tube socket and Final Unit voltages on
> the "foil side" of the Final Amplifier Unit. Attempting to
> measure the final tube's screen and grid voltage through
> the top of the tube sockets can easily result in your
> hand/fingers and meter probes coming in contact with the
> HV on the RF choke and the plate cap parasitic
> suppressors. Use caution when measure DC voltage, as you
> know there are voltages in the 830 that can easily kill
> you so take your time and pay attention to what you are
> doing. Do not attempt to perform any of these test/voltage
> measurements when you are tired.
>
>
> 73
> Mike W5RKL
>
> On 12/10/2013 12:03 PM, Peter Ravn wrote:
>
> Mike,
>
> I carefully followed your instructions, and this is
> what I have found:
>
> All four cathode resistors in the final unit are
> within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms
> and R5 20.9. They didn't look overheated either, so
> there was no need to replace them. But the screen
> resistors looked somewhat bleak. R7 was 119 ohms and
> R8 109 ohms, so they were replaced. I carefully
> inspected the board and found no smoking gun. Finally

> I cleaned the board on both sides and replugged it.
>
> With my ohm meter I spotted the erratic behavior of
> the bias pot you mention. After a careful cleaning the
> pot now shows smooth change of resistance when
> rotated. The resistance is now also identical on both
> terminals.
>
> I opened the final cage and removed the final tubes.
> In the cage there was no sign of overheating. I also
> removed the driver tube.
>
> On the reticifier R11 survived the battle, but with
> clear traces of overheating.
>
> This is status until now. I will continue the
> troubleshooting as soon as I find time.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
> af *Mike
> *Sendt:* 10. december 2013 13:55
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV: SV:
> [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> It appears the bias pot is the source of instability
> when setting the 60ma idling current.
>
> Unplug the main power, make sure the HV caps have bled
> down to zero before you attempt any of the following
> checks and cleaning steps.
>
> Before you perform the following cleaning and testing
> process, thoroughly check the Final Unit's Cathode and
> Screen resistors. If there is evidence the resistors
> are damaged (overheated) or any of the resistors are
> out of tolerance, replace all of them. For example, if
> you find 2 of the 4 cathode resistors have overheated,
> replace all 4 of them with new resistors. The same for

> the screen resistors, if one if bad or out of
> tolerance then replace both with new resistors.
>
> Thoroughly clean the bias pot with contact cleaner.
> Exercise the pot throughout it's travel, many times,
> during the cleaning process. I use DeoXit F5 Fader
> cleaner for pots then I use canned air to remove all
> cleaner residue and any dirt from the pot. I then test
> the pot using an ohm meter connected between the pot's
> wiper (center terminal) and any of the outside
> terminals. I rotate the pot slowly watching the ohm
> meter to see if any position results in erratic
> behavior. If I see erratic behavior I clean the pot
> again, thoroughly then retest the pot. Once the pot
> exhibits smooth resistance changes I consider the pot
> clean.
>
> Remove the Driver and both Final tubes and make sure
> the plate caps cannot touch anything or short to the
> chassis etc.
>
> You should use an analog DC volt meter for the
> following test. The meter should have a low voltage
> setting of approximately 200 to 250VDC. Set the meter
> to either low voltage setting, which ever your analog
> meter has.
>
> Connect the analog DC volt meter to the Final Unit's
> "FG" terminal and ground (RED lead to FG terminal and
> BLACK lead to the Chassis). With you finger on the
> main power switch, power up the 830. If you see smoke
> or hear unusual sounds turn the 830 off immediately
> and find what is causing the smoke and/or unusual
> sounds and eliminate the problem before proceeding. If
> there is no smoke and no unusual sounds, continue on
> to the next step.
>
> Set the mode switch to USB or LSB and set the SEND
> switch UP. Again, any unusual sounds or you see smoke,
> unkey the 830 and turn it off immediate. If all is
> okay so far then adjust the bias pot while watching
> the analog DC volt meter. The meter indication should
> rise and fall, depending on the direction you are
> rotating the bias pot indicating a smooth change in
> voltage as you rotate the bias pot. If this occurs,
> move the analog DC volt meter RED lead to pin 5 on the
> final tube socket foil side of the Final Unit PC board
> and repeat the bias pot adjustment, watching the meter
> closely, especially noting the volt meter movement at
> the low negative level of bias voltage, i.e., around

> the -50 to -70 VDC range. You should see the same
> results, a smooth increase and decrease of the bias
> voltage. If this test indicates a smooth change in
> bias voltage, no instability in the bias pot voltage
> indicated on your analog DC volt meter, then the bias
> circuit is working properly. The test results should
> be achieved using the analog DC volt meter connected
> to the AF Unit's "FG" terminal. The AF Unit and Final
> Unit "FG" terminals are connected together with a wire
> in the wiring harness. You can see this on the 830
> schematic.
>
> Do not reuse the same 6146 tubes, obtain known good
> 6146Bs.
>
> Let us know what the results of the above tests are.
>
> 73
> Mike W5RKL
>
>
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> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>
> Mike,
>
> After replacing R11 I had 264 DVC on the RF unit
> terminal, on terminals 210A and 210B on the
> rectifier and on SG on the final unit. After some
> time I managed to get 60 mA idle current and
> started tuning up. The transmitter seemed somewhat
> unstable, and the panel meter would not zero in
> STAND-BY. A scary noise was suddenly heard,
> whereupon the finals turned deadly red and the
> fuse on the rear blew. When I replaced the fuse
> and turned on the radio again, smoke came from
> somewhere between the AF and the RF unit. End of
> today.
>
> Good night and good luck.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com

> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
> vegne af *W5RKL
> *Sendt:* 9. december 2013 19:57
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV: SV:
> [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You also might check the RF Unit's voltage divider
> resistors, R36 (100K) and R37 (3.3K). Terry, K9TW,
> told me those resistors are some times changed to
> "hot rod" the hybrids. I wasn't aware those
> resistors were changed to "hot rod" the hybrids so
> check them.
>
> Also, check the final unit's R7 and R8, both 100
> ohms. They are the final unit's "screen
> resistors". If they both measure within tolerance
> you do NOT have to replace them!!!!
>
> Let me know what you find when checking R36 and
> R37 on the RF unit and R7 and R8 on the Final Unit
> board. Also let me know if you can tune your 830
> up to full power into your dummy load.
>
> 73
> Mike W5RKL
>
>
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> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>
> Mike,
>
> I have rechecked the voltages on the
> rectifier. On terminal 210A there are zero
> VDC, and on terminal 210B there are 264 DVC.
> If I bypass the open R11, I get 263 DVC on
> terminal 210A. No wonder that I see no
> voltages on plug 9, pin 2 on the RF unit.
>
> Time to replace the open R11?
>

> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 9. december 2013 15:16
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV: SV:
> [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You say that R11 is OPEN. Okay that will
> result in 210A voltage to be "0VDC" just as I
> said it would.
>
> I said you should recheck your voltages on the
> Rectifier Unit's 210A and 210B terminals, it
> appeared you had them "backwards". Once you
> found R11 was open, did you recheck the 210A
> and 210B voltages as I asked you do to? Since
> you say R11 is "open" then, as I indicated
> above, the voltage on the Rectifier Unit's
> "210A" terminal is "0VDC". You initially said
> the voltage on the Rectifier Unit's "210B"
> terminal was "0VDC" which I didn't believe you
> and so I asked you to recheck your voltages.
> What is the voltage on the Rectifier Unit's
> "210B" terminal?
>
> 73
> Mike W5RKL
>
>
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>
> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>
> Mike,
>

> Thanks to your patience and conscise
> instruction I found the culprit: R11 is
> open. I checked all the other diodes on
> the rectifier board, including the D6 you
> mentioned, and they are all ok.
>
> I have a new 470 ohms 1W resistor to
> replace the bad one, but before doing so I
> should like to know what made R11 open.
> What else to check before firing up my TS830S?
>
> Once again thanks for your help. It is
> outstanding.
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 9. december 2013 13:49
> *Til:* TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV: SV:
> [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> You measured +263VDC at 210A but zero VDC
> at 210B? That doesn't make sense. I think
> you have the voltage measurements at the
> Rectifier Unit's 210A and 210B
> "backwards". I think the Rectifier Unit's
> "210A" terminal voltage is "0VDC" and the
> Rectifier Unit's "210B" terminal voltage
> is "+263VDC". You need to "recheck" the
> voltages on the Rectifier Unit's "210A"
> and "210B" terminals.
>
> You also did not comment on the condition
> of "R11" (470 ohm) on the Rectifier Unit I
> asked you to do. Did you visual inspect
> R11? Did you measure the resistance of
> R11? If R11 is "open" then the Rectifier
> Unit's "210A" terminal voltage will be
> "0VDC" which will results in 0VDC on the
> RF Unit plug 9 pin 2 (210A) and 0VDC on

> SG1, SG2, PD2, and the Final Unit's "SG"
> terminal and the final tube's screen, pin 3.
>
> Are you using the TS-830 schematic to
> troubleshoot this problem? You need to do
> that.
>
> 73
> Mike W5RKL
>
>
>
>
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>
> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>
> Mike,
>
> There is no voltage on RF unit plug 9
> pin2 (210A). On 210A on the rectifier
> there are 263 DVC, but zero on 210B,
> so where does that leave us?
>
> 73
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 23:41
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV: SV:
> [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> The Rectifier Unit's HV supply is a
> "Voltage Doubling" supply. Therefore,
> you will not see 800VAC on the
> transformer's "800AC" terminal. I
> recommend you spend some time studying

> how voltage doubling supplies work.
> The ARRL handbook has a section that
> covers different types of power
> supplies, including voltage doubling
> supplies.
>
> Your problem does not appear to be a
> bias problem but rather a loss of
> screen voltage to the driver and both
> final tubes.
>
> Loss of screen voltage to the driver
> and both final tubes will shut those
> tubes "down", no conduction in the
> tubes will occur. That means you will
> not see any drive from the driver tube
> to the final amplifier, no final tube
> IP current indication of any kind in
> any mode, and the final amplifier's
> cathode voltage will be zero.
>
> The reason the final tube cathode
> voltage is zero is simply because
> there is no current flowing in the
> final tubes. This is part of vacuum
> tube theory which is discussed in the
> ARRL handbook, early editions are the
> best or you can study the same theory
> in John T. Fryes, Basic Radio Course
> which is available in CD form from a
> seller on eBay.
>
> Since you have already checked the
> final tube's screens for voltage and
> found it to be zero, now check the RF
> Unit plug 9 pin 2 (210A). This is the
> driver tube's screen voltage from the
> Rectifier Unit's 210A source. If
> voltage is zero at RF Unit plug 9 pin
> 2, is zero check the Rectifier Unit's
> "210A" and "210B" supply outputs. If
> voltage at 210A "and" 210B are zero,
> check Rectifier Unit diode D6, it's
> most likely "open" resulting in zero
> voltage at 210A and 210B, hence zero
> screen voltage to the driver and both
> final tubes. Visually inspect R11, 470
> ohm resistor on the Rectifier Unit.
> Resistor R11 is physically located on
> the Rectifier Unit but R11 is

> connected between the positive
> terminals of C180 and C181 which are
> on the IF Unit.
>
> If D6 is open, check C180 and C181,
> both are 22ufd 350VDC "Radial lead"
> capacitors on the IF unit, they are
> the filter capacitors for the
> Rectifier Unit's 210A and 210B supply,
> one or both could be shorted which
> would take out D6 resulting in zero
> Rectifier Unit 210A and 210B voltage,
> hence no screen voltage to the driver
> and both final tubes.
>
>
> 73
> Mike W5RKL
>
>
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>
> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>
> Mike,
>
> Here is an update on my latest
> findings.
>
> On the rectifier board there are
> no voltages on TUNE, SG1, SG2, PD1
> and PD2. On AC800 there are only
> 324 VAC instead of 800 VAC.
> Voltages on all other terminals on
> the rectifier board are ok,
> including the bias voltage which
> is -- 110 DVC. R15 was checked and
> found ok. The preliminary
> conclusion is that the finals are
> getting no screen voltage from the
> rectifier.
>
> In TUNE/SEND the panel meter shows
> 900 DVC.
>
> When the HEATER is switched on,

> the filaments in the finals come
> alive. Voltages on the filaments
> are according to specs. There are
> -- 103 DVC on the grids (pins 5),
> and with the bias potentiometer on
> the rear the voltages can be
> adjusted from -- 93 to -103 VDC.
> So this part seems to work . But
> there are no voltages on the
> screen or on the cathode. Screen
> and cathode resistors were checked
> and found ok, so the problem must
> be somewhere else.
>
> Good night and good luck.
>
> Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Peter Ravn
> *Sendt:* 8. december 2013 17:29
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* SV: SV:
> [TS-520_820_530_830] TS830S no bias
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> Mike,
>
> A new careful measurement gave
> another result. On the rectifier
> there are -- 109 DVC in STAND-BY
> and -- 107 DVC in TUNE. On pins 5
> of the final unit there are -- 96
> DVC in STAND-BY and -- 57 DVC in
> TUNE. So apparently there is a
> loss, but not a complete loss of
> bias voltage, which might prove

> fatal.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 16:39
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re: SV:
> [TS-520_820_530_830] TS830S no bias
>
>
>
> Peter,
>
> Loss of bias voltage to the final
> tubes will result in the final
> tubes conducting to saturation
> levels even in receive. Loss of
> bias voltage to the final tubes
> may have permanently damaged your
> final tubes.
>
> Have you checked/measured the bias
> voltage at the Rectifier Unit's
> "-C" terminal?
>
> I recommend you troubleshoot the
> bias supply from the Rectifier
> Unit "-C" to the final tubes to
> find where the loss of bias
> voltage is occurring.
>
> 73
> Mike W5RKL
>
> On 12/8/2013 9:15 AM, Peter Ravn
> wrote:
>
> Mike,
>
> I followed the standard
> procedure. I turned the POWER
> and HEATER switches on, placed
> the MODE switch to SSB, the
> METER switch to lp, pushed the

> SEND button and adjusted the
> BIAS control, but there was no
> reading at all. I then
> measured pin 5 in in the
> finals and saw no voltages in
> STAND-BY or SEND position. The
> only deflection on the TS
> meter is in HV in SEND
> position with voltages about
> 820 DVC.
>
> A correction to my first mail.
> I /do/ hear the t/r antenna
> relay when I key the transmitter.
>
> 73 Peter, OZ8CTH
>
> *Fra:*TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> [mailto:TS-520_820_530_830@yahoogroups.com]
> *P? vegne af *Mike
> *Sendt:* 8. december 2013 15:24
> *Til:*
> TS-520_820_530_830@yahoogroups.com
> <mailto:TS-520_820_530_830@yahoogroups.com>
> *Emne:* Re:
> [TS-520_820_530_830] TS830S no
> bias
>
>
>
> Peter,
>
> You said you checked for bias
> voltage and found none. If I
> may ask, did you measure the
> bias voltage at the final tube
> grids, pin 5, and that is
> where you found no bias voltage?
>
>
> 73
> Mike W5RKL
>
>
>
>
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>

>
> On 12/8/2013 2:15 AM,
> ravnpeter@...
> <mailto:ravnpeter@...>
> wrote:
>
> There is no current in
> TUNE position on my
> TS830s. In SEND position
> there is no deflection on
> the meter and no noise
> from the t/r relay. The
> heater and SG switch are
> naturally on.
>
> I checked R15 in the
> rectifier, and it was
> okay. So were the cathode
> and plate resistors in the
> final unit. I then checked
> the bias and found no bias
> at all. Adjusting the the
> BIAS control had no effect.
>
> Any advice will be
> appreciated.
> Thanks.
>
> Peter, OZ8CTH
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> Antivirus <http://www.avast.com/> protection is active.
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46557. Re: [TS-520_820_530_830] unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 19:25:19 UTC
From: Michael Sylvester
Topic: 46554 Message: 46557

Thanks, Wiz.
Being "unmoderated", does that mean I can mention I'm attempting to sell "Golden Hemostat" buggered up radios or do I have remaining probationary time on that front?
No idea what my join date was or when my 30 day probation ends....
Are there additional rules for that I should find and review?
Or would it be Ok for me to now post (only occasionaly, not to be burdensome with my pushing product) a link to my overpriced offerings on eBay?

Thanks Joe, I like it here.
Wonderful bunch of men you have collected here.
I feel refreshed from the feeling of exasperation I was feeling with my Millwright Union.
A years worth of work ($100,000) 5 miles from the house and they have let me have NONE OF IT.
Getting back into Amateur radio after 42 years was a good decision for me.
I've spent a crapload of money, not made a dime, but I'm happy.
I'm also happy that I'm slowly being accepted here. It's a good feeling.

Now if I could just get the "Breakfast Club" to pay more attention to my political views.....
Thanks to all of you.

"All it takes for evil to succeed is for good men to do nothing".
Michael///KD0WSJ

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, December 21, 2013 12:26 PM
Subject: [TS-520_820_530_830] unmoderation

Tom- n8nma & Michael-kd0wsj

The benevolent, great and powerful Co-owner of OZ, has granted your request for "un-moderation."

At times the Wiz gets behind.

Thanks for joining and being a part of this great group. Remember, the policies still apply.

Happy Holidays

73 Joe
WB7UQU
Group Co-OZ

46558. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 19:39:24 UTC
From: W5RKL
Topic: 46257 Message: 46558

I forgot the mention. Vacuum tubes people buy and let sit on the shelf for months/years on end can easily result in gas entering the vacuum from around the tube pins. This gas collection, if accumulated in high quantities, can result in an arc occurring which is what happened with the 6146A in my HW-101 that sat for 20 years.

Don't misunderstand me! I am not saying the 6146Ws RF Part sold you, sat around for years.

Quite often hams buy spare tubes. Many of them sit on the shelf for months and years. If you plan on purchasing spares you should use those spares on a periodic basis. The gas absorbing/eliminating element is the "Getter" element and it is attached to the "Plate" of the tube. Low power and receiving tubes all have it. The "shinny" chrome coating on the inside of the glass envelope is where the "Getter element" is located. You can see it. The element can be a round cup, a square, or wrong wire. The element is always attached to the PLATE. The plate gets hot when current flows in the tube. The heating of the plate causes the getter element to get hot which helps absorb gas in the tube. You will not find the getter element connected to any element in the tube except the plate!

73
Mike W5RKL

On 12/21/2013 1:20 PM, W5RKL wrote:
> Peter,
>
> The only "new" 6146" vacuum tubes I know of that are being
> manufactured "new", come from China. It is quite possible the 6146Ws
> you received from RF Parts were made in China.
>
> I have no experience with RF Parts vacuum tubes. I have been buying
> all my 6146 tubes from:
>
> www.vacuumtubes.net
>
> I have never received a bad tube from them. I recently purchased six
> 6146A that were installed in my Heathkit HW-101, SB-100 transceivers
> and SB-400 and SB-401 transmitters. None of them have failed and are
> still being used today at full output. The HW-101 sat for "20 years"
> in the owner garage. After a lengthy time period of cleaning testing,
> etc, the "original" 6146As produced 100 watts output for "4 days" and
> on the "5th day" one of the 6146As "arced" causing the HP-23 power
> supply breaker to trip. The breaker tripping prevented the "2.2 ohm 2
> watt" cathode resistor from failing due to the high current flowing in

> the cathode circuit. If the breaker would not have tripped, I suspect
> the 2.2 ohm 2 watt cathode resistor would have failed, permanently
> damaged!
>
> Speaking of a breaker tripping, did the fuse blow in the 830 when the
> problem occurred? If it didn't. why didn't it? Was the fuse rating
> wrong? The fuse should have blow with that high current flowing in the
> cathode circuit!
>
> I would write and ask RF Parts, informing them of the failure that
> occurred in your 830, using their 6146Ws. I also would ask them if the
> 6146Ws they sold you were manufactured in China. With all the failures
> of Chinese vacuum tubes these days, I stay away from any Chinese
> vacuum tube.
>
> 73
> Mike W5RKL
>
>
>
>
>
> On 12/21/2013 11:46 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> I did perform voltage test /after/ I replaced the four cathode
>> resistors. Voltages were according to specs. Then I plugged in the
>> new final tubes. Again bias and screen voltages on FG and SG on the
>> final unit board were according to specs. Then I switched on the
>> HEATER and after a few minutes the SG SWITCH as well. Voltages still
>> normal, no smoke, no unusual sounds. It was not until I keyed the
>> transmitter and started the standard bias adjustment procedure that
>> the cathode resistors opened. I did no more than that.
>>
>> The finals (6146W JAN) were shipped from RF parts through a local
>> shop and arrived yesterday. They are unused/new and quite expensive.
>> If they are bad and have shorts, I will naturally lodge a complaint.
>> But how to prove they were bad on arrival?
>>
>> 73
>>
>> Peter OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *Mike
>> *Sendt:* 21. december 2013 17:12
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> *Emne:* Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>

>>
>>
>> Peter,
>>
>> You should first think what "difference" or "change" has occurred
>> since you replaced the 4 cathode resistor then performed the voltage
>> measurements/test? The only change you have indicated is you replaced
>> the 6146B final tubes. Yes, I said I didn't trust the original tubes,
>> still don't, but now I don't trust the replacement tubes you used
>> either! I suspect there are possibly shorts in the replacement 6146Bs
>> which caused significant increases in voltage, current, and power
>> dissipation in the cathode circuit with the replacement 6146Bs installed.
>>
>> You should understand the 6146 has a "Beam Forming" plate that is
>> connected both internally AND externally to the tube's "Cathode".
>> This is required so the Beam Forming plate has the same potential as
>> the Cathode, "negative in respects to the plate". So any short to the
>> Beam Forming plate is also a short to the Cathode.
>>
>> You can perform the calculations yourself, to see what happens when
>> element short internally in the tube. All the voltage and resistance
>> values you need to perform the calculations are shown on the final
>> amplifier's schematic. The following is an example if a short occurs
>> between the 6146 screen and beam forming plate/cathode and it clearly
>> shows what voltage, current, and power values will be in the final
>> amplifier's cathode circuit.
>>
>> For example, if the screen shorts to the beam forming plate, the
>> cathode voltage would "instantly" become "+265VDC" which will result
>> in "53 amps" of cathode current (265 / 5 = 53) and 14,045 watts
>> dissipated in the cathode circuit (53 x 53 x 5 = 14045)! That would
>> result in 13.25 amps flowing through "each" 20 ohm 1/2 watt cathode
>> resistor (265 / 20 = 13.25) and each cathode resistor dissipating
>> 3,511.25 watts (13.25 x 13.25 x 20 = 3511.25).
>>
>> 73
>> Mike W5RKL
>>
>> On 12/21/2013 7:26 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> I had carefully followed your instructions and was now ready for
>> the final test with a new set of 6146s plugged in. When I was
>> adjusting the bias with the pot on the rear panel, there was a
>> hardly audible crack. The meter said 60 mA, when I turned off the
>> radio and started looking for a cracked resistor. I found none,
>> so the crack might have come from somewhere else in my room. But
>> when I resumed the bias adjustment, there was instantly a loud
>> crack and a flash. I powered off the 830s immediately.

>>
>> Upon closer inspection four cathode resistors on the final unit
>> board were open. They had worked as fuses and hopefully saved the
>> finals. In the morning I had replaced the old cathode resistors
>> with new ones with the same specs, so why did they open?.
>>
>> 73
>>
>> Peter OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
>> *Sendt:* 20. december 2013 04:27
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> That's great to hear your 830 is coming back to life.
>>
>> You said the plates turned RED in the 6146s. You don't know what
>> damage may have occurred in the tubes when that happened. You
>> said with the tubes removed there is no smoke and no unusual
>> sounds. You also said the voltages are changing as they should
>> when testing between receive and transmit, at least that is what
>> I got out of what you said. Therefore, that's why I would not use
>> the original tubes. It's also possible the original tubes
>> themselves may have caused some or all of your problems.
>>
>> 73
>> Mike W5RKL
>>
>>
>>
>>
>> On 12/19/2013 12:32 PM, Peter Ravn wrote:
>>
>> Mike,
>>
>> Good news! My TS830S passed the first tests with driver and
>> final tubes removed. No smoke or unusual sounds. Bias
>> voltages run smoothly from - 40 VDC to - 110 VDC on FG.
>> Screen voltages are + 265 VDC on SG. The panel meter works
>> normally again, and so does the receiver. The next and final
>> test will be with tubes installed.
>>

>> I am waiting for the final cage kit from KE7OAY, and tomorrow
>> I will have a new set of 6146B's to replace the ones that
>> turned RED. You stress that I should not reuse the same
>> tubes. Why not?
>>
>> Thanks a lot for your outstanding help.
>>
>> 73
>>
>> Peter OZ8CTTH
>>
>> *Fra:*Peter Ravn [mailto:fasan5@...]
>> *Sendt:* 14. december 2013 17:09
>> *Til:* 'TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>'
>> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>> Mike,
>>
>> I found the smoking gun today: R102, a 10 k ohms resistor
>> connecting Q10 on the AF unit to the FG terminal on the
>> board. The resistor is severely discoloured, but surprisingly
>> not open. It will naturally be replaced.
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *a:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af
>> *Peter Ravn
>> *Sendt:* 14. december 2013 09:16
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* SV: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>>
>>
>> Mike,
>>
>> I have ordered The Final Cage Repair Kit (C7, C8 and L1) from
>> KE7OAY. When it is installed, and R11, R15 and R16 on the
>> rectifier have been replaced, I will follow your instruction
>> and let you know the result.
>>
>> 73
>>

>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af *W5RKL
>> *Sendt:* 11. december 2013 22:15
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> I made a couple of mistakes.
>>
>> First, I gave you the wrong final amplifier tube socket pin
>> number to measure the final tube's screen voltage, it should
>> be pin 3 instead of pin 5.
>>
>> I also left out, accidentally deleted it, where I asked you
>> to check the bias voltage at the final amplifier's tube
>> socket, pin 5, You should measure the grid voltage in
>> transmit and adjust the bias pot. You should see a smooth
>> increase and decrease in bias voltage on pin 5 of the final
>> tube socket when adjusting the bias pot.
>>
>> Ken, K4EAA, sells an RF amplifier rebuild kit that has the
>> small RF choke along with a few other components. Check his
>> website for prices, www.k4eaa.com <http://www.k4eaa.com> .
>>
>> Sorry for the mistakes.
>>
>> 73
>> Mike W5RKL
>>
>> On 12/11/2013 12:30 PM, Peter Ravn wrote:
>>
>> Mike,
>>
>> This is what I found today. I rechecked the inside of the
>> final amplifier and found no obvious signs of
>> overheating. I measured the big RF choke (L2). Unplugged
>> it was 0.9 ohms and 137 uH. I lifted the small RF choke
>> (L1), which was 0.5 ohms and only 0.035 uH instead of 470
>> uH. To be absolutely sure I repeated the measurement
>> five or six times. So apparently L1 has gone bad and
>> should be replaced. The thing is how to get it.
>>
>> In the RF unit I checked resistors R6 and R7, and they

>> are ok. I also checked C181 and C182 in the IF unit. One
>> was 27 uF, the other 18 uF, so they seem ok. In the
>> rectifier R15 is 60 K and R16 70 K. They should be 57 K
>> and will be replaced together with the infamous R11,
>> which suddenly looked overheated though not open.
>>
>> To be continued...
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne af
>> *Mike
>> *Sendt:* 11. december 2013 17:02
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Hi Peter,
>>
>> You said you checked the inside the final amplifier. Did
>> you visually inspect the 2 RF chokes in the final
>> amplifier? There are 2, the large vertical choke between
>> the 2 final tubes and small choke on the chassis near the
>> final tube sockets, it looks like a resistor. It's on the
>> top of the final amplifier section of the chassis.
>>
>> Also, do you have a known good pair of 6146Bs? I wouldn't
>> trust the ones that were in the 830 when the smoke and
>> RED plates occurred. If not then obtain a known good pair
>> of 6146Bs to replace the old 6146Bs.
>>
>> I recommend you leave the driver and both finals out of
>> the 830. Make sure the final plate caps can't touch/short
>> to anything, then connect a DC volt meter's Black lead to
>> the Final Unit's "FG" terminal and the meter's Red lead
>> to the chassis. Set the DC volt meter to measure a
>> minimum of 200VDC. Set the Mode switch to USB or LSB, and
>> power up the 830. If any abnormal noise are heard or you
>> see smoke, turn the 830 off immediately and locate the
>> source of the noise/smoke and fix it before proceeding.
>> If everything appears normal then flip the SEND switch UP
>> and note the bias voltage on the DC volt meter. Rotate
>> the bias pot either side of center rotation, you should
>> see a smooth increase and decrease of the bias voltage.

>> Unkey the transmitter.
>>
>> Repeat the test except this time you will be measuring
>> the final tube's screen voltage on pin 5 of the final
>> tube socket. You should see approximately +265VDC. The
>> screen voltage will not change much, if at all, when you
>> switch from receive to transmit then back to receive.
>> This is because there are no final tubes in the final
>> amplifier so screen current will flow in the screen
>> circuit. Unkey the 830 and power the 830 OFF.
>>
>> If there are no problems encountered during the above
>> test, proceed to the next test. However, as I said above,
>> if there are any problems encountered do NOT proceed with
>> the next test, determine the cause of the problem and fix
>> it before you proceed.
>>
>> Set the SG switch to "OFF", power up the 830, and note
>> the final tube screen voltage, pin 5 on the tube socket
>> and "SG" terminal on the Final Unit. The voltage should
>> be approximately "-100VDC" and the Relay RL1 on the
>> Rectifier Unit should be energized. Power the 830 OFF and
>> set the SG Switch to ON and repeat the final tube screen
>> voltage check, it should be approximately +265VDC and
>> Relay RL1 on the Rectifier Unit should NOT be energized.
>>
>> If those test/checks are good then power off the 830, let
>> the HV filter capacitors bleed to zero (check HV caps
>> with a DC volt meter) then install the driver and a pair
>> of "known good" 6146Bs in the final amplifier.
>>
>> Set the SG switch to OFF, power up the 830, and set
>> HEATER switch to ON. Allow about an minute for tube warm
>> up. Look and listen for any abnormal noises and smoke. If
>> you see and/or hear any smoke and/or abnormal noise,
>> power the 830 OFF immediately and locate the source of
>> the problem and fix it before you proceed.
>>
>> Set meter switch to ALC, CAR knob full CW, DRIVE control
>> to 12 o'clock, band switch to 7, and SEND Switch UP.
>> Again, if any problems such as abnormal sounds, smoke,
>> etc., are seen/heard, turn the 830 OFF immediately. If no
>> problems occur, adjust the DRIVE control for a peak
>> indication. If meter pegs full to the right, reduce the
>> CAR Control CCW so the meter pointer is pointing at or
>> near 12 o'clock and continue adjusting DRIVE control for
>> a peak ALC meter indication. Again, if any problems
>> occur, regardless of what those problems may be, unkey
>> the transmitter immediately!! If the problems continues,
>> you smell something getting hot or you see smoke, power

>> the 830 OFF immediately and determine the cause of the
>> problem and fix it before you proceed any further.
>>
>> Measure all final tube socket and Final Unit voltages on
>> the "foil side" of the Final Amplifier Unit. Attempting
>> to measure the final tube's screen and grid voltage
>> through the top of the tube sockets can easily result in
>> your hand/fingers and meter probes coming in contact with
>> the HV on the RF choke and the plate cap parasitic
>> suppressors. Use caution when measure DC voltage, as you
>> know there are voltages in the 830 that can easily kill
>> you so take your time and pay attention to what you are
>> doing. Do not attempt to perform any of these
>> test/voltage measurements when you are tired.
>>
>>
>> 73
>> Mike W5RKL
>>
>> On 12/10/2013 12:03 PM, Peter Ravn wrote:
>>
>> Mike,
>>
>> I carefully followed your instructions, and this is
>> what I have found:
>>
>> All four cathode resistors in the final unit are
>> within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms
>> and R5 20.9. They didn't look overheated either, so
>> there was no need to replace them. But the screen
>> resistors looked somewhat bleak. R7 was 119 ohms and
>> R8 109 ohms, so they were replaced. I carefully
>> inspected the board and found no smoking gun. Finally
>> I cleaned the board on both sides and replugged it.
>>
>> With my ohm meter I spotted the erratic behavior of
>> the bias pot you mention. After a careful cleaning
>> the pot now shows smooth change of resistance when
>> rotated. The resistance is now also identical on both
>> terminals.
>>
>> I opened the final cage and removed the final tubes.
>> In the cage there was no sign of overheating. I also
>> removed the driver tube.
>>
>> On the reticifier R11 survived the battle, but with
>> clear traces of overheating.
>>
>> This is status until now. I will continue the
>> troubleshooting as soon as I find time.

>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P? vegne
>> af *Mike
>> *Sendt:* 10. december 2013 13:55
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: SV: SV: SV: SV:
>> [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> It appears the bias pot is the source of instability
>> when setting the 60ma idling current.
>>
>> Unplug the main power, make sure the HV caps have
>> bled down to zero before you attempt any of the
>> following checks and cleaning steps.
>>
>> Before you perform the following cleaning and testing
>> process, thoroughly check the Final Unit's Cathode
>> and Screen resistors. If there is evidence the
>> resistors are damaged (overheated) or any of the
>> resistors are out of tolerance, replace all of them.
>> For example, if you find 2 of the 4 cathode resistors
>> have overheated, replace all 4 of them with new
>> resistors. The same for the screen resistors, if one
>> if bad or out of tolerance then replace both with new
>> resistors.
>>
>> Thoroughly clean the bias pot with contact cleaner.
>> Exercise the pot throughout it's travel, many times,
>> during the cleaning process. I use DeoXit F5 Fader
>> cleaner for pots then I use canned air to remove all
>> cleaner residue and any dirt from the pot. I then
>> test the pot using an ohm meter connected between the
>> pot's wiper (center terminal) and any of the outside
>> terminals. I rotate the pot slowly watching the ohm
>> meter to see if any position results in erratic
>> behavior. If I see erratic behavior I clean the pot
>> again, thoroughly then retest the pot. Once the pot
>> exhibits smooth resistance changes I consider the pot
>> clean.

>>
>> Remove the Driver and both Final tubes and make sure
>> the plate caps cannot touch anything or short to the
>> chassis etc.
>>
>> You should use an analog DC volt meter for the
>> following test. The meter should have a low voltage
>> setting of approximately 200 to 250VDC. Set the meter
>> to either low voltage setting, which ever your analog
>> meter has.
>>
>> Connect the analog DC volt meter to the Final Unit's
>> "FG" terminal and ground (RED lead to FG terminal and
>> BLACK lead to the Chassis). With you finger on the
>> main power switch, power up the 830. If you see smoke
>> or hear unusual sounds turn the 830 off immediately
>> and find what is causing the smoke and/or unusual
>> sounds and eliminate the problem before proceeding.
>> If there is no smoke and no unusual sounds, continue
>> on to the next step.
>>
>> Set the mode switch to USB or LSB and set the SEND
>> switch UP. Again, any unusual sounds or you see
>> smoke, unkey the 830 and turn it off immediate. If
>> all is okay so far then adjust the bias pot while
>> watching the analog DC volt meter. The meter
>> indication should rise and fall, depending on the
>> direction you are rotating the bias pot indicating a
>> smooth change in voltage as you rotate the bias pot.
>> If this occurs, move the analog DC volt meter RED
>> lead to pin 5 on the final tube socket foil side of
>> the Final Unit PC board and repeat the bias pot
>> adjustment, watching the meter closely, especially
>> noting the volt meter movement at the low negative
>> level of bias voltage, i.e., around the -50 to -70
>> VDC range. You should see the same results, a smooth
>> increase and decrease of the bias voltage. If this
>> test indicates a smooth change in bias voltage, no
>> instability in the bias pot voltage indicated on your
>> analog DC volt meter, then the bias circuit is
>> working properly. The test results should be achieved
>> using the analog DC volt meter connected to the AF
>> Unit's "FG" terminal. The AF Unit and Final Unit "FG"
>> terminals are connected together with a wire in the
>> wiring harness. You can see this on the 830 schematic.
>>
>> Do not reuse the same 6146 tubes, obtain known good
>> 6146Bs.
>>
>> Let us know what the results of the above tests are.

>>
>> 73
>> Mike W5RKL
>>
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>> On 12/9/2013 4:29 PM, Peter Ravn wrote:
>>
>> Mike,
>>
>> After replacing R11 I had 264 DVC on the RF unit
>> terminal, on terminals 210A and 210B on the
>> rectifier and on SG on the final unit. After some
>> time I managed to get 60 mA idle current and
>> started tuning up. The transmitter seemed
>> somewhat unstable, and the panel meter would not
>> zero in STAND-BY. A scary noise was suddenly
>> heard, whereupon the finals turned deadly red and
>> the fuse on the rear blew. When I replaced the
>> fuse and turned on the radio again, smoke came
>> from somewhere between the AF and the RF unit.
>> End of today.
>>
>> Good night and good luck.
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com] *P?
>> vegne af *W5RKL
>> *Sendt:* 9. december 2013 19:57
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: SV: SV: SV:
>> [TS-520_820_530_830] TS830S no bias
>>
>>
>>
>> Peter,
>>
>> You also might check the RF Unit's voltage
>> divider resistors, R36 (100K) and R37 (3.3K).
>> Terry, K9TW, told me those resistors are some

>> times changed to "hot rod" the hybrids. I wasn't
>> aware those resistors were changed to "hot rod"
>> the hybrids so check them.
>>
>> Also, check the final unit's R7 and R8, both 100
>> ohms. They are the final unit's "screen
>> resistors". If they both measure within tolerance
>> you do NOT have to replace them!!!!
>>
>> Let me know what you find when checking R36 and
>> R37 on the RF unit and R7 and R8 on the Final
>> Unit board. Also let me know if you can tune your
>> 830 up to full power into your dummy load.
>>
>> 73
>> Mike W5RKL
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>>
>> On 12/9/2013 10:26 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> I have rechecked the voltages on the
>> rectifier. On terminal 210A there are zero
>> VDC, and on terminal 210B there are 264 DVC.
>> If I bypass the open R11, I get 263 DVC on
>> terminal 210A. No wonder that I see no
>> voltages on plug 9, pin 2 on the RF unit.
>>
>> Time to replace the open R11?
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com]
>> *P? vegne af *Mike
>> *Sendt:* 9. december 2013 15:16
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: SV: SV:
>> [TS-520_820_530_830] TS830S no bias
>>
>>
>>

>> Peter,
>>
>> You say that R11 is OPEN. Okay that will
>> result in 210A voltage to be "0VDC" just as I
>> said it would.
>>
>> I said you should recheck your voltages on
>> the Rectifier Unit's 210A and 210B terminals,
>> it appeared you had them "backwards". Once
>> you found R11 was open, did you recheck the
>> 210A and 210B voltages as I asked you do to?
>> Since you say R11 is "open" then, as I
>> indicated above, the voltage on the Rectifier
>> Unit's "210A" terminal is "0VDC". You
>> initially said the voltage on the Rectifier
>> Unit's "210B" terminal was "0VDC" which I
>> didn't believe you and so I asked you to
>> recheck your voltages. What is the voltage on
>> the Rectifier Unit's "210B" terminal?
>>
>> 73
>> Mike W5RKL
>>
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>> On 12/9/2013 7:14 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> Thanks to your patience and conscise
>> instruction I found the culprit: R11 is
>> open. I checked all the other diodes on
>> the rectifier board, including the D6 you
>> mentioned, and they are all ok.
>>
>> I have a new 470 ohms 1W resistor to
>> replace the bad one, but before doing so
>> I should like to know what made R11 open.
>> What else to check before firing up my
>> TS830S?
>>
>> Once again thanks for your help. It is
>> outstanding.
>>
>> 73

>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com]
>> *P? vegne af *Mike
>> *Sendt:* 9. december 2013 13:49
>> *Til:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV: SV:
>> [TS-520_820_530_830] TS830S no bias
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>>
>>
>> Peter,
>>
>> You measured +263VDC at 210A but zero VDC
>> at 210B? That doesn't make sense. I think
>> you have the voltage measurements at the
>> Rectifier Unit's 210A and 210B
>> "backwards". I think the Rectifier Unit's
>> "210A" terminal voltage is "0VDC" and the
>> Rectifier Unit's "210B" terminal voltage
>> is "+263VDC". You need to "recheck" the
>> voltages on the Rectifier Unit's "210A"
>> and "210B" terminals.
>>
>> You also did not comment on the condition
>> of "R11" (470 ohm) on the Rectifier Unit
>> I asked you to do. Did you visual inspect
>> R11? Did you measure the resistance of
>> R11? If R11 is "open" then the Rectifier
>> Unit's "210A" terminal voltage will be
>> "0VDC" which will results in 0VDC on the
>> RF Unit plug 9 pin 2 (210A) and 0VDC on
>> SG1, SG2, PD2, and the Final Unit's "SG"
>> terminal and the final tube's screen, pin 3.
>>
>> Are you using the TS-830 schematic to
>> troubleshoot this problem? You need to do
>> that.
>>
>> 73
>> Mike W5RKL
>>
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>>

>>
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>>
>> On 12/9/2013 1:49 AM, Peter Ravn wrote:
>>
>> Mike,
>>
>> There is no voltage on RF unit plug 9
>> pin2 (210A). On 210A on the rectifier
>> there are 263 DVC, but zero on 210B,
>> so where does that leave us?
>>
>> 73
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com]
>> *P? vegne af *Mike
>> *Sendt:* 8. december 2013 23:41
>> *Til:*
>> TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV: SV:
>> [TS-520_820_530_830] TS830S no bias
>>
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>>
>> Peter,
>>
>> The Rectifier Unit's HV supply is a
>> "Voltage Doubling" supply. Therefore,
>> you will not see 800VAC on the
>> transformer's "800AC" terminal. I
>> recommend you spend some time
>> studying how voltage doubling
>> supplies work. The ARRL handbook has
>> a section that covers different types
>> of power supplies, including voltage
>> doubling supplies.
>>
>> Your problem does not appear to be a
>> bias problem but rather a loss of
>> screen voltage to the driver and both
>> final tubes.
>>
>> Loss of screen voltage to the driver
>> and both final tubes will shut those
>> tubes "down", no conduction in the

>> tubes will occur. That means you will
>> not see any drive from the driver
>> tube to the final amplifier, no final
>> tube IP current indication of any
>> kind in any mode, and the final
>> amplifier's cathode voltage will be
>> zero.
>>
>> The reason the final tube cathode
>> voltage is zero is simply because
>> there is no current flowing in the
>> final tubes. This is part of vacuum
>> tube theory which is discussed in the
>> ARRL handbook, early editions are the
>> best or you can study the same theory
>> in John T. Fryes, Basic Radio Course
>> which is available in CD form from a
>> seller on eBay.
>>
>> Since you have already checked the
>> final tube's screens for voltage and
>> found it to be zero, now check the RF
>> Unit plug 9 pin 2 (210A). This is the
>> driver tube's screen voltage from the
>> Rectifier Unit's 210A source. If
>> voltage is zero at RF Unit plug 9 pin
>> 2, is zero check the Rectifier Unit's
>> "210A" and "210B" supply outputs. If
>> voltage at 210A "and" 210B are zero,
>> check Rectifier Unit diode D6, it's
>> most likely "open" resulting in zero
>> voltage at 210A and 210B, hence zero
>> screen voltage to the driver and both
>> final tubes. Visually inspect R11,
>> 470 ohm resistor on the Rectifier
>> Unit. Resistor R11 is physically
>> located on the Rectifier Unit but R11
>> is connected between the positive
>> terminals of C180 and C181 which are
>> on the IF Unit.
>>
>> If D6 is open, check C180 and C181,
>> both are 22ufd 350VDC "Radial lead"
>> capacitors on the IF unit, they are
>> the filter capacitors for the
>> Rectifier Unit's 210A and 210B
>> supply, one or both could be shorted
>> which would take out D6 resulting in
>> zero Rectifier Unit 210A and 210B
>> voltage, hence no screen voltage to

>> the driver and both final tubes.
>>
>>
>> 73
>> Mike W5RKL
>>
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>>
>> On 12/8/2013 3:59 PM, Peter Ravn wrote:
>>
>> Mike,
>>
>> Here is an update on my latest
>> findings.
>>
>> On the rectifier board there are
>> no voltages on TUNE, SG1, SG2,
>> PD1 and PD2. On AC800 there are
>> only 324 VAC instead of 800 VAC.
>> Voltages on all other terminals
>> on the rectifier board are ok,
>> including the bias voltage which
>> is -- 110 DVC. R15 was checked
>> and found ok. The preliminary
>> conclusion is that the finals are
>> getting no screen voltage from
>> the rectifier.
>>
>> In TUNE/SEND the panel meter
>> shows 900 DVC.
>>
>> When the HEATER is switched on,
>> the filaments in the finals come
>> alive. Voltages on the filaments
>> are according to specs. There are
>> -- 103 DVC on the grids (pins 5),
>> and with the bias potentiometer
>> on the rear the voltages can be
>> adjusted from -- 93 to -103 VDC.
>> So this part seems to work . But
>> there are no voltages on the
>> screen or on the cathode. Screen
>> and cathode resistors were
>> checked and found ok, so the
>> problem must be somewhere else.

>>
>> Good night and good luck.
>>
>> Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com]
>> *P? vegne af *Peter Ravn
>> *Sendt:* 8. december 2013 17:29
>> *Til:*
>> TS-520_820_530_830@yahoogroups.com <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* SV: SV:
>> [TS-520_820_530_830] TS830S no bias
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>> Mike,
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>> A new careful measurement gave
>> another result. On the rectifier
>> there are -- 109 DVC in STAND-BY
>> and -- 107 DVC in TUNE. On pins 5
>> of the final unit there are -- 96
>> DVC in STAND-BY and -- 57 DVC in
>> TUNE. So apparently there is a
>> loss, but not a complete loss of
>> bias voltage, which might prove
>> fatal.
>>
>> 73 Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com]
>> *P? vegne af *Mike
>> *Sendt:* 8. december 2013 16:39
>> *Til:*
>> TS-520_820_530_830@yahoogroups.com <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re: SV:
>> [TS-520_820_530_830] TS830S no bias
>>

>>
>>
>> Peter,
>>
>> Loss of bias voltage to the final
>> tubes will result in the final
>> tubes conducting to saturation
>> levels even in receive. Loss of
>> bias voltage to the final tubes
>> may have permanently damaged your
>> final tubes.
>>
>> Have you checked/measured the
>> bias voltage at the Rectifier
>> Unit's "-C" terminal?
>>
>> I recommend you troubleshoot the
>> bias supply from the Rectifier
>> Unit "-C" to the final tubes to
>> find where the loss of bias
>> voltage is occurring.
>>
>> 73
>> Mike W5RKL
>>
>> On 12/8/2013 9:15 AM, Peter Ravn
>> wrote:
>>
>> Mike,
>>
>> I followed the standard
>> procedure. I turned the POWER
>> and HEATER switches on,
>> placed the MODE switch to
>> SSB, the METER switch to lp,
>> pushed the SEND button and
>> adjusted the BIAS control,
>> but there was no reading at
>> all. I then measured pin 5 in
>> in the finals and saw no
>> voltages in STAND-BY or SEND
>> position. The only deflection
>> on the TS meter is in HV in
>> SEND position with voltages
>> about 820 DVC.
>>
>> A correction to my first
>> mail. I /do/ hear the t/r
>> antenna relay when I key the
>> transmitter.

>>
>> 73 Peter, OZ8CTH
>>
>> *Fra:*TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> [mailto:TS-520_820_530_830@yahoogroups.com]
>> *P? vegne af *Mike
>> *Sendt:* 8. december 2013 15:24
>> *Til:*
>> TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Emne:* Re:
>> [TS-520_820_530_830] TS830S
>> no bias
>>
>>
>>
>> Peter,
>>
>> You said you checked for bias
>> voltage and found none. If I
>> may ask, did you measure the
>> bias voltage at the final
>> tube grids, pin 5, and that
>> is where you found no bias
>> voltage?
>>
>>
>> 73
>> Mike W5RKL
>>
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>>
>> On 12/8/2013 2:15 AM,
>> ravnpeter@...
>> <mailto:ravnpeter@...>
>> wrote:
>>
>> There is no current in
>> TUNE position on my
>> TS830s. In SEND position
>> there is no deflection on
>> the meter and no noise
>> from the t/r relay. The
>> heater and SG switch are

>> naturally on.
>>
>> I checked R15 in the
>> rectifier, and it was
>> okay. So were the cathode
>> and plate resistors in
>> the final unit. I then
>> checked the bias and
>> found no bias at all.
>> Adjusting the the BIAS
>> control had no effect.
>>
>> Any advice will be
>> appreciated.
>> Thanks.
>>
>> Peter, OZ8CTH
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>> This email is free from viruses and malware
>> because avast! Antivirus <http://www.avast.com/>
>> protection is active.
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>> <http://www.avast.com/>
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>> This email is free from viruses and malware because avast!
>> Antivirus <http://www.avast.com/> protection is active.
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>> <http://www.avast.com/>
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>> This email is free from viruses and malware because avast!
>> Antivirus <http://www.avast.com/> protection is active.
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This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46559. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 20:13:12 UTC
From: <wagstw46@...>
Topic: 46257 Message: 46559

Mike:

Very good observation. I quickly jumped to conclusion that they were NOS JAN Sylvania 6146W as that is only ones I have bought from RF Parts. I agree have never heard anything good about the actual newly manufactured ones from China. Never seen one in a rig yet. I would be very hesitant to try any, but would be curious to see how they hi-pot. Maybe they are struggling with quality control issues or dont understand the service they will be placed in.

Sure would be good if someone could remanufacture the Matsushita S2001A and RCA 6146B tubes to same quality level as the originals. Still find S2001A going strong in rigs to this day.

Terry K9TW

46560. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 21:08:26 UTC
From: Joseph Stiles
Topic: 46257 Message: 46560

Greetings group,

I have obtained 6146B's & W's from "vacuumtubes.net" and "RF Parts." Have not had a problem with tubes from "vacuumtubes.net." RF parts honors their guarantee as I bought some "new" 6146B's" Well...they said "TAYLOR"....American name...good to go...no...made in China. Blew the cathode R's on my 830. I'll stick with known American made tubes...maybe a bit more $...but worth my time. Maybe I need to build a hi-pot, as I have bunches of final tubes sitting around...project for another time maybe.

Happy Holidays to all.....

73 Joe
WB7UQU

On Saturday, December 21, 2013 12:13 PM, "wagstw46@yahoo.com" <wagstw46@...> wrote:

>Mike:
>
>
>Very good observation. I quickly jumped to conclusion that they were NOS JAN Sylvania 6146W as that is only ones I have bought from RF Parts. I agree have never heard anything good about the actual newly manufactured ones from China. Never seen one in a rig yet. I would be very hesitant to try any, but would be curious to see how they hi-pot. Maybe they are struggling with quality control issues or dont understand the service they will be placed in.
>
>
>Sure would be good if someone could remanufacture the Matsushita S2001A and RCA 6146B tubes to same quality level as the originals. Still find S2001A going strong in rigs to this day.
>
>
>Terry K9TW
>
>
>

46561. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 19:32:32 UTC
From: <jason.bogstie@...>
Topic: 46257 Message: 46561

I have made several purchases from RF Parts. Their tubes are NOS, American made unless otherwise specified. They sell stock from China, but they tell you when it's not American made.

Jason
K7BOG

46562. Re: [TS-520_820_530_830] unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 21:31:46 UTC
From: Joseph Stiles
Topic: 46554 Message: 46562

Michael,

  you were approved for membership on 11-28-13. You may "advertise" your HAM RELATED items here at anytime, but not as a continual business venture. There are several member of this group that do from time to time, advertise their wares...that's ok. There's no set number of times but, if it gets to out of control...OZ could involved. If you choose to advertise, and then get interest in your item(s), please take further "conversations" regarding that/them off-list. By that I mean, direct contact between you and possible buyers.
Basic rules are listed in the "FILES" section of the home page of this group. Poke around there,
as there's lots of good info.

I'm glad you like it here and hope you can stay around for a while.

73 Joe
WB7UQU
Group Co-owner

On Saturday, December 21, 2013 11:28 AM, Michael Sylvester <sylvstrmchl@...> wrote:

>Thanks, Wiz.
>Being "unmoderated", does that mean I can mention I'm attempting to sell "Golden Hemostat" buggered up radios or do I have remaining probationary time on that front?
>No idea what my join date was or when my 30 day probation ends....
>Are there additional rules for that I should find and review?
>Or would it be Ok for me to now post (only occasionaly, not to be burdensome with my pushing product) a link to my overpriced offerings on eBay?
>
>Thanks Joe, I like it here.
>Wonderful bunch of men you have collected here.
>I feel refreshed from the feeling of exasperation I was feeling with my Millwright Union.
>A years worth of work ($100,000) 5 miles from the house and they have let me have NONE OF IT.
>Getting back into Amateur radio after 42 years was a good decision for me.
>I've spent a crapload of money, not made a dime, but I'm happy.
>I'm also happy that I'm slowly being accepted here. It's a good feeling.
>
>Now if I could just get the "Breakfast Club" to pay more attention to my political views.....
>Thanks to all of you.
>
>"All it takes for evil to succeed is for good men to do nothing".
>Michael///KD0WSJ
>
>

>From: Joseph Stiles <stilesjoseph@...>
>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
>Sent: Saturday, December 21, 2013 12:26 PM
>Subject: [TS-520_820_530_830] unmoderation
>
>
>
>
>Tom- n8nma & Michael-kd0wsj
>
>
> The benevolent, great and powerful Co-owner of OZ, has granted your request for "un-moderation."
>
>
>   At times the Wiz gets behind.
>
>
> Thanks for joining and being a part of this great group. Remember, the policies still apply.
>
>
>   Happy Holidays
>
>
>73 Joe
>WB7UQU
>Group Co-OZ
>
>
>
>
>
>

46563. Re: [TS-520_820_530_830] RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 21:38:39 UTC
From: <ka2knx@...>
Topic: 46527 Message: 46563

Michael (KD0WSJ),

Sure. Here it is:

http://www.k4eaa.com/

It is under the link for "REPAIR EXAMPLES". Please let me know if it helps.

Steffen (KA2KNX)

46564. RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 22:02:22 UTC
From: <ka2knx@...>
Topic: 46527 Message: 46564

Terry,

This is an absolutely outstanding explanation of the bandswitch operation. I thank you for taking the time to post this. I need to read this again, more than twice, to make sure I get all the knowledge I can from it. The Kenwood hybrids are exceptional in my opinion, and they interest me very much. I completely refurbished my Hammarlund SP-600 and thought that was complicated. Well, the TS-530S is whole other kettle of fish.

I will post a comment again after studying your post. Thank you again! 73

Steffen (KA2KNX)

P.S. I didn't think you were giving me a hard time, but I do know the importance of being precise in responses. I generally don't like to post responses like, "...try this...ok, didn't work?...try that..., etc."

46565. Re: [TS-520_820_530_830] unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 23:26:20 UTC
From: Michael Sylvester
Topic: 46554 Message: 46565

Thanks Joe,
November 28? been a month already? Or 7 weeks? Nah.....
Or am I the first to get aproved in 6 days?

My contact info is on QRZ.com if anyone wants to call and tell me
what a loon I am.
No, I mean if you want to comment on my speeling or my radio ad on eBay.
Yeah, like my wordage here, way too voluminous....I know, but that's me.

I started at $750 which I firmly feel was a fair price, with warranty!!
I wouldn't expect the guys here to be interested in it knowing my unconventional techniques for restoration/prevention. Also that most here know they can pick up a great rig at an estate sale or a Hamfest much cheaper and spruce them up themelves. Let's not forget I am quite ignorant of most of the Knwd design and it'll be awhile before I'm up to speed, don't tell them over at eBay!
Here:
http://www.ebay.com/itm/271351198316?ssPageName=STRK:MEWAX:IT&_trksid=p3984.m1423.l2649#ht_2935wt_888

Feel free to comment but please do so to my personal email addy.
I don't expect it to sell but that's OK, I'll keep it.
Until my TS-830S Gold Label is 100% I'm in no hurry to move it.

I'm just crazy enough to maybe give it to Joe Mcneil of the microeffectlive.com (Patriot radio) for raffle to help support the microeffect even though I'm broke, somebody has to do it. I'll probably do one of the 820S units, midrange quality cosmetically, refurbed with new tubes.
Makes better fiscal sense for me right now.
Dadgum service manual for 830S just showed today!! 3 Weeks....
Timing is everything, wood is stocked, burner going, most everything is done in the greenhouse except 2 hours finishing the woodburner out there.
Weather can be bad for days and I've got radios to work on and about $1000 in parts stockpiled and some extra boards relays tubes you name it, even parts radios.... Gonna be a long cold winter and I've got plenty to occupy my time indoors now. No more depression, my Union can Kiss my .
Corn, hay, wheatstraw all stocked for the critters in about 4 places today. About 12 turkeys and about 6-8 deer out back. Saw 2 big deer today. I think the big 10 point is still in my back yard.
Time to do some meat canning.

Had to take down my G5 and my fan 3 band dipole this afternoon. Bad ice storm here today, my turn I geuss, 1/2" so far. I'm not going to drop 'em to clear ice every 4 hours.
Parachute cord and pulleys, pretty slick.
Swedish dipole is the only one up, don't much care for that one and it's short so I don't think the ice will bring it down. Although I think that was the only one that would tune on 28 Mhz.

The 830s GL, man said it was "choppy" on the air. Sounds like he was saying it was overdriven? Said he was "tired of messing with it".
Any suggestions on where to start with it?
Common mods or?
Bought for $150 and $100 for a SM-220 monitor (stole 'em!!)
I may drag her out later tonight. To hooey with the 820S for now. Been waiting on that darn paper manual for 3 weeks.
Thanks Jim!! @Hybrid.

Yeah, I know alot of info "off topic" but you gotta admit,
I'm entertaining!!!

"Once it starts Communications will be vital"
MIchael///KD0WSJ

From: Joseph Stiles <stilesjoseph@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, December 21, 2013 3:31 PM
Subject: Re: [TS-520_820_530_830] unmoderation

Michael,

you were approved for membership on 11-28-13. You may "advertise" your HAM RELATED items here at anytime, but not as a continual business venture. There are several member of this group that do from time to time, advertise their wares...that's ok. There's no set number of times but, if it gets to out of control...OZ could involved. If you choose to advertise, and then get interest in your item(s), please take further "conversations" regarding that/them off-list. By that I mean, direct contact between you and possible buyers.
Basic rules are listed in the "FILES" section of the home page of this group. Poke around there,
as there's lots of good info.

I'm glad you like it here and hope you can stay around for a while.

73 Joe
WB7UQU
Group Co-owner

On Saturday, December 21, 2013 11:28 AM, Michael Sylvester <sylvstrmchl@...> wrote:

>Thanks, Wiz.
>Being "unmoderated", does that mean I can mention I'm attempting to sell "Golden Hemostat" buggered up radios or do I have remaining probationary time on that front?
>No idea what my join date was or when my 30 day probation ends....
>Are there additional rules for that I should find and review?
>Or would it be Ok for me to now post (only occasionaly, not to be burdensome with my pushing product) a link to my overpriced offerings on eBay?
>
>Thanks Joe, I like it here.
>Wonderful bunch of men you have collected here.

>I feel refreshed from the feeling of exasperation I was feeling with my Millwright Union.
>A years worth of work ($100,000) 5 miles from the house and they have let me have NONE OF IT.
>Getting back into Amateur radio after 42 years was a good decision for me.
>I've spent a crapload of money, not made a dime, but I'm happy.
>I'm also happy that I'm slowly being accepted here. It's a good feeling.
>
>Now if I could just get the "Breakfast Club" to pay more attention to my political views.....
>Thanks to all of you.
>
>"All it takes for evil to succeed is for good men to do nothing".
>Michael///KD0WSJ
>
>
>
>_________________________________
>From: Joseph Stiles <stilesjoseph@...>
>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
>Sent: Saturday, December 21, 2013 12:26 PM
>Subject: [TS-520_820_530_830] unmoderation
>
>
>
>
>Tom- n8nma & Michael-kd0wsj
>
>
> The benevolent, great and powerful Co-owner of OZ, has granted your request for "un-moderation."
>
>
>   At times the Wiz gets behind.
>
>
> Thanks for joining and being a part of this great group. Remember, the policies still apply.
>
>
>   Happy Holidays
>
>
>73 Joe
>WB7UQU
>Group Co-OZ
>
>
>
>
>

46566. Re: [TS-520_820_530_830] unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 00:42:52 UTC
From: CROOKS David
Topic: 46554 Message: 46566

Joe,
I think wafflers and entertainers should remain moderated.
Dave f4eyk

46567. Re: [TS-520_820_530_830] unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 01:50:43 UTC
From: John Davidson
Topic: 46554 Message: 46567

Mike, ten bux, you deliver to MI ? OK

On Saturday, December 21, 2013 7:45 PM, CROOKS David <dave.crooks@...> wrote:

☐
Joe,
I think wafflers and entertainers
should remain moderated.
Dave f4eyk

46568. Re: [TS-520_820_530_830] RE: New Problem With TS-530S

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 03:07:10 UTC
From: Michael Sylvester
Topic: 46527 Message: 46568

Thanks Stephen, I'll give it a shot.
Thank you Sir.
Michael

From: "ka2knx@..." <ka2knx@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Saturday, December 21, 2013 3:38 PM
Subject: Re: [TS-520_820_530_830] RE: New Problem With TS-530S

Michael (KD0WSJ),

Sure. Here it is:

http://www.k4eaa.com/

It is under the link for "REPAIR EXAMPLES". Please let me know if it helps.

Steffen (KA2KNX)

46569. Re: [TS-520_820_530_830] unmoderation

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 03:25:22 UTC
From: Michael Sylvester
Topic: 46554 Message: 46569

You're obviously not writing to me.

My name is Michael.

Even if that WAS addressed to me, There's a reserve price on it. A bit above 10 bux. Sorry, you're out.
I may give it to Joe McNeil, but you're not Joe, are you?
He's in Idaho.
I grew up in Michigan....
Now you guys are waffling...and NOT very entertaining.

From: John Davidson <k8jd@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Saturday, December 21, 2013 7:50 PM
Subject: Re: [TS-520_820_530_830] unmoderation

Mike, ten bux, you deliver to MI ? OK

On Saturday, December 21, 2013 7:45 PM, CROOKS David <dave.crooks@...> wrote:

☐
Joe,
I think wafflers and entertainers should remain moderated.
Dave f4eyk

46571. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-21 23:46:02 UTC
From: clifford wright
Topic: 46257 Message: 46571

I wouldn't panic too much about old tubes letting in air.
Most of the problems occur during use when the the glass to metal seals
around the leads
heat and cool.
I have a "bright emitter" triode made in 1923 that still works fine.
Admittedly a low power tube (but with a 5 volt 1 amp heater). Technology
has come along way since then.
The biggest problem with shelf life is in tubes like "magic eye" tuning
indicators. They have a lot of metal and phosphors inside that slowly
"outgas" and as a result do get "soft". That's why they fetch a premium
among vintage radio enthusiasts and also why I designed some solid state
replacements that even look the part as they are getting so rare.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46573. TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 08:46:20 UTC
From: Wes Will
Topic: 46257 Message: 46573

On 12/22/2013 12:04 AM, Michael Sylvester wrote:
>
>
> You don't possibly have a solid state replacement fot the sweep tubes do
> you?
> somebody figger that out will make some serious coin. Who's got quad

United States Patent 3742261
Teledyne, Inc. already owns this one.

Now, whether or not they have any specific tube replaced with one of
their modules, that I cannot tell. But I suspect that if they do have
solid-state 6JE6's, the price will be huge.

--
wes will
N9KDY

46574. TS-830s RX and static crashes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 09:51:47 UTC
From: <john@...>
Topic: 46574 Message: 46574

Hello all. My 830s receiver comes up in volume at every static crash or even a TX tap on the morse key. Then slowly drops down again after a few seconds. Even into a dummy load. Also notice that the RX is more sensitive when the RF control is set at about 8 rather than 10 (max).

Any ideas please ?

John Snell / GØRDO
www.morsemad.com

46575. Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 09:10:24 UTC
From: clifford wright
Topic: 46257 Message: 46575

No such luck Mike! After 60 years of Ham radio and electronic
engineering I still remain unconvinced about solid state transmitter
finals. Most solid state Linears are actually slightly LESS efficient
than tubes. Typically 50% versus 67 % for a well designed tube linear.
They also tend to be rather delicate in terms of matching.

A solid state "magic eye" can be made to work well using the voltages
and signals available
in a tube radio without major surgery. I just finished one today. Making
a 150 watt solid state amp to run of 900 volts would be quite a feat!!!
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46576. TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 13:26:35 UTC
From: ravnpeter@ymail.com
Topic: 46576 Message: 46576

Still fighting with open cathode resistors in the 6146 final in my TS830S I am facing a new problem. The RL1 relay in the AF unit clicks on for 2 or 3 seconds when I power up the RX, and when I change modes between LSB, USB and CW. I havde gently poked the relay when it is stuck, but with no success. Time to order an RL1 replacement from K4EAA?

73
Peter OZ8CTH

46577. RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 13:43:29 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46577

Do you have the VOX turned on? It is on the VOX gain pot.

Terry K9TW

46578. SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 14:09:36 UTC
From: Peter Ravn
Topic: 46576 Message: 46578

Terry,

Spot on! You were right. I can now resume trouble shooting the finals.

Thanks.

Peter OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af wagstw46@yahoo.com
Sendt: 22. december 2013 14:43
Til: TS-520_820_530_830@yahoogroups.com
Emne: [TS-520_820_530_830] RE: TS830S RL1 relay

Do you have the VOX turned on? It is on the VOX gain pot.

Terry K9TW

46579. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 16:08:14 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46579

Peter: OK can happen to any of us.

One more thing for you to consider. Normally I do not recommend modifying KW hybrids. The one exception I finally caved in on was driven by multiple cathode resistor blowing and the needless stress on the HV filter caps, rectifiers, power transformer, and banging the indicator violently against the peg or burning out the moving coil. I experienced repeated arc over events with my own hybrids using hamfest pulls, hamfest NOS tubes, and RF Parts and other sellers NOS tubes. Didnt matter if Jan 6146W or RCA or GE brands.

Also, repeatedly having to remove covers and unsolder and resolder with risk of lifting foils not to mention the down time led me to modify all my hybrids and many of my customers rigs so we no longer have cathode meter shunts blowing open.

If you install a series string of 3 silicon rectifier diodes across the cathode meter shunt resistors you will limit the IR drop to approx 2vdc and should never experience a blown resistor again. With an Anode to Cathode arc over it is possible that you could pop a diode (I have never experienced it), but far easier to replace a diode than a cathode resistor.

I used 1000 PIV 2.5A diodes that I had in junk box but any will work. Place 3 in series with the anode end of string tack soldered to Pin 1 tube socket lug and connect the cathode end of the string to chassis ground. I do that by installing a small solder lug at a Final board hold down screw.

You can see a picture of the mod at WB4HFN website under the Articles and Info tab.

If you want to look at DC hi-pots or BVTs take a look at K8CU. Mine is clone of his using microwave oven HV parts. I have adjustable range from 0 to 5kv vdc and current limited to approx 100ua. I made it to test 6146 tubes. Need higher voltage if you want to test 572b or 3-500Z etc.

Only way I know to test 6146 finals NOS or otherwise is to hi-pot test them. I use to test run in old Heathkit DX 60 transmitter and that just didnt duplicate KW hybrid conditions. Good ones will hold off 2000 to 2500vdc with 10 to 15ua leakage. Some will arc over at 1000vdc and then test good on the 2nd go and others will not.

I also realize you cant "getter" a 6146, but I am a believer in rotating spares perhaps on annual basis when you do your pm such as fan lube. I think Mike W5RKL mentions that he also rotates his spares. He has a lot of tube experience. Leaving them on the shelf for many years thinking you will have a viable spare when you need them has not worked well for me.

http://www.realhamradio.com/High_Voltage_Breakdown_Tester.htm

I dont expect you to blindly do as I say. Do your homework and make sure it makes sense to you.

Assuming you are not losing your operating bias voltage my bet is you are experiencing anode to cathode arc over.

Terry K9TW

46580. RE: TS-830s RX and static crashes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 18:33:25 UTC
From: <wagstw46@...>
Topic: 46574 Message: 46580

What does the S-meter indication do during entire event?

Does it act same way in Slow and Fast AGC positions?

Does it do this in CW as well as SSB modes?

Terry K9TW

46581. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 19:11:04 UTC
From: Michael Sylvester
Topic: 46576 Message: 46581

Thanks for that Terry. I've been wanting to ask for info on that tester.
I had no clue what you guys were taking about with abbreviations and assumng everybody was on same page, I'm still waiting on the book....
Sounds like a handy piece of test equip and
I think I have all those components....even the plexiglass.

Another set of used 6146 I thought were good turned out to be junk.
That makes 6 out of 7 sets in 2 weeks.
Getting old (yeah me AND the tube issues).
I'm going to follow the lead of buying only from RF parts and the other suppliers here mentioned.
In future if all you men would mention what you've paid for tubes it would help me. I know I can go look, but like all the abbreviations used here, it's lack of complete information that I struggle with.
The one good set I've purchased came from bobsezshop on eBay.
$62 + $10 for shipping for "NOS" tubes with driver.
With all the wasted time ordering, testing, contacting deceptive sellers with ndon't own tube checkers (but sound like they do), repacking, reshipping, waiting for my money back.....
I have a hunch I'd be time and money ahead to buy only from reputable tube suppliers with no-hassle return policy and good reputation,
irregardless of price.

New problem with the radio I have for sale, I've been running it while waiting for tubes for others and for some dipstick to fix these other radios.....
Ice storm yesterday, cleared ice off 3 dipoles at 2pm, 1/4" thick then. Lowered by parachute cord through pulleys up trees. At 6pm dropped them again, rolled up my G5 and My 3 band fan, another 1/4" of ice, 1/2" on every thing now. I left up my Swedish dipole, it's short so I figured it would hold up .Tunes good on 21 and 28 Mhz but not so well on lower freqs I'm usually on.
Tuning up at 9pm on 80 Mtrs it goes up to 125 watts????
At 11pm on a diff 80M freq I tune again, it goes beyond 125 to 150 and swings over 200....., I went out at 11 pm in the rain with headlamp and .44 and put my G5 back up.
Damage is done, nothing over 15 watts out of the damaged tubes now even with my G5.
Is that "thermal runaway" or what? Fried tubes for sure, they now test as junk.
I was running my last 2 good tubes from 2 weeks ago. One Khainese and a GE both testing about 80%. They've performed well, twice last week people asked "what linear are you running"?
Now with known good tubes I'm not getting above 15 watts. I've replaced the doorknob cap and the .01 2KV and the 6.8uh with "Final Cage Repair Kit" from Jim at Hybrid Restore.
No change, still at 15 watts.
I'm about to replace the 4-20 ohm Cathode resistors, the 2-100 ohm Grid resistors and the 470 on the rectifier board, 530/830 resistor kit.
The cathode resistors in circuit show 5.1 ohms in circuit.
Board is out, about to get after that.

Am I doing the right thing or am I going in the wrong direction (again!!) since I'm not really seeing any damage?
I don't have an LCR meter to test the old output cap I replaced with new doorknob, but I recall low output is often that component.
does Terry or anybody have the time or inclination to give me todays lesson?

On my Gold Label TS-830S (tried it this morning also....), I geuss I did put some work into it 4 weeks ago, have a 14 item list, before I decided I needed a service manual. Yes I know pdf is online, I have I think most of them now, I prefer paper.
(I like to color the lines....)
I need some guidance. Yup, yer right I need more than that...
Wonder if Ken needs somebody to sweep the floors....
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 22, 2013 10:08 AM
Subject: RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Peter: OK can happen to any of us.

One more thing for you to consider. Normally I do not recommend modifying KW hybrids. The one exception I finally caved in on was driven by multiple cathode resistor blowing and the needless stress on the HV filter caps, rectifiers, power transformer, and banging the indicator violently against the peg or burning out the moving coil. I experienced repeated arc over events with my own hybrids using hamfest pulls, hamfest NOS tubes, and RF Parts and other sellers NOS tubes. Didnt matter if Jan 6146W or RCA or GE brands.

Also, repeatedly having to remove covers and unsolder and resolder with risk of lifting foils not to mention the down time led me to modify all my hybrids and many of my customers rigs so we no longer have cathode meter shunts blowing open.

If you install a series string of 3 silicon rectifier diodes across the cathode meter shunt resistors you will limit the IR drop to approx 2vdc and should never experience a blown resistor again. With an Anode to Cathode arc over it is possible that you could pop a diode (I have never experienced it), but far easier to replace a diode than a cathode resistor.

I used 1000 PIV 2.5A diodes that I had in junk box but any will work. Place 3 in series with the anode end of string tack soldered to Pin 1 tube socket lug and connect the cathode end of the string to chassis ground. I do that by installing a small solder lug at a Final board hold down screw.

You can see a picture of the mod at WB4HFN website under the Articles and Info tab.

If you want to look at DC hi-pots or BVTs take a look at K8CU. Mine is clone of his using microwave oven HV parts. I have adjustable range from 0 to 5kv vdc and current limited to approx 100ua. I made it to test 6146 tubes. Need higher voltage if you want to test 572b or 3-500Z etc.

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1000vdc and then test good on the 2nd go and others will not.

I also realize you cant "getter" a 6146, but I am a believer in rotating spares perhaps on annual basis when you do your pm such as fan lube. I think Mike W5RKL mentions that he also rotates his spares. He has a lot of tube experience. Leaving them on the shelf for many years thinking you will have a viable spare when you need them has not worked well for me.

http://www.realhamradio.com/High_Voltage_Breakdown_Tester.htm

I dont expect you to blindly do as I say. Do your homework and make sure it makes sense to you.

Assuming you are not losing your operating bias voltage my bet is you are experiencing anode to cathode arc over.

Terry K9TW

46582. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 19:33:21 UTC
From: Mark Gilger
Topic: 46576 Message: 46582

Dick,

I was waiting for you to recommend this mod. I've installed it on I think 2 problematic hybrids and I've never had a problem since doing this. I know several other on the Kenwood net that have also made this with good results. Great modification.

http://wb4hfn.com/KENWOOD/Articles/Technical_EX-004.pdf

Have any others we can write up?

Mark, WB2KNR

At 11:08 AM 12/22/2013, wagstw46@... wrote:
>
>
>Peter: OK can happen to any of us.
>
>
>One more thing for you to consider. Normally I do not recommend
>modifying KW hybrids. The one exception I finally caved in on was
>driven by multiple cathode resistor blowing and the needless stress
>on the HV filter caps, rectifiers, power transformer, and banging
>the indicator violently against the peg or burning out the moving
>coil. I experienced repeated arc over events with my own hybrids
>using hamfest pulls, hamfest NOS tubes, and RF Parts and other
>sellers NOS tubes. Didnt matter if Jan 6146W or RCA or GE brands.
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>with risk of lifting foils not to mention the down time led me to
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>have cathode meter shunts blowing open.
>
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>approx 2vdc and should never experience a blown resistor again. With
>an Anode to Cathode arc over it is possible that you could pop a
>diode (I have never experienced it), but far easier to replace a
>diode than a cathode resistor.
>
>
>I used 1000 PIV 2.5A diodes that I had in junk box but any will
>work. Place 3 in series with the anode end of string tack soldered
>to Pin 1 tube socket lug and connect the cathode end of the string

>to chassis ground. I do that by installing a small solder lug at a
>Final board hold down screw.
>
>
>You can see a picture of the mod at WB4HFN website under the
>Articles and Info tab.
>

46583. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 20:20:33 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46583

You have to be very careful with a dc hi-pot of any kind whether home brew or a commercial unit like Associated Research or Hipotronics brand. Even if current limited to ua range they can give a nasty shock or worse. So before embarking on this do your homework. Some folks use a negative ion generator or a power supply from a copy machine as the basis for one.

I am not sure what you mean by 9 pm and 11 pm? I assume you are talking about the position of the Plate Load capacitor? We dont load to a position on the Plate Load cap. That position varies depending on what impedance your antenna presents to your radio and how much load you want to pick up ie plate current. The ,more you open the plates the less the capacitance the greater the Xc. Since the Plate load cap is in parallel with the load as you increase the Xc less tank circ current flows thru the cap and more tank circ current is transferred to the load impedance. Some people like to make cheat sheets of Plate Tune and Plate Load cap positions and that is fine to get you in the ball park and for quick QSY as long as impedance presented by antenna doesnt change. If more than one antenna then need multiple cheat sheets.

Best way to load a Class AB1 ssb linear amp is to load to maximum rf output either on an external wattmeter or by using the RF meter relative power position on the rig just as KW directs you to do. We do that without exceeding the plate dissipation of the tubes. For a TS-830 that is max of 265 ma. However most owners load conservatively to no more than 225ma. If you load to approx 100 watts output into a 50 ohm load you should see no more than 200ma to 225 ma of plate current. A well aligned spec TS-830 should load to 100 watts into 50 ohm dummy load at close to 200 ma on all bands. Remember the radio is rated at 180 watts dc input.

The loading instructions in the TS-830 operating manual is very clear on how to use the RF meter position to load to maximum relative output power without exceeding max Ip. They do this as the old dip and load method is not a good way to load a Class AB1 transmitter because when the transmitter gets nearer to being fully loaded the dip becomes very shallow while the output power peak displayed on the RF meter position or an external wattmeter is not shallow. The peak power displayed is very obvious and well defined. In the case of the RF meter position it is peak Rf voltage at the SO-239.

I have never seen an un-modiifed TS-830 that could produce more than 125 to 130 watts output max. It is not possible to load to 150 watts to 200 watts output. The power supply will fall flat trying to do that. If you saw 150 watts to 200 watts on your wattmeter you needed to switch to reflected power. My guess is it would have been quite high.

Lastly why change out cathode resistors that measure 5.1 ohms?

Terry K9TW

46584. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 20:28:16 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46584

Hi Mark

Are you talking to Dick W0NTA?

Terry K9TW

46585. TS820S VFO problem

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 13:34:41 UTC
From: <linutas@...>
Topic: 46585 Message: 46585

Hello group, my name is Linas , im 17 years old and this is my first transceiver. Its my first time writing here and i hope i can explain what im trying to do and what i found out.

Its really hard for me to tell you all so i also made a video showing all the "stages" of it breaking down. http://youtu.be/ovTtbdvWej4

At first i suspected a loose wire or a bad solder joint somewhere around the digital display unit, because touching the connector cable that
goes to the freq display made alot of noises and made the frequency or audio jump around. I inspected both cables that go to the display unit and they seem fine, so do the solder connections.

As you can see in the video now most of the
time the audio becomes dull, display is jumping around and tx isint working at all. Tapping the side or the top lightly tends to help sometimes, even when i got the rig half a year ago or so sometimes it would need a light tap in order to stay in
place after turning on.
I am really desperate here and looking for ideas.

Thanks,
Linas LY5AT

46586. VFO-230 loses memory and freq settings when unplugged.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 13:44:53 UTC
From: ralph_ts_830s
Topic: 46586 Message: 46586

Is it normal for my VFO-230 to lose its stored settings after being unplugged? Page 47 of the service manual states that the power is interlocked with the main unit. It also mentions memory stays live when the main is switched off when using AC power. It doesn't specifically mention memory loss when unplugged from AC power.
Thanks,
Ralph KB1ZYI

46587. TS-520SE hv cap replace help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 20:41:05 UTC
From: <k4ynd@...>
Topic: 46587 Message: 46587

when I was changing out the hv caps a small black wire came undone.

there is a ground pin between the hv caps with 3 black wires
1. heavy gauge black connects to neg terminal on hv cap
2. small black wire goes through groove in top of metal wall .it is part of a group of wires
3. this is the problem. 4 to 5 inch black thin wire. I believe it should go through a square cutout into the transformer section. what does this connect to?

i am guessing the neg terminal on the big transformer?

can one of you guys take a look at your 520se and let me know

73
K4YND

46588. TS 520SE HV cap replace help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:26:38 UTC
From: <k4ynd@...>
Topic: 46588 Message: 46588

I replaced the hv caps. unfortunately a small black wire came unconnected and I do not know where it goes?

It is a thin black wire that is connected to the ground pin between the hv caps. I believe it goes through a square cutout into the area where the big transformer is. I think it is the only wire that passes through the lower square cutout.

Could someone tell me what I should connect it to. My guess is the ground pin on the big transformer??

Thanks
73

K4YND

46589. Re: [TS-520_820_530_830] TS 520SE HV cap replace help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:45:44 UTC
From: Ron
Topic: 46588 Message: 46589

I think u are referring to the ground wire to the hv board

Ron KK4PWF

On Dec 22, 2013, at 4:26 PM, <k4ynd@...> wrote:

>
>
> I replaced the hv caps. unfortunately a small black wire came unconnected and I do not know where it goes?
>
>
>
> It is a thin black wire that is connected to the ground pin between the hv caps. I believe it goes through a square cutout into the area where the big transformer is. I think it is the only wire that passes through the lower square cutout.
>
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>
> Could someone tell me what I should connect it to. My guess is the ground pin on the big transformer??
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>
>
> Thanks
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> 73
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>
>
> K4YND
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46590. Kenwood Net Update (December 22, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:49:13 UTC
From: Mark Gilger
Topic: 46590 Message: 46590

Net Info:
Saturday: 7.235 @ 3:30pm Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

The net recently celebrated it□s 2nd year in
existence on November 1st, 2013. The yearly
check-in totals are posted at the bottom of this
message. It showed we had a 10% increase in our
Saturday check-ins and an 8% on Sunday as compared to the 2012 check-ins.

The Saturday net on 40 meters had 20 check ins
under good band condition. There were 3 new check
ins, KD8VTO, KD6TWC, and N8WZP/AE. We had the
following number of radios checking in.

4 running TS-520(x)
2 running TS-530(x)
4 running TS-820(x)
4 running TS-830S

I was using my TS-830s.

The Sunday□s 20 meter net had 21 stations
checking in under good band conditions. There
were 3 new stations checking in, KA1LQE, N5DHB, and W7JJH

Out of those, there was:

2 running TS-520(x)
1 running TS-530(x)
4 running TS-820(x)
4 running TS-830S

I was running my 820 twins, TS-820s + R-820.

We have been having several people checking in
regularly with their TS-430, TS-440, and
TS-940□s, which of course is not a hybrid,
although over 30+ years old. Everyone is welcome
as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a
net control station, please send me an email.

Currently it's just myself, WB2KNR and WB0SGA. I
would like to get several more. If we do, we can
alternate so everyone might be on a 3-4 week
rotation. It's a lot of fun and a good way to
make sure you station is optimized.

For anyone that has not heard, we have a new web
site that WB4HFN is hosting. He currently has a
very nice site for Drake, Collins and Heathkit
and now Kenwood Hybrids. Good quality manuals
plus sale flyers and brochures will be found
here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHo
mePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins
Nov. 2012 - Oct. 2013 Saturdays total 828 check-ins, Sunday total 609 check-ins

November 2013, Saturday☐s net total = 94, Sunday☐s total = 85
December 2013, Saturday☐s net total = 65, Sunday☐s total = 71 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHo
mePage.htm

73's,
Mark, WB0IQK

46591. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:50:27 UTC
From: Mark Gilger
Topic: 46576 Message: 46591

Sorry, meant you. Just got off of the net and had Dick on the mind.

Mark

At 03:28 PM 12/22/2013, wagstw46@... wrote:
>
>
>Hi Mark
>
>
>Are you talking to Dick W0NTA?
>
>
>Terry K9TW
>

46592. Re: [TS-520_820_530_830] TS 520SE HV cap replace help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:53:18 UTC
From: Joseph Stiles
Topic: 46588 Message: 46592

Ron,

I do believe that this wire should be connected to the "GND" post on the HV unit. Also, no disrespect intended but, this is an example of why you should take notes, draw a diagram or,
take some pictures before you start to do anything that involves removal of wires/connectors.
It just makes life a bit easier

73 Joe
WB7UQU

On Sunday, December 22, 2013 1:45 PM, Ron <bozo231@...> wrote:

>I think u are referring to the ground wire to the hv board
>
>Ron KK4PWF
>
>On Dec 22, 2013, at 4:26 PM, <k4ynd@...> wrote:
>
>
>I replaced the hv caps. unfortunately a small black wire came unconnected and I do not know where it goes?
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>>It is a thin black wire that is connected to the ground pin between the hv caps. I believe it goes through a square cutout into the area where the big transformer is. I think it is the only wire that passes through the lower square cutout.
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>>Could someone tell me what I should connect it to. My guess is the ground pin on the big transformer??
>>
>>
>>Thanks
>>73
>>
>>
>>K4YND
>
>
>

46593. Re: [TS-520_820_530_830] TS 520SE HV cap replace help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 22:01:41 UTC
From: Ron
Topic: 46588 Message: 46593

Joe I was trying to help out , wasn't me hunting location for the wire. Lol

Ron KK4PWF

On Dec 22, 2013, at 4:53 PM, Joseph Stiles <stilesjoseph@yahoo.com> wrote:

>
>
> Ron,
>
> I do believe that this wire should be connected to the "GND" post on the HV unit. Also,
> no disrespect intended but, this is an example of why you should take notes, draw a
diagram or,
> take some pictures before you start to do anything that involves removal of
wires/connectors.
> It just makes life a bit easier
>
>
> 73 Joe
> WB7UQU
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>
> On Sunday, December 22, 2013 1:45 PM, Ron <bozo231@...> wrote:
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> Ron KK4PWF
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> On Dec 22, 2013, at 4:26 PM, <k4ynd@...> wrote:
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it is the only wire that passes through the lower square cutout.
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>> Could someone tell me what I should connect it to. My guess is the ground pin on the big
transformer??
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>> Thanks
>> 73
>>
>> K4YND
>
>
>

>
>
>

46594. Re: [TS-520_820_530_830] TS 520SE HV cap replace help

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:58:28 UTC
From: <k4ynd@...>
Topic: 46588 Message: 46594

Spot on thanks Ron!

46595. RE: TS-830s RX and static crashes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 21:57:16 UTC
From: <john@...>
Topic: 46574 Message: 46595

Hello there.
Well - the meter reacts OK to loud sigs on RX. Both in AGC Fast & Slow.
Here at the moment on 14.050MHz with background noise showing S1+ on the meter (band rather dead now).
A short DIT of CW TX then gives a slight increase of RX volume, but no change in S1+ receive meter reading.
After about 5 seconds the RX level is back down to original levels.
This happens even with AGC off.
Just curious to know if this is normal or if there is a minor fault somewhere.

Not tried on SSB - CW only here.

John Snell / G0RDO
www.morsemad.com

46597. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 23:44:06 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46597

OK Mark: I wasnt sure.

Well as you know not a big fan of modifying these rigs. Only did the protection mods after final tube arc overs two or three times in about a weeks time. That got pretty old.

I am OK with the "huff and puff" boards you installed in your rigs.

Some mods are pretty benign like changing out the product detector and balanced modulator ring diodes to Schottky diodes. I have seen a few rigs where instead of buying the remote VFO the range of the RIT has been extended to around 5k. These mods are really no big deal and you dont butcher the rig.

I have thought about screen grid regulation either with zener string or mosfet shunt regulator but probably wont do it.

Speaking of Dick might ask him to take some good close up photos of his wire jumper repair of the bandswitch decks and post on Rons website?

I thought of you at Fort Wayne. Most likely my last year as it was really small this year. Another ebay casualty.

Have a great Xmas.

73s Terry

K9TW

46598. Re: [TS-520_820_530_830] VFO-230 loses memory and freq settings when unplugged.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-22 22:17:04 UTC
From: Gary Appel
Topic: 46586 Message: 46598

The memory is volatile.

Power stays on to the VFO-230 so long as it is provided with AC power. The interlock just brings the VFO out of “standby” when you turn on the radio.

Gary, WA0TFB

From: ralph_ts_830s
Sent: Sunday, December 22, 2013 3:44 AM
To: TS-520_820_530_830@yahoogroups.com
Subject: [TS-520_820_530_830] VFO-230 loses memory and freq settings when unplugged.

Is it normal for my VFO-230 to lose its stored settings after being unplugged? Page 47 of the service manual states that the power is interlocked with the main unit. It also mentions memory stays live when the main is switched off when using AC power. It doesn't specifically mention memory loss when unplugged from AC power.
Thanks,
Ralph KB1ZYI

46599. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 00:24:25 UTC
From: Mark Gilger
Topic: 46576 Message: 46599

Only installed the "huff & puff" (VFO Stabilizer) on the TS-820 and R-820. The other radios don't need it, so will stay original.

I'll ask dick for some pictures and see what that's all about. Seems he is getting real proficient at removing the wafer boards from the RF board and repairing them. Bought a nice de soldering tool to assist in that work.

It's too bad about Ft. Wayne. From the old days to now it's probably down sized maybe 3/4. Really used to like going there. Still have Dayton to look forward to.

Mark

At 06:44 PM 12/22/2013, wagstw46@... wrote:
>
>
>OK Mark: I wasnt sure.
>
>
>Well as you know not a big fan of modifying these rigs. Only did the
>protection mods after final tube arc overs two or three times in
>about a weeks time. That got pretty old.
>
>
>I am OK with the "huff and puff" boards you installed in your rigs.
>
>
>Some mods are pretty benign like changing out the product detector
>and balanced modulator ring diodes to Schottky diodes. I have seen a
>few rigs where instead of buying the remote VFO the range of the RIT
>has been extended to around 5k. These mods are really no big deal
>and you dont butcher the rig.
>
>
>I have thought about screen grid regulation either with zener string
>or mosfet shunt regulator but probably wont do it.
>
>
>Speaking of Dick might ask him to take some good close up photos of
>his wire jumper repair of the bandswitch decks and post on Rons website?
>
>
>I thought of you at Fort Wayne. Most likely my last year as it was
>really small this year. Another ebay casualty.
>

>

46600. RE: [TS-520_820_530_830] VFO-230 loses memory and freq settings when unplugged.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 00:27:53 UTC
From: fpath fpath
Topic: 46586 Message: 46600

Ralph,

From my experience, I have 3 of these units, once you have removed the primary 240\120v power supply regardless if it is connected to the radio or not, you will loose all your memories stored in the VFO. The other problem that most people encounter is, if left unplugged for extended periods and then reconnected to power\radio the ext VFO works well for a very short time then the encoder becomes erratic to the point of not working at all. The simple fix without any technical requirements is to connect to radio and power for 24 hours and it will come back to return to perfect working order. I leave all mine connected to 240v. Whilst I haven't gone probing I would suggest that the caps are a bit suspicious.

Regards,

Dave

VK5PDL

From: r_krohne@...
To: TS-520_820_530_830@yahoogroups.com
Date: Sun, 22 Dec 2013 13:44:53 +0000
Subject: [TS-520_820_530_830] VFO-230 loses memory and freq settings when unplugged.

Is it normal for my VFO-230 to lose its stored settings after being unplugged? Page 47 of the service manual states that the power is interlocked with the main unit. It also mentions memory stays live when the main is switched off when using AC power. It doesn't specifically mention memory loss when unplugged from AC power.
Thanks,
Ralph KB1ZYI

46601. RE: TS-830s RX and static crashes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 00:42:34 UTC
From: <wagstw46@...>
Topic: 46574 Message: 46601

First I wish I had S1 background noise! Hardly ever see that at my QTH.

OK this short TX dit.... Is it with heaters on and rig loaded and actually producing RF output in CW mode? Do you flip to Send and then back to Rec after sending the dit or are you using VOX to send the dit? Do you hear the side tone oscillator?

As I understand it you see no change in S-meter only a noticeable change in the back ground noise to a higher audio output level in the speaker and it stays high and decays back down to where it was before sending the dit in about 5 seconds.

Is this correct?

If so, I have to say never noticed it and I have two TS-830s. Will look at schematic and see if something jumps out at me. Even though you say not seeing any change in S-meter indication I would want to monitor the AGC bus (rail) voltage as a first step to make sure it is not rising slightly. If anything with the TX dit you might expect it to drop slightly as RF-1 is derived from the 9vdc series pass regulator on the audio board. RF-1 should be set to 3.6vdc and is applied to the AGC bus thru the RF gain pot wiper RFG and thru a 2.2 meg resistor to the bus.

If AGC bus voltage is not moving then almost has to be on the audio board. In CW mode there is some diode switching that takes place to switch in the CW audio filter to tailor the audio response for CW reception. This is done by routing the product detector signal thru Q2 and a low pass filter in its output. Lots of caps in this circuit and maybe something changed in these RC time constants? Just guessing at this point.

Terry K9TW

46602. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 01:17:19 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46602

Well I have to say in about 50 years first time anyone ever related a transmitter loading problem to me and included the time of day!

Where is your resting plate current set at?

If you are able to peak the ALC indication in TUNE mode and make the initial plate current dip in Tune mode with the CAR Level Pot (There is no IP pot so I assume you are talking about the CAR level pot?) in full CCW position then sounds like you have a open ring diode on the Balanced Modulator. Otherwise dont understand how the CAR Level Pot is at full CCW when you are moving on to loading the rig in CW mode. Should be where you left it after making that initial plate current dip.

Terry K9TW

46605. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 11:50:08 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46605

Mark:

Yes he bought the Hakko 808. Jimmy and I also have one and cant describe how well it works in contrast to solder wick. Of course you pay a price for that like all good tools.

I am thinking about Dayton again this year. Will let you know.

Terry

46606. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 12:16:54 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46606

Are you saying that after peaking ALC in Tune mode you then change meter from ALC to IP position and flip to Send and the meter pegs? OR

Are you saying you can dip the plate current in Tune Mode and then when you place mode switch in CW mode and try to check the plate current dip again this is when the meter pegs?

It sounds to me like you have a problem with the bias voltage adjust pot.

I would pull the finals and measure the operating bias thru its range to make sure it is there and smooth from full ccw to full cw of the pot. Have to be very careful working in the PA cage and make sure that the dangling anode caps wont go to ground as you will have 900vdc on them during this test.

I recommend using an analog VTVM to monitor the bias voltage at control grids of the finals as opposed to a DMM. Measure directly on Pin 5 at the 6146 socket lugs on the final board. Report back the voltage range that you get. Will be approx -100 to -30. Return it to -60 after testing.

Regarding plate current dip:

In Tune mode with the Plate Load capacitor plates fully meshed (full CCW) you should see a max of approx 100ma with the Plate Tune capacitor off resonance and should get a dip down to around 50ma at a peak of approx 15 watts output on your wattmeter. If you have the Plate Load capacitor plates open then of course will see less of a dip. Suggest to all new folks to fully close the Plate load cap until they get proficient at loading.

Terry K9TW

46608. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 12:50:49 UTC
From: Mike
Topic: 46576 Message: 46608

Michael,

You said the "HV" is "450VDC" with the "SG" switch set to OFF????

You then said the HV is "750 volts" with the "SG" switch OFF???

None of that makes any sense.

The "SG" switch has nothing to do with the HV meter indication. If the meter switch is set to "HV" with the transmitter keyed and the meter indicates "450VDC" on the HV scale, then one of the HV filter capacitors has failed. The HV supply in "ALL" KW hybrids is a "voltage doubling" supply. Are you sure you are looking at the HV "RED" scale?

Also, you said with the "SG" switch "OFF" you get "50 watts output". That is not possible! If the SG switch is set to "OFF" then the final amplifier will have zero RF output. You will be able to achieve an ALC peak adjustment in TUNE mode but you will not see any IP current with the transmitter keyed. Do you know what happens when the SG switch is set to "OFF" and what happens in the final tubes with the SG switch in the "OFF" Position? If you do not understand what the SG does and how it affects the final amplifier then I suggest you watch my SG switch videos:

www.n6wk.com/w5rkl/SG Switch/

Neutralizing the final occurs on 10 meters.

73
Mike W5RKL

On 12/23/2013 6:21 AM, Michael Sylvester wrote:
> Put some good tubes in. Meter not pegging.
> Managed about 3 hours on the TS-530S this night.
> Seemed low drive or ALC barely making max ALC with car full CW, 2
> different driver tubes, weak, put in a new old stock and not much
> better, while trying neutralization.
> Neutralize on 21.3 Mhz, or a man told me revision from Knwd is for
> 28.5 Mhz, which one?
> Wasn't getting any more than 15 watts for first 10 minutes. Using my
> best tubes, 95% Matsushitas. Came up to 80 watts after on for 15
> minutes, knocking the dust off old tubes?
> After putting in good NOS driver I'm only getting 50 watts max now.
> Checked HV with SG off is only 450V while trying to tune, giving 50
> watts out into antenna or dummy load. With SG off I get 750 volts.
> Been up way too long. Need hot shower and some rest.
> Any suggestions on next direction to go? (todays lesson).
> I replaced the RF finals board with no changes, looks real good and

> original. 470 on Rectifier board is good too.
> I did neutralization with Oscope when getting 80 watts.
> Should I be using my VTVM instead?
> I'm tired. Want to get my woodburner setup in Greenhouse finished today.
> Sleep?
> I don't know but I'm about out of gas. Shower sounds good.
> Thanks for your help men. Have a good Monday.
> "All it takes for evil to succeed is for good men to do nothing"
> MIchael///KD0WSJ
>
> *From:* Michael Sylvester <sylvstrmchl@...>
> *To:* "TS-520_820_530_830@yahoogroups.com"
> <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Monday, December 23, 2013 1:44 AM
> *Subject:* Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay
>
> Sorry, I always include too much information resulting in confusion
> spreading from me to everywhere....
> I am reviewing the tuning procedures in the manual. I do set the
> initial Plate current at 60ma.
> Peaking the ALC on tune position. Turning meter back to IP, dipping
> the plate.
> This is where the Meter is getting pegged. I tried turning down the
> bias pot on the back of the rig.....
> That was the CCW reference.
> First place to look?
> I'm putting the RF board back in next. Everything looks good there.
> The 470 on the rectifier board is good also.
> The Hybrid resistor kit goes back into the bag and back into parts
> inventory. I've spent almost $800 with Jim and with Ken at K4EAA so
> far, another almost $300 in spare boards and a $200 delivered 820S
> parts radio.
> Just bought a TS-520/820 VFO with my preferred knob for $20+$12 shipping!!
> Building up a rather substantial parts inventory so far!
> Now if I just knew how to troubleshoot.....
> Never was very good and been away for decades.
> What's the most likely culprit for the pegged meter?
> Maybe have it figgered out by morning.
> Bugs me bad that right now I've got 8 Knwds here and NONE are 100%.
> Old boys at Breakfast club prolly don't miss me, I drive 'em nuts with
> my political comments!!
> I'll be working on the TS-530S that WAS up for sale before the ice
> storm and then, hopefully, back to the Gold Label victim of the
> "Golden Screwdriver"....
> Maybe some code if I can get back on the air. Maybe I should buy
> another radio?
> That's a joke!
> 2-820S units for parts, the cheapy I just bought has so many problems
> and rusty case, it's a parts radio.
> The "old Dog" 530S has consumed over 30 hours so far, not done.

> Buying a cheapy set of 6JE6 from Suzy at bobsezstore of eBay this
> morning, Test about 80%, mixed brands but close match, $85 shipped,
> should be able to get my LA-1000A going this week. .
> Lots to do. Back at it. Had a catnap at the GF's folks, they do a
> "Christmas movie" usually "Christmas Vacation" with Chevy Chase,
> couldn't find it. So I spent an hour studying the new 830S manual, or
> tried, then fell asleep during their movie.
> Slept from 1am-2am and 5am-7am yesterday, 3 hours yesterday.
> Too much sleep, getting into my work time.
> You all have a Blessed day!
> Michael///KD0WSJ
>
> *From:* "wagstw46@..." <wagstw46@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Sunday, December 22, 2013 7:17 PM
> *Subject:* Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay
>
> Well I have to say in about 50 years first time anyone ever related a
> transmitter loading problem to me and included the time of day!
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> Where is your resting plate current set at?
>
> If you are able to peak the ALC indication in TUNE mode and make the
> initial plate current dip in Tune mode with the CAR Level Pot (There
> is no IP pot so I assume you are talking about the CAR level pot?) in
> full CCW position then sounds like you have a open ring diode on the
> Balanced Modulator. Otherwise dont understand how the CAR Level Pot is
> at full CCW when you are moving on to loading the rig in CW mode.
> Should be where you left it after making that initial plate current dip.
>
>
> Terry K9TW
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46609. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 12:59:10 UTC
From: Mike
Topic: 46576 Message: 46609

The link to the SG switch video is

http://www.n6wk.com/w5rkl/SG%20Switch/

73
Mike W5RKL

On 12/23/2013 6:50 AM, Mike wrote:
>
> Michael,
>
> You said the "HV" is "450VDC" with the "SG" switch set to OFF????
>
> You then said the HV is "750 volts" with the "SG" switch OFF???
>
> None of that makes any sense.
>
> The "SG" switch has nothing to do with the HV meter indication. If the
> meter switch is set to "HV" with the transmitter keyed and the meter
> indicates "450VDC" on the HV scale, then one of the HV filter
> capacitors has failed. The HV supply in "ALL" KW hybrids is a "voltage
> doubling" supply. Are you sure you are looking at the HV "RED" scale?
>
> Also, you said with the "SG" switch "OFF" you get "50 watts output".
> That is not possible! If the SG switch is set to "OFF" then the final
> amplifier will have zero RF output. You will be able to achieve an ALC
> peak adjustment in TUNE mode but you will not see any IP current with
> the transmitter keyed. Do you know what happens when the SG switch is
> set to "OFF" and what happens in the final tubes with the SG switch in
> the "OFF" Position? If you do not understand what the SG does and how
> it affects the final amplifier then I suggest you watch my SG switch
> videos:
>
> www.n6wk.com/w5rkl/SG Switch/
>
> Neutralizing the final occurs on 10 meters.
>
> 73
> Mike W5RKL
>
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>
> On 12/23/2013 6:21 AM, Michael Sylvester wrote:
>> Put some good tubes in. Meter not pegging.
>> Managed about 3 hours on the TS-530S this night.
>> Seemed low drive or ALC barely making max ALC with car full CW, 2
>> different driver tubes, weak, put in a new old stock and not much
>> better, while trying neutralization.
>> Neutralize on 21.3 Mhz, or a man told me revision from Knwd is for
>> 28.5 Mhz, which one?
>> Wasn't getting any more than 15 watts for first 10 minutes. Using my
>> best tubes, 95% Matsushitas. Came up to 80 watts after on for 15
>> minutes, knocking the dust off old tubes?
>> After putting in good NOS driver I'm only getting 50 watts max now.
>> Checked HV with SG off is only 450V while trying to tune, giving 50
>> watts out into antenna or dummy load. With SG off I get 750 volts.
>> Been up way too long. Need hot shower and some rest.
>> Any suggestions on next direction to go? (todays lesson).
>> I replaced the RF finals board with no changes, looks real good and
>> original. 470 on Rectifier board is good too.
>> I did neutralization with Oscope when getting 80 watts.
>> Should I be using my VTVM instead?
>> I'm tired. Want to get my woodburner setup in Greenhouse finished today.
>> Sleep?
>> I don't know but I'm about out of gas. Shower sounds good.
>> Thanks for your help men. Have a good Monday.
>> "All it takes for evil to succeed is for good men to do nothing"
>> MIchael///KD0WSJ
>>
>> *From:* Michael Sylvester <sylvstrmchl@...>
>> *To:* "TS-520_820_530_830@yahoogroups.com"
>> <TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Monday, December 23, 2013 1:44 AM
>> *Subject:* Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay
>>
>> Sorry, I always include too much information resulting in confusion
>> spreading from me to everywhere....
>> I am reviewing the tuning procedures in the manual. I do set the
>> initial Plate current at 60ma.
>> Peaking the ALC on tune position. Turning meter back to IP, dipping
>> the plate.
>> This is where the Meter is getting pegged. I tried turning down the
>> bias pot on the back of the rig.....
>> That was the CCW reference.
>> First place to look?
>> I'm putting the RF board back in next. Everything looks good there.
>> The 470 on the rectifier board is good also.
>> The Hybrid resistor kit goes back into the bag and back into parts
>> inventory. I've spent almost $800 with Jim and with Ken at K4EAA so
>> far, another almost $300 in spare boards and a $200 delivered 820S
>> parts radio.

>> Just bought a TS-520/820 VFO with my preferred knob for $20+$12
>> shipping!!
>> Building up a rather substantial parts inventory so far!
>> Now if I just knew how to troubleshoot.....
>> Never was very good and been away for decades.
>> What's the most likely culprit for the pegged meter?
>> Maybe have it figgered out by morning.
>> Bugs me bad that right now I've got 8 Knwds here and NONE are 100%.
>> Old boys at Breakfast club prolly don't miss me, I drive 'em nuts
>> with my political comments!!
>> I'll be working on the TS-530S that WAS up for sale before the ice
>> storm and then, hopefully, back to the Gold Label victim of the
>> "Golden Screwdriver"....
>> Maybe some code if I can get back on the air. Maybe I should buy
>> another radio?
>> That's a joke!
>> 2-820S units for parts, the cheapy I just bought has so many problems
>> and rusty case, it's a parts radio.
>> The "old Dog" 530S has consumed over 30 hours so far, not done.
>> Buying a cheapy set of 6JE6 from Suzy at bobsezstore of eBay this
>> morning, Test about 80%, mixed brands but close match, $85 shipped,
>> should be able to get my LA-1000A going this week. .
>> Lots to do. Back at it. Had a catnap at the GF's folks, they do a
>> "Christmas movie" usually "Christmas Vacation" with Chevy Chase,
>> couldn't find it. So I spent an hour studying the new 830S manual, or
>> tried, then fell asleep during their movie.
>> Slept from 1am-2am and 5am-7am yesterday, 3 hours yesterday.
>> Too much sleep, getting into my work time.
>> You all have a Blessed day!
>> Michael///KD0WSJ
>>
>> *From:* "wagstw46@..." <wagstw46@...>
>> *To:* TS-520_820_530_830@yahoogroups.com
>> *Sent:* Sunday, December 22, 2013 7:17 PM
>> *Subject:* Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay
>>
>> Well I have to say in about 50 years first time anyone ever related a
>> transmitter loading problem to me and included the time of day!
>>
>> Where is your resting plate current set at?
>>
>> If you are able to peak the ALC indication in TUNE mode and make the
>> initial plate current dip in Tune mode with the CAR Level Pot (There
>> is no IP pot so I assume you are talking about the CAR level pot?) in
>> full CCW position then sounds like you have a open ring diode on the
>> Balanced Modulator. Otherwise dont understand how the CAR Level Pot
>> is at full CCW when you are moving on to loading the rig in CW mode.
>> Should be where you left it after making that initial plate current dip.
>>
>>

>> Terry K9TW
>>
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46610. Re: [TS-520_820_530_830] RE: TS-830s RX and static crashes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 13:09:19 UTC
From: <john@...>
Topic: 46574 Message: 46610

Many thanks for the detailed info Terry.
It is just a minor niggle and thank you for all your help.

The short TX is indeed with 100w to ant. I do not use the SEND, I use VOX switched on with minimum gain.
Sidetone audible.
What is interesting is that the same slight increase in receive occurs when a static crack is received.
It is only a minor thing and I can live with it :0)

(Background noise can vary a lot here in the middle of town - sometimes S9 !)

John Snell / GØRDO
www.morsemad.com
----- Original Message -----
From: wagstw46@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 23, 2013 12:42 AM
Subject: [TS-520_820_530_830] RE: TS-830s RX and static crashes

First I wish I had S1 background noise! Hardly ever see that at my QTH.

OK this short TX dit.... Is it with heaters on and rig loaded and actually producing RF output in CW mode? Do you flip to Send and then back to Rec after sending the dit or are you using VOX to send the dit? Do you hear the side tone oscillator?

As I understand it you see no change in S-meter only a noticeable change in the back ground noise to a higher audio output level in the speaker and it stays high and decays back down to where it was before sending the dit in about 5 seconds.

Is this correct?

If so, I have to say never noticed it and I have two TS-830s. Will look at schematic and see if something jumps out at me. Even though you say not seeing any change in S-meter indication I would want to monitor the AGC bus (rail) voltage as a first step to make sure it is not rising slightly. If anything with the TX dit you might expect it to drop slightly as RF-1 is derived from the 9vdc series pass regulator on the audio board. RF-1 should be set to 3.6vdc and is applied to the AGC bus thru the RF gain pot wiper RFG and thru a 2.2 meg resistor to the bus.

If AGC bus voltage is not moving then almost has to be on the audio board. In CW mode there is some diode switching that takes place to switch in the CW audio filter to tailor the audio response for CW reception. This is done by routing the product detector signal thru Q2 and a low pass filter in its output. Lots of caps in this circuit and maybe something changed in these RC time constants? Just guessing at this point.

Terry K9TW

46611. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 13:21:21 UTC
From: Mark Gilger
Topic: 46576 Message: 46611

Mike,
The web site is:

http://wb4hfn.com/KENWOOD/KenwoodHomePage.htm

Mark, WB0IQK

At 11:54 PM 12/22/2013, Michael Sylvester wrote:
>
>
>To:
>Terry, K9TW
>
>What is the "Ron's website" you speak of?
>Could I ask of you a link?
>TNX,
>
>Also, Terry, do you have a buiseness website for your refurb/repair buiseness?
>Could I get a link to that (if there is one),
>and anything else that might be of help that is
>not in the LINKS list on the groups' web page? From anyone?
>Skip the obvius, like K4EAA.com and Gordons'
>N6WK site, or Hybrid Restore, all of which I've
>downloaded most and read extensively.
>Thank you all ahead of time!!
>
>Michael///KD0WSJ
>
>From: "wagstw46@..." <wagstw46@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Sunday, December 22, 2013 5:44 PM
>Subject: RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay
>
>
>OK Mark: I wasnt sure.
>
>Well as you know not a big fan of modifying
>these rigs. Only did the protection mods after
>final tube arc overs two or three times in about
>a weeks time. That got pretty old.
>
>I am OK with the "huff and puff" boards you installed in your rigs.
>
>Some mods are pretty benign like changing out
>the product detector and balanced modulator ring
>diodes to Schottky diodes. I have seen a few

>rigs where instead of buying the remote VFO the
>range of the RIT has been extended to around 5k.
>These mods are really no big deal and you dont butcher the rig.
>
>I have thought about screen grid regulation
>either with zener string or mosfet shunt regulator but probably wont do it.
>
>Speaking of Dick might ask him to take some good
>close up photos of his wire jumper repair of the
>bandswitch decks and post on Rons website?
>
>I thought of you at Fort Wayne. Most likely my
>last year as it was really small this year. Another ebay casualty.
>
>Have a great Xmas.
>
>73s Terry
>K9TW
>
>
>

46612. RE: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 13:22:32 UTC
From: Mark Gilger
Topic: 46576 Message: 46612

I'll be there as always, but probably not out in the flea market.

Mark

At 06:50 AM 12/23/2013, wagstw46@... wrote:
>
>
>Mark:
>
>
>Yes he bought the Hakko 808. Jimmy and I also
>have one and cant describe how well it works in
>contrast to solder wick. Of course you pay a
>price for that like all good tools.
>
>
>I am thinking about Dayton again this year. Will let you know.
>
>
>Terry
>
>
>
>

46613. Re: [TS-520_820_530_830] RE: TS-830s RX and static crashes

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 13:51:20 UTC
From: <wagstw46@...>
Topic: 46574 Message: 46613

OK John
I will think on this and if come up with anything else will let you know.

As you know the idea of AGC is so you do not have to ride the RF gain pot to prevent strong signals from blowing your ears off. If strong static crashes are causing increase in AF level then perhaps there is an AGC time constant issue. Large value caps at feed end of this bus and smaller values at IF and RF gain controlled stages.

You can measure the bus impedance if you unplug Conn 8 on IF board so you dont read back thru the RF gain pot. Connect ohmmeter to Conn 15 Pin 3 AGC and should see a minimum of approx 4.5 meg ohm. If much lower than this then you have leaky cap or caps which will effect AGC time constants.

You can play around and temporarily hang different values of caps on the AGC bus to observe the effect. Can easily connect at Conn 15 Pin 3 on the IF board. Start with something like a .22uf.

Also as you know many different ways to run. Some Ops use the RF attenuator, Some run with AGC off and do use the RF gain pot.

Have a great Holiday season.

73s Terry K9TW

46614. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 13:53:28 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46614

Mike W5RKL

THANKS!

Terry K9TW

46615. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 14:14:59 UTC
From: <wagstw46@...>
Topic: 46576 Message: 46615

Michael:

I really want to suggest that you sell off couple of these Ebay junkers and buy a Heath DX35 or DX40 or DX60 and have fun refurbishing it and learning how to load a Class C CW transmitter.

When done you will have a piece of test gear that will allow you to test all these 6146 and S2001A tubes you have one at a time under dynamic RF drive conditions before you install them in a KW hybrid.

Wont be same DC conditions, but should screen out most "bad" tubes from good ones.

Lastly I always have a problem trying to teach new people for several reasons:

1. I forget they lack knowledge and experience at a fundamental level that is just 2nd nature to me after all these years. Hard for me not to use the parlance and sometimes speak as we did a long time ago.

2. Trouble shooting is a systematic and logical way of thinking. Cant flit around like a fart in a skillet. Takes some fundamental electronics knowledge, RF radio communications knowledge, modest amount of test gear, how to use it, and lastly KW hybrid specific experience (where are the test points, how to perform service manual steps, how basic circuits work etc).

3. I cant see your face and eyes so have no idea if the head lites are on or not when I make a statement of ask a question.

4. I refuse to just give an answer as some would prefer. I try to include some of the underlying fundamentals. Absent that there can be no learning.

5. I tend to waste a lot of time and keystrokes with responses that turn out to be based on mis-information.

All pretty much short comings as a teacher on my part. Maybe someday we will be able to show and witness instead of just tell.

So at this point I think best if the other members jump in here and help you . I have a back log of bench work and should not be hanging out here until that has been caught up.

Responding in this medium takes a lot of time which I cant commit to at this time.

Best holiday wishes
73s Terry
K9TW

46616. Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 14:50:21 UTC
From: <rrmvargo@...>
Topic: 46576 Message: 46616

I am probably in the minority, but I had a nightmare with the bobsezstore of eBay. I purchased a Hammarlund HQ200 from them & it was very misrepresented. I go most of my money back, but it was a real hassle with Him & Ebay. As it turned out, a guy on the Hammarlund group I belong to, bought the HQ200 that I returned to the bobsezstore & he felt like I did. Just saying... - 73 Bob

---In TS-520_820_530_830@{{emailDomain}}, <sylvstrmchl@...> wrote:trimmed The "old Dog" 530S has consumed over 30 hours so far, not done.
Buying a cheapy set of 6JE6 from Suzy at bobsezstore of eBay this morning, Test about 80%, mixed brands but close match, $85 shipped, should be able to get my LA-1000A going this week. .

Lots to do. Back at it. Had a catnap at the GF's folks, they do a "Christmas movie" usually "Christmas Vacation" with Chevy Chase, couldn't find it. So I spent an hour studying the new 830S manual, or tried, then fell asleep during their movie.
Slept from 1am-2am and 5am-7am yesterday, 3 hours yesterday.
Too much sleep, getting into my work time.
You all have a Blessed day!
Michael///KD0WSJ

From: "wagstw46@..." <wagstw46@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Sunday, December 22, 2013 7:17 PM
Subject: Re: SV: [TS-520_820_530_830] RE: TS830S RL1 relay

Well I have to say in about 50 years first time anyone ever related a transmitter loading problem to me and included the time of day!

Where is your resting plate current set at?

If you are able to peak the ALC indication in TUNE mode and make the initial plate current dip in Tune mode with the CAR Level Pot (There is no IP pot so I assume you are talking about the CAR level pot?) in full CCW position then sounds like you have a open ring diode on the Balanced Modulator. Otherwise dont understand how the CAR Level Pot is at full CCW when you are moving on to loading the rig in CW mode. Should be where you left it after making that initial plate current dip.

Terry K9TW

46619. TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 16:06:49 UTC
From: <dfm4290@...>
Topic: 46619 Message: 46619

One of the power supply capacitors puked it's guts out.
After replacing the power supply capacitors is their any other problems I should expect to have?
Thanks
Dale (KD0GES)

46620. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 16:46:44 UTC
From: Gordon JC Pearce
Topic: 46619 Message: 46620

On Mon, Dec 23, 2013 at 08:06:49AM -0800, dfm4290@... wrote:
> One of the power supply capacitors puked it's guts out.
> After replacing the power supply capacitors is their any other problems I should expect to have?
> Thanks
> Dale (KD0GES)

Check the rectifier diodes too. Capacitors don't just fail for no reason.

--
Gordonjcp MM0YEQ

46621. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 16:51:54 UTC
From: W5RKL
Topic: 46619 Message: 46621

What power supply are you referring and which capacitor on the 830
schematic are you referring to?

Did you troubleshoot the failure to determine why the capacitor failed?

73
Mike W5RKL

On 12/23/2013 10:06 AM, dfm4290@... wrote:
>
> One of the power supply capacitors puked it's guts out.
> After replacing the power supply capacitors is their any other
> problems I should expect to have?
> Thanks
> Dale (KD0GES)
>
>

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46622. RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 20:46:11 UTC
From: <dfm4290@...>
Topic: 46619 Message: 46622

No I took the radio apart because it would not transmit.
I found that one if the 120 pf capacitors had leaked out.
I will check the diodes.
Thanks
Dale (KD0GES)

46623. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 22:00:18 UTC
From: <wagstw46@...>
Topic: 46619 Message: 46623

With the KW hybrid HV fliter caps (as with all electrolytics) there are premature catastrophic failures and life span failures.

These are 35 to 40 year old rigs and common to find that the 900vdc HV filter caps have swollen rupture vents, white crystalline powdery deposits at the vents, and almost always elevated ESR. Often with the capacitance value measuring on a digital LC bridge within +/- tolerance.

Many factors contribute to the normal "bath tube failure curve". Life span is affected by operating temperature, charge and discharge cycles, inrush current, ripple and RF, and the electrolyte evaporating over time among other factors. They can and do simple just wear out.

I am not a big proponent of total recap as others are and do not subscribe to the claim that electrolytic cap leakage is the major contributor to Hybrid operational issues. I simply have not experienced that and do not recap as a pre-req for repair and alignment or as normal preventive maintenance tasks.

However, the exception I do make is with the HV filter caps. I recommend replacement of the HV filter caps under preventive maintenance umbrella based on the high energy fault contribution and needless stress on the power supply and possible collateral damage that catastrophic capacitor failure can cause. Just the tarry mess sprayed around is to be avoided in my opinion.

Of course just one mans opinion. .

Terry K9TW .

46624. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 22:16:42 UTC
From: Mike
Topic: 46619 Message: 46624

If I may add a comment to Terry's response.

If one of the HV caps has failed, the pressure vent has ruptured,
replace both capacitors. Replacement HV capacitors may be purchased from
Ken, K4EAA, see his website at k4eaa.com for details and availability of
the HV replacement capacitors.

73
Mike W5RKL

On 12/23/2013 4:00 PM, wagstw46@... wrote:
>
> With the KW hybrid HV fliter caps (as with all electrolytics) there
> are premature catastrophic failures and life span failures.
>
>
> These are 35 to 40 year old rigs and common to find that the 900vdc HV
> filter caps have swollen rupture vents, white crystalline powdery
> deposits at the vents, and almost always elevated ESR. Often with the
> capacitance value measuring on a digital LC bridge within +/- tolerance.
>
>
> Many factors contribute to the normal "bath tube failure curve". Life
> span is affected by operating temperature, charge and discharge
> cycles, inrush current, ripple and RF, and the electrolyte evaporating
> over time among other factors. They can and do simple just wear out.
>
>
> I am not a big proponent of total recap as others are and do not
> subscribe to the claim that electrolytic cap leakage is the major
> contributor to Hybrid operational issues. I simply have not
> experienced that and do not recap as a pre-req for repair and
> alignment or as normal preventive maintenance tasks.
>
>
> However, the exception I do make is with the HV filter caps. I
> recommend replacement of the HV filter caps under preventive
> maintenance umbrella based on the high energy fault contribution and
> needless stress on the power supply and possible collateral damage
> that catastrophic capacitor failure can cause. Just the tarry mess
> sprayed around is to be avoided in my opinion.
>
>
> Of course just one mans opinion. .
>
>

> Terry K9TW .
>
>
>
>

46625. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-23 23:00:03 UTC
From: Gordon JC Pearce
Topic: 46619 Message: 46625

On Mon, Dec 23, 2013 at 02:00:18PM -0800, wagstw46@... wrote:
> I am not a big proponent of total recap as others are and do not subscribe to the claim that electrolytic cap leakage is the major contributor to Hybrid operational issues. I simply have not experienced that and do not recap as a pre-req for repair and alignment or as normal preventive maintenance tasks.

Nor am I! I've scrapped too many nice old bits of equipment because people have gone "HERP DERP IT NO WORK MUST BE CAPS LETS RECAP IT" and introduced all manner of faults - all without ever fixing the original fault.

In 20-odd years of repairing stuff, I've changed maybe a half a dozen electrolytics that weren't in cheap crappy switched mode power supplies (and more Amstrad SRD1000s than I care to remember - cheap crappy SMPSU, left to bake on top of the video recorder with the vents blocked by a copy of the Radio Times). Lots and lots of disc ceramics, though. They *do* fail and go leaky. About the only time I've seen electrolytics genuinely fail is when the rectifier preceding them has gone shorted and it all gets noisy.

--
Gordonjcp MM0YEQ

46626. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 02:34:31 UTC
From: Young Kim
Topic: 46619 Message: 46626

Hi Do you need a new cap? Is it 450V 120uF or 500V 120uF?
Let me know, maybe I can give you a real good deal.
Thanks.
Young
K6hm

From: "dfm4290@..." <dfm4290@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 23, 2013 8:06 AM
Subject: [TS-520_820_530_830] TS-830 power supply

One of the power supply capacitors puked it's guts out.
After replacing the power supply capacitors is their any other problems I should expect to have?
Thanks
Dale (KD0GES)

46627. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 03:35:43 UTC
From: W5RKL
Topic: 46619 Message: 46627

Never use a pair of 450VDC capacitors to replace the KW hybrid HV filter capacitors! The resulting working voltage will be too low, 900VDC.

The working voltage of each series connected capacitor, "adds" but the capacitance divides, the "opposite" of resistors in series! Therefore, with two 120ufd 500VDC capacitors connected in series, the total capacitance is 60ufd (120 x 120 / 120 + 120 = 60) and the working voltage is 1000VDC (500 + 500 = 1000).

If the KW hybrid HV filter capacitors are replaced with two 120ufd 450VDC capacitors, the total capacitance would still be 60ufd BUT the working voltage would only be "900VDC" (450 + 450 = 900) which is too low for the KW hybrid's HV supply's no load output voltage!

Filter capacitors that are connected in series, should be the same capacitance value and the same working voltage rating. The working voltage of each capacitor should, when added together, exceed the "no load" output voltage of the power supply. When connecting capacitors in series, it is highly discouraged to mix capacitors of different capacitance values, even if the voltage rating of each capacitor is the same. When capacitors are connected in series and AC voltage is applied to the capacitors, the AC voltage pays no minds to the capacitor's high internal resistance but rather divides the AC voltage inversely proportional to the capacitors
capacitance values even with equalizing resistors connected across each capacitor. That means you should not connect an 80ufd capacitor in series with a 150ufd capacitor even if both capacitors have the same voltage rating.

Equalizing resistors connected across each series connected capacitor, each resistor has the same resistance and wattage rating. The resistors act to equalize the voltage across each capacitor plus serve as bleeder resistors to bleed the capacitors to zero when voltage is removed. Each series capacitors charges "individually" throughout the AC sine wave cycle but discharge as a "single" capacitor.

73
Mike W5RKL

On 12/23/2013 8:34 PM, Young Kim wrote:
> Hi Do you need a new cap? Is it 450V 120uF or 500V 120uF?
> Let me know, maybe I can give you a real good deal.
> Thanks.
> Young
> K6hm
>

> ---
> *From:* "dfm4290@..." <dfm4290@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, December 23, 2013 8:06 AM
> *Subject:* [TS-520_820_530_830] TS-830 power supply
>
> One of the power supply capacitors puked it's guts out.
> After replacing the power supply capacitors is their any other
> problems I should expect to have?
> Thanks
> Dale (KD0GES)
>
>
>

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46628. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 04:30:33 UTC
From: Young Kim
Topic: 46619 Message: 46628

Mike,
If you use a 105 deg C caps,450V caps is OK. They have much more headroom compared to the 85 deg C caps. It is real hard to find 500V caps these days and I will select 105 deg C 450V caps over unknown quality 85 deg C 500V caps anytime.
I have used thousands of caps for marginal head room and 105 deg C caps did not fail on the similar cases.
Young Kim
K6hm

From: W5RKL <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 23, 2013 7:35 PM
Subject: Re: [TS-520_820_530_830] TS-830 power supply

Never use a pair of 450VDC capacitors to replace the KW hybrid HV filter capacitors! The resulting working voltage will be too low, 900VDC.

The working voltage of each series connected capacitor, "adds" but the capacitance divides, the "opposite" of resistors in series! Therefore, with two 120ufd 500VDC capacitors connected in series, the total capacitance is 60ufd (120 x 120 / 120 + 120 = 60) and the working voltage is 1000VDC (500 + 500 = 1000).

If the KW hybrid HV filter capacitors are replaced with two 120ufd 450VDC capacitors, the total capacitance would still be 60ufd BUT the working voltage would only be "900VDC" (450 + 450 = 900) which is too low for the KW hybrid's HV supply's no load output voltage!

Filter capacitors that are connected in series, should be the same capacitance value and the same working voltage rating. The working voltage of each capacitor should, when added together, exceed the "no load" output voltage of the power supply. When connecting capacitors in series, it is highly discouraged to mix capacitors of different capacitance values, even if the voltage rating of each capacitor is the same. When capacitors are connected in series and AC voltage is applied to the capacitors, the AC voltage pays no minds to the capacitor's high internal resistance but rather divides the AC voltage inversely proportional to the capacitors capacitance values even with equalizing resistors connected across each capacitor. That means you should not connect an 80ufd capacitor in series with a 150ufd capacitor even if both capacitors have the same voltage rating.

Equalizing resistors connected across each series connected capacitor, each resistor has the same resistance and wattage rating.

The resistors act to equalize the voltage across each capacitor plus
serve as bleeder resistors to bleed the capacitors to zero when
voltage is removed. Each series capacitors charges "individually"
throughout the AC sine wave cycle but discharge as a "single"
capacitor.

73
Mike W5RKL

On 12/23/2013 8:34 PM, Young Kim wrote:

>Hi Do you need a new cap? Is it 450V 120uF or 500V 120uF?
>Let me know, maybe I can give you a real good deal.
>Thanks.
>Young
>K6hm
>
>
>
>_____
> From: "dfm4290@..." <dfm4290@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Monday, December 23, 2013 8:06 AM
>Subject: [TS-520_820_530_830] TS-830 power supply
>
>
>
>
>One of the power supply capacitors puked it's guts out.
>After replacing the power supply capacitors is their any other problems I should expect to
have?
>Thanks
>Dale (KD0GES)
>
>

_____

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46631. RE: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 11:48:55 UTC
From: Rob
Topic: 46619 Message: 46631

Hi Michael,

How about if you take a clear picture of the HV board so we could see what’s happening ? (assuming you have a digital camera or similar)

73 and all the best for the season to everyone 8-)

Rob VK3BRS

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Michael Sylvester
Sent: Tuesday, 24 December 2013 10:39 PM
To: TS-520_820_530_830@yahoogroups.com
Subject: Re: [TS-520_820_530_830] TS-830 power supply

Well, wonderful. Blew a fuse.

HV caps replaced. I did a neat job of it. Soldering and wiring I'm real good at, it's one of those mechanical things that comes natural to me.

I need to know if I have the polarity on the caps right.

If so I've got another problem.

Before I spend an hour pulling the caps and rewiring again I'll wait for conformation if I'm right or wrong....

I think I got it Bass ackwards and that's why I blew a fuse.

Could I get a reply from somebody that is familiar with

Ken/K4EAA's HV kit HV 150B?

(see post below that I'm replying to)

I geuss the "Breakfast Club" gets another day of boredom without my irritations, dangit!

Merry Christmas!

Michael///KD0WSJ

From: Michael Sylvester <sylvstrmchl@...>
To: "TS-520_820_530_830@...m" <TS-520_820_530_830@yahoogroups.com>
Sent: Tuesday, December 24, 2013 4:50 AM
Subject: Re: [TS-520_820_530_830] TS-830 power supply

I'm replacing the HV caps in my TS-530S that quit during the ice storm with my crap Swedish Dipole.

I have one set of caps from Ken, K4EAA, "HV repair kit" HV 150B, Nichicon 150uf at 500V, 105*C.

The new caps are marked for polarity but it is ambiguous to me.

Short caps with a grey strip up the side that has 0 0 0 0 0.

I see the base of the contacts also has a checkerboard pattern, almost like a +++++.

40 years ago the only thing marked on electrolytics was the + side.

I'm going to assume this IS the + side with grey strip and 0 0 0 with post stamped with checkerboard ++++.

Is that correct? Stripe is still + side?

Old tall caps are marked with black dot on Neg side, Nothing else.

Hopefuly somebody replies quick OR I have it right, or both!

Going through "NO Radio" withddrawal.

Pretty bad, 8 radios and none working 100%

I'm sure the armchair pilots of the "Breakfast Club" are missing my daily political rants that always piss them off!

Hey, I got some sleep! 3 hours!

Tried to go through tuning to review what I remember and correct my buggered up statements from yesterday.....radio has no IP at first tune steps....

No harm done replacing caps. No signs of other damage, It's quick enough. It's also the only fix suggestion I got yesterday.

(Other than learning what I'm doing and watching my wording more closely,

Sg off, sg off...!!! hi...hi.)

Side note to Terry, I had a Heathkit DX-40 when I was 13 and a Novice, 42 years ago. Miss it. Also had a monster National 5TA1 receiver with pull out coil sets, total of 4.

I wish I had not made that sad drive to the dump with them 15 years ago. It still bothers me. Good old freinds that I let down....

"Merry Flippin Christmas"!! Enjoy your families.

Michael///KD0WSJ

From: W5RKL <w5rkl@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 23, 2013 9:35 PM
Subject: Re: [TS-520_820_530_830] TS-830 power supply

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The working voltage of each series connected capacitor, "adds" but the capacitance divides, the "opposite" of resistors in series! Therefore, with two 120ufd 500VDC capacitors connected in series, the total capacitance is 60ufd (120 x 120 / 120 + 120 = 60) and the working voltage is 1000VDC (500 + 500 = 1000).

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Equalizing resistors connected across each series connected capacitor, each resistor has the same resistance and wattage rating. The resistors act to equalize the voltage across each capacitor plus serve as bleeder resistors to bleed the capacitors to zero when voltage is removed. Each series capacitors charges "individually" throughout the AC sine wave cycle but discharge as a "single" capacitor.

73
Mike W5RKL

On 12/23/2013 8:34 PM, Young Kim wrote:

Hi Do you need a new cap? Is it 450V 120uF or 500V 120uF?

Let me know, maybe I can give you a real good deal.

Thanks.

Young

K6hm

From: mailto:dfm4290@... mailto:dfm4290@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 23, 2013 8:06 AM
Subject: [TS-520_820_530_830] TS-830 power supply

One of the power supply capacitors puked it's guts out.
After replacing the power supply capacitors is their any other problems I should expect to have?
Thanks
Dale (KD0GES)

<http://www.avast.com/>

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46632. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 12:15:32 UTC
From: Mike
Topic: 46619 Message: 46632

The HV caps being sold by Ken, K4EAA, do not have "zeros" down the side. Those are "minus signs" pointing down the side of the capacitor to the "negative lead".

If an electrolytic capacitor is incorrectly connected in a power supply, i.e., negative terminal is connected to the Positive output and positive to the Negative connection then power is applied to the cap, the cap will be permanently damaged. That is why it is very important to install a replacement electrolytic capacitors "correctly" by paying attention to the capacitor's markings and the circuit the capacitor is being installed in. If this occurs a new capacitor should be used.

It doesn't matter whether the capacitor is rated for 85 degrees or 105 degrees, it's the working voltage rating that is important. Also, it is very poor and "unsafe" troubleshooting/repair practice to use capacitors in a power supply or circuit that have a working voltage that is equal to the power supply's output voltage or circuit voltage. You should always have a safety "working voltage" margin in any capacitor used in a power supply or circuit.

73
Mike W5RKL

On 12/24/2013 4:50 AM, Michael Sylvester wrote:
> I'm replacing the HV caps in my TS-530S that quit during the ice storm
> with my crap Swedish Dipole.
> I have one set of caps from Ken, K4EAA, "HV repair kit" HV 150B,
> Nichicon 150uf at 500V, 105*C.
> The new caps are marked for polarity but it is ambiguous to me.
> Short caps with a grey strip up the side that has 0 0 0 0 0.
> I see the base of the contacts also has a checkerboard pattern, almost
> like a +++++.
> 40 years ago the only thing marked on electrolytics was the + side.
> I'm going to assume this IS the + side with grey strip and 0 0 0
> with post stamped with checkerboard ++++.
> Is that correct? Stripe is still + side?
> Old tall caps are marked with black dot on Neg side, Nothing else.
> Hopefuly somebody replies quick OR I have it right, or both!
> Going through "NO Radio" withddrawal.
> Pretty bad, 8 radios and none working 100%
> I'm sure the armchair pilots of the "Breakfast Club" are missing my
> daily political rants that always piss them off!
> Hey, I got some sleep! 3 hours!
> Tried to go through tuning to review what I remember and correct my
> buggered up statements from yesterday.....radio has no IP at first
> tune steps....

> No harm done replacing caps. No signs of other damage, It's quick
> enough. It's also the only fix suggestion I got yesterday.
> (Other than learning what I'm doing and watching my wording more closely,
> Sg off, sg off...!!! hi...hi.)
> Side note to Terry, I had a Heathkit DX-40 when I was 13 and a Novice,
> 42 years ago. Miss it. Also had a monster National 5TA1 receiver with
> pull out coil sets, total of 4.
> I wish I had not made that sad drive to the dump with them 15 years
> ago. It still bothers me. Good old freinds that I let down....
> "Merry Flippin Christmas"!! Enjoy your families.
> Michael///KD0WSJ
>
> *From:* W5RKL <w5rkl@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Monday, December 23, 2013 9:35 PM
> *Subject:* Re: [TS-520_820_530_830] TS-830 power supply
>
> Never use a pair of 450VDC capacitors to replace the KW hybrid HV
> filter capacitors! The resulting working voltage will be too low, 900VDC.
>
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> capacitance divides, the "opposite" of resistors in series! Therefore,
> with two 120ufd 500VDC capacitors connected in series, the total
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> voltage is 1000VDC (500 + 500 = 1000).
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> load" output voltage of the power supply. When connecting capacitors
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> applied to the capacitors, the AC voltage pays no minds to the
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> each capacitor. That means you should not connect an 80ufd capacitor
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> each resistor has the same resistance and wattage rating. The
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> as bleeder resistors to bleed the capacitors to zero when voltage is

> removed. Each series capacitors charges "individually" throughout the
> AC sine wave cycle but discharge as a "single" capacitor.
>
> 73
> Mike W5RKL
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> On 12/23/2013 8:34 PM, Young Kim wrote:
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>> Thanks.
>> Young
>> K6hm
>>
>> *From:* mailto:dfm4290@... mailto:dfm4290@...
>> *To:* TS-520_820_530_830@yahoogroups.com
>> <mailto:TS-520_820_530_830@yahoogroups.com>
>> *Sent:* Monday, December 23, 2013 8:06 AM
>> *Subject:* [TS-520_820_530_830] TS-830 power supply
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>> After replacing the power supply capacitors is their any other
>> problems I should expect to have?
>> Thanks
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>
> <http://www.avast.com/>
> This email is free from viruses and malware because avast! Antivirus
> <http://www.avast.com/> protection is active.
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46633. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 12:20:09 UTC
From: <wagstw46@...>
Topic: 46619 Message: 46633

I dont brag about being good at anything. Very risky having a high opinion of ones self. OK to like yourself. Never good to be confident to the point of arrogance.

There is no way to really ever grade yourself in any endeavor. You are only as good as your competition and they are always raising the bar. Lots of competition on this site. Luckily most are willing to share. Just cant teach common sense, humility, touch, feel or aptitude.

The OOOOO symbols are not zeros they are meant to be oblong negative signs on the grey band on side of can. This is the negative terminal.

The stamped pattern on the terminal post is not Plus Plus Plus. It is a cross hatch pattern and is the negative post. That post is aligned with the grey band on the cap vinyl cover.

Agree it can be confusing. Some cans have the Positive terminal stamped with a + and some have the Negative terminal painted with a black dot. Best to consult the data and app note sheets when not sure or come here and ask.

Cannot reverse polarity them. Similar to a diode they have cathode and anode foils and most mfg. recommend no more than 1 to 2 vdc reverse polarity at room temperature. Look at the pressure reliefs cut in top of each can and see if it is now convex. Should be flat. If not convex, you could measure capacitance and ESR them and try using them again.

I might try that for my radio but I would not put back in a customers radio.

Terry K9TW

46635. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 12:43:07 UTC
From: Mike
Topic: 46619 Message: 46635

Michael,

As I stated before, the SG switch has nothing to do with the HV power supply output voltage.

The SG switch is set to the "OFF" position when neutralizing the final amplifier. You should not attempt to neutralize the final amplifier until you fix the HV power supply and the source that is causing the fuse to blow.

I recommended you replace both HV filter capacitors even if only one failed. Did you do that?

Also if you connected the replacement HV filter capacitor "backwards" then you should throw that capacitor away and install new fresh caps, connected correctly.

73
Mike W5RKL

On 12/24/2013 6:25 AM, Michael Sylvester wrote:
> Nothing going on on the HV board, do you mean the Rectifier board?
> Haven't checked any thing there yet, except the 470 ohm resistor that
> usually blows.
> I replaced the big 500Volt filter caps for the HV supply.
> Was getting low HV yesterday, it's the one fix that was suggested.
> Couldn't repeat the tune today because iIstarted out with no IP right
> off the bat this morning.
> I was getting 450volts on my meter of the Knwd TS-530S at the HV
> setting on meter, SG off, "I THINK". 450volts with SG on "I
> THINK" when trying to do a "neutralization".
> Michael///KD0WSJ.
>
> *From:* Rob <roberts@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, December 24, 2013 5:48 AM
> *Subject:* RE: [TS-520_820_530_830] TS-830 power supply
>
> Hi Michael,
> How about if you take a clear picture of the HV board so we could
> see what’s happening ? (assuming you have a digital camera or
> similar)
> 73 and all the best for the season to everyone 8-)
> Rob VK3BRS
> *From:*TS-520_820_530_830@yahoogroups.com
> [mailto:TS-520_820_530_830@yahoogroups.com] *On Behalf Of *Michael

> Sylvester
> *Sent:* Tuesday, 24 December 2013 10:39 PM
> *To:* TS-520_820_530_830@yahoogroups.com
> *Subject:* Re: [TS-520_820_530_830] TS-830 power supply
> Well, wonderful. Blew a fuse.
> HV caps replaced. I did a neat job of it. Soldering and wiring I'm
> real good at, it's one of those mechanical things that comes natural
> to me.
> I need to know if I have the polarity on the caps right.
> If so I've got another problem.
> Before I spend an hour pulling the caps and rewiring again I'll wait
> for conformation if I'm right or wrong....
> I think I got it Bass ackwards and that's why I blew a fuse.
> Could I get a reply from somebody that is familiar with
> Ken/K4EAA's HV kit HV 150B?
> (see post below that I'm replying to)
> I geuss the "Breakfast Club" gets another day of boredom without my
> irritations, dangit!
> Merry Christmas!
> Michael///KD0WSJ
> *From:*Michael Sylvester <sylvstrmchl@...>
> *To:* "TS-520_820_530_830@yahoogroups.com"
> <TS-520_820_530_830@yahoogroups.com>
> *Sent:* Tuesday, December 24, 2013 4:50 AM
> *Subject:* Re: [TS-520_820_530_830] TS-830 power supply
> I'm replacing the HV caps in my TS-530S that quit during the ice storm
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> 42 years ago. Miss it. Also had a monster National 5TA1 receiver with
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> <http://www.avast.com/> protection is active.
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>

46637. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 13:34:29 UTC
From: Mike
Topic: 46619 Message: 46637

Michael,

I recommend you do not reuse that capacitor you installed backwards. Did you replace both HV filter capacitors or only one? I could be wrong but it appears you replaced only one HV filter capacitor. Do you understand the HV power supply filter capacitors are connected in "series" and that the HV power supply is a "voltage doubling" supply?

If I may make a suggestion, you need to slow down. You are asking questions but not waiting for answers before you proceed. If you have asked a question about a subject/topic or something you do not understand, you should wait for the answer before you proceed. If you still are unsure or do not understand, ask additional questions. Never make assumptions on anything, or "I think it's right...". You should always check/verify BEFORE you proceed. Making assumptions or following the "I think it's right.." concept of thinking can easily result in you being wrong which could easily results in additional problems you did not initially have.

Happy Holidays and 73
Mike W5RKL

46639. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 14:16:05 UTC
From: Mike
Topic: 46619 Message: 46639

Michael,

If you are selling the TS-530 for $20 then pay you the $20 for the
TS-530! Let me know what the shipping cost are to home zip code 74953?

73
Mike W5RKL

On 12/24/2013 8:05 AM, Michael Sylvester wrote:
> While I agree with your first sentence, I make that mistake often.
> Arrogant, yup that's me, sorry.
> (off topic and won't happen again)
> A little history about me,
> I grew up small, poor, on welfare and was often beaten by the older
> and bigger kids in my neighborhood.
> I've outgrown all of them, outlived most.
> When switched from Catholic school (sponsored by whom I do not know)
> to public school in 5th grade because the little rich boys there
> thought it fun to beat me up often (I was welfare trash to them with
> free lunch card).
> I was beaten the first week in public school for giving a correct
> answer after the "bully" of the class gave an incorrect answer. He was
> 6" taller, 40 pounds heavier and 2 years older, having started school
> at 5 and failed one grade already (I started school at 4). With a bad
> black eye he informed me I would in future not be raising my hand.
> In Junior high, 9th grade, we had 2 football teams.
> I was the second smallest out of 2 teams.
> The coach would often put the biggest tackle on line across from me,
> with the entire 2 teams watching, Yell "hike", to beat me down to get
> me to quit.
> I never quit. He did that more than once.
> I even get that behavior now from grown men on turbine jobs....one
> hiding a temperature probe worth $2500 in Chicago because the engineer
> had me, a first year apprentice "traveler" doing an easy job
> installing them instead of one of the local "good 'ol boys".
> Or the Buiseness" agents brother in law that busted a gauge on the
> governor controls I was working on with the engineer at Montrose power
> plant here in Missouri while I was on break. 180 megawatt coal fired
> steam generator that's one of 3 dating back to 1945. Laughing about
> how I had broken it while he was at the other end of the turbine....
> I can tell you first hand about our failing antiquated electric grid!
> So I geuss I'm admitting to having my own psychological issues.
> Even at 56 years old. Please forgive my being human and defective.
> Long story short, I got the bad behavior of patting myself on the back
> because no one else ever did. I won't even go into the psych abuse
> fostered on me by my own single parent mother but will say it was

> extreme and painful.
> God Bless her.
> So, sorry if I sounded like an a**hole bragging about myself.
> While "off topic" ,
> I'd like to apologize for any offense that anyone felt from my poke at
> the "Breakfast Club".
> I was not directing that at anyone here. That was a reference to a net
> on 3.973 Mhz that gets offended by my mentioning things like our
> failing country,
> or worthless politicians. They are predominantly retired gentlemen
> that don't care and don't want to know what's wrong with our failed
> nation.
> I suppose I should just move on and quit violating their traditional
> nonsense.
> Weather, doctor reports, what meds their taking......
> I will in future try to refrain from my smart alecky comments and
> attempt to stay on topic.
> I will also in future not give impertinent info about my Green house
> or my personal activities or whatever that are not germain to the Knwd
> topic.
> Sorry for that. I geuss I am also an attention needy person.
> Forgive my being so flippant and disrespectful.
> Now, back to Knwd stuff.
> Anybody give me $20 for a TS-530 parts radio that's like new
> but DOESN'T work? I think it needs HV caps.....I don't know
> Mihael
>
> *From:* "wagstw46@..." <wagstw46@...>
> *To:* TS-520_820_530_830@yahoogroups.com
> *Sent:* Tuesday, December 24, 2013 6:20 AM
> *Subject:* Re: [TS-520_820_530_830] TS-830 power supply
>
> I dont brag about being good at anything. Very risky having a high
> opinion of ones self. OK to like yourself. Never good to be confident
> to the point of arrogance.
>
> There is no way to really ever grade yourself in any endeavor. You are
> only as good as your competition and they are always raising the bar.
> Lots of competition on this site. Luckily most are willing to share.
> Just cant teach common sense, humility, touch, feel or aptitude.
>
> The OOOOO symbols are not zeros they are meant to be oblong negative
> signs on the grey band on side of can. This is the negative terminal.
>
> The stamped pattern on the terminal post is not Plus Plus Plus. It is
> a cross hatch pattern and is the negative post. That post is aligned
> with the grey band on the cap vinyl cover.
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> Agree it can be confusing. Some cans have the Positive terminal
> stamped with a + and some have the Negative terminal painted with a

> black dot. Best to consult the data and app note sheets when not sure
> or come here and ask.
>
> Cannot reverse polarity them. Similar to a diode they have cathode and
> anode foils and most mfg. recommend no more than 1 to 2 vdc reverse
> polarity at room temperature. Look at the pressure reliefs cut in top
> of each can and see if it is now convex. Should be flat. If not
> convex, you could measure capacitance and ESR them and try using them
> again.
>
> I might try that for my radio but I would not put back in a customers
> radio.
>
>
> Terry K9TW
>
>
>

46640. RE: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 14:17:18 UTC
From: fpath fpath
Topic: 46619 Message: 46640

Michael,

Your very keen and want to learn lots which is admirable and the good people on this site will help, but sometimes are not able to answer questions immediately. I don't always get emails on a daily basis since the change by yahoo, then other days I may get a huge email dump of some 50+.
Because of your limited knowledge\experience with these radios, by going ahead with repairs that you're unsure of not only creates problems and is a waste of money for you , but it then introduces another problem to your already sick radio which could have been fixed a lot easier.

As such, I would like to recommend that you repair one radio at a time and if you insist on jumping between different radios please keep it related to the email header, eg; ts830 power, should be kept to the 830 issues, and not use the same header for the 530 HV issue, it becomes confusing and hard to keep track, even though there are some similarities to the 830 and 530 series. This is only my opinion and friendly advice.

Lots of the newbies or people who are learning keep these emails in respective order and this can create problems for them, which in turn makes it difficult for our guru's and friends.

Also some of us stick to repairing certain models\series and can offer advice which takes the pressure off Terry and Mike.

I am not scolding you or anyone else, just trying to give you a helping hand and prevent you from 1 damaging your radios further, 2 wasting money and resources and 3 hopefully prevent you from turning into a SK, becasue sooner or later if you keep going at it like a bull in a china shop, you'll touch the wrong thing.

As you suffer with limited sleep, my professional advice is to stay away from repairing your radios and anything that is pointy or sharp when your tired! Patience is a virtue and an absolute must with these radios.

Best 73's and very Merry Christmas to you and all on the forum

Dave
VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: sylvstrmchl@...
Date: Tue, 24 Dec 2013 04:25:39 -0800
Subject: Re: [TS-520_820_530_830] TS-830 power supply

Nothing going on on the HV board, do you mean the Rectifier board?
Haven't checked any thing there yet, except the 470 ohm resistor that usually blows.
I replaced the big 500Volt filter caps for the HV supply.
Was getting low HV yesterday, it's the one fix that was suggested.

Couldn't repeat the tune today because iIstarted out with no IP right off the bat this morning.
I was getting 450volts on my meter of the Knwd TS-530S at the HV setting on meter, SG off, "I THINK". 450volts with SG on "I THINK" when trying to do a "neutralization".
Michael///KD0WSJ.

From: Rob <roberts@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, December 24, 2013 5:48 AM
Subject: RE: [TS-520_820_530_830] TS-830 power supply

Hi Michael,
How about if you take a clear picture of the HV board so we could see what’s happening ? (assuming you have a digital camera or similar)
73 and all the best for the season to everyone 8-)
Rob VK3BRS

From: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] On Behalf Of Michael SylvesterSent: Tuesday, 24 December 2013 10:39 PMTo: TS-520_820_530_830@yahoogroups.comSubject: Re: [TS-520_820_530_830] TS-830 power supply

Well, wonderful. Blew a fuse.

HV caps replaced. I did a neat job of it. Soldering and wiring I'm real good at, it's one of those mechanical things that comes natural to me.

I need to know if I have the polarity on the caps right.

If so I've got another problem.

Before I spend an hour pulling the caps and rewiring again I'll wait for conformation if I'm right or wrong....

I think I got it Bass ackwards and that's why I blew a fuse.

Could I get a reply from somebody that is familiar with

Ken/K4EAA's HV kit HV 150B?

(see post below that I'm replying to)

I geuss the "Breakfast Club" gets another day of boredom without my irritations, dangit!

Merry Christmas!

Michael///KD0WSJ

From: Michael Sylvester <sylvstrmchl@...>To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com> Sent: Tuesday, December 24, 2013 4:50 AMSubject: Re: [TS-520_820_530_830] TS-830 power supply

I'm replacing the HV caps in my TS-530S that quit during the ice storm with my crap Swedish Dipole.

I have one set of caps from Ken, K4EAA, "HV repair kit" HV 150B, Nichicon 150uf at 500V, 105*C.

The new caps are marked for polarity but it is ambiguous to me.

Short caps with a grey strip up the side that has 0 0 0 0 0.

I see the base of the contacts also has a checkerboard pattern, almost like a +++++.

40 years ago the only thing marked on electrolytics was the + side.

I'm going to assume this IS the + side with grey strip and 0 0 0 with post stamped with checkerboard ++++.

Is that correct? Stripe is still + side?

Old tall caps are marked with black dot on Neg side, Nothing else.

Hopefuly somebody replies quick OR I have it right, or both!

Going through "NO Radio" withddrawal.

Pretty bad, 8 radios and none working 100%

I'm sure the armchair pilots of the "Breakfast Club" are missing my daily political rants that always piss them off!

Hey, I got some sleep! 3 hours!

Tried to go through tuning to review what I remember and correct my buggered up statements from yesterday.....radio has no IP at first tune steps....

No harm done replacing caps. No signs of other damage, It's quick enough. It's also the only fix suggestion I got yesterday.

(Other than learning what I'm doing and watching my wording more closely,

Sg off, sg off...!!! hi...hi.)

Side note to Terry, I had a Heathkit DX-40 when I was 13 and a Novice, 42 years ago. Miss it. Also had a monster National 5TA1 receiver with pull out coil sets, total of 4.

I wish I had not made that sad drive to the dump with them 15 years ago. It still bothers me. Good old freinds that I let down....

"Merry Flippin Christmas"!! Enjoy your families.

Michael///KD0WSJ

From: W5RKL <w5rkl@yahoo.com>To: TS-520_820_530_830@yahoogroups.com Sent: Monday, December 23, 2013 9:35 PMSubject: Re: [TS-520_820_530_830] TS-830 power supply

Never use a pair of 450VDC capacitors to replace the KW hybrid HV filter capacitors! The resulting working voltage will be too low, 900VDC.The working voltage of each series connected capacitor, "adds" but the capacitance divides, the "opposite" of resistors in series! Therefore, with two 120ufd 500VDC capacitors connected in series, the total

capacitance is 60ufd (120 x 120 / 120 + 120 = 60) and the working voltage is 1000VDC (500 + 500 = 1000). If the KW hybrid HV filter capacitors are replaced with two 120ufd 450VDC capacitors, the total capacitance would still be 60ufd BUT the working voltage would only be "900VDC" (450 + 450 = 900) which is too low for the KW hybrid's HV supply's no load output voltage! Filter capacitors that are connected in series, should be the same capacitance value and the same working voltage rating. The working voltage of each capacitor should, when added together, exceed the "no load" output voltage of the power supply. When connecting capacitors in series, it is highly discouraged to mix capacitors of different capacitance values, even if the voltage rating of each capacitor is the same. When capacitors are connected in series and AC voltage is applied to the capacitors, the AC voltage pays no minds to the capacitor's high internal resistance but rather divides the AC voltage inversely proportional to the capacitors capacitance values even with equalizing resistors connected across each capacitor. That means you should not connect an 80ufd capacitor in series with a 150ufd capacitor even if both capacitors have the same voltage rating.Equalizing resistors connected across each series connected capacitor, each resistor has the same resistance and wattage rating. The resistors act to equalize the voltage across each capacitor plus serve as bleeder resistors to bleed the capacitors to zero when voltage is removed. Each series capacitors charges "individually" throughout the AC sine wave cycle but discharge as a "single" capacitor.73Mike W5RKL

On 12/23/2013 8:34 PM, Young Kim wrote:

Hi Do you need a new cap? Is it 450V 120uF or 500V 120uF?

Let me know, maybe I can give you a real good deal.

Thanks.

Young

K6hm

From: mailto:dfm4290@... mailto:dfm4290@gmail.comTo: TS-520_820_530_830@yahoogroups.com
Sent: Monday, December 23, 2013 8:06 AMSubject: [TS-520_820_530_830] TS-830 power supply

One of the power supply capacitors puked it's guts out.After replacing the power supply capacitors is their any other problems I should expect to have?ThanksDale (KD0GES)

This email is free from viruses and malware because avast! Antivirus protection is active.

46645. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 15:54:17 UTC
From: Ron
Topic: 46619 Message: 46645

I'll buy it Michael

Ron KK4PWF

On Dec 24, 2013, at 8:05 AM, Michael Sylvester <sylvstrmchl@...> wrote:

>
>
> While I agree with your first sentence, I make that mistake often.
> Arrogant, yup that's me, sorry.
> (off topic and won't happen again)
> A little history about me,
> I grew up small, poor, on welfare and was often beaten by the older and bigger kids in my neighborhood.
> I've outgrown all of them, outlived most.
> When switched from Catholic school (sponsored by whom I do not know) to public school in 5th grade because the little rich boys there thought it fun to beat me up often (I was welfare trash to them with free lunch card).
> I was beaten the first week in public school for giving a correct answer after the "bully" of the class gave an incorrect answer. He was 6" taller, 40 pounds heavier and 2 years older, having started school at 5 and failed one grade already (I started school at 4). With a bad black eye he informed me I would in future not be raising my hand.
>
> In Junior high, 9th grade, we had 2 football teams.
> I was the second smallest out of 2 teams.
> The coach would often put the biggest tackle on line across from me, with the entire 2 teams watching, Yell "hike", to beat me down to get me to quit.
> I never quit. He did that more than once.
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> I even get that behavior now from grown men on turbine jobs....one hiding a temperature probe worth $2500 in Chicago because the engineer had me, a first year apprentice "traveler" doing an easy job installing them instead of one of the local "good 'ol boys".
>
> Or the Buiseness" agents brother in law that busted a gauge on the governor controls I was working on with the engineer at Montrose power plant here in Missouri while I was on break. 180 megawatt coal fired steam generator that's one of 3 dating back to 1945. Laughing about how I had broken it while he was at the other end of the turbine....
>
> I can tell you first hand about our failing antiquated electric grid!
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> So I geuss I'm admitting to having my own psychological issues.
> Even at 56 years old. Please forgive my being human and defective.
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> Long story short, I got the bad behavior of patting myself on the back because no one else ever did. I won't even go into the psych abuse fostered on me by my own single parent mother but will say it was extreme and painful.

> God Bless her.
>
> So, sorry if I sounded like an a**hole bragging about myself.
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> While "off topic" ,
> I'd like to apologize for any offense that anyone felt from my poke at the "Breakfast Club".
> I was not directing that at anyone here. That was a reference to a net on 3.973 Mhz that gets offended by my mentioning things like our failing country,
> or worthless politicians. They are predominantly retired gentlemen that don't care and don't want to know what's wrong with our failed nation.
> I suppose I should just move on and quit violating their traditional nonsense.
> Weather, doctor reports, what meds their taking......
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> I will in future try to refrain from my smart alecky comments and attempt to stay on topic.
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> Sorry for that. I geuss I am also an attention needy person.
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> Forgive my being so flippant and disrespectful.
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> Now, back to Knwd stuff.
> Anybody give me $20 for a TS-530 parts radio that's like new but DOESN'T work? I think it needs HV caps.....I don't know
> Mihael
>
> From: "wagstw46@..." <wagstw46@...>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Tuesday, December 24, 2013 6:20 AM
> Subject: Re: [TS-520_820_530_830] TS-830 power supply
>
> I dont brag about being good at anything. Very risky having a high opinion of ones self. OK to like yourself. Never good to be confident to the point of arrogance.
>
> There is no way to really ever grade yourself in any endeavor. You are only as good as your competition and they are always raising the bar. Lots of competition on this site. Luckily most are willing to share. Just cant teach common sense, humility, touch, feel or aptitude.
>
> The OOOOO symbols are not zeros they are meant to be oblong negative signs on the grey band on side of can. This is the negative terminal.
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> The stamped pattern on the terminal post is not Plus Plus Plus. It is a cross hatch pattern and is the negative post. That post is aligned with the grey band on the cap vinyl cover.
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> Agree it can be confusing. Some cans have the Positive terminal stamped with a + and some have the Negative terminal painted with a black dot. Best to consult the data and app note sheets when not sure or come here and ask.

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> Cannot reverse polarity them. Similar to a diode they have cathode and anode foils and most mfg. recommend no more than 1 to 2 vdc reverse polarity at room temperature. Look at the pressure reliefs cut in top of each can and see if it is now convex. Should be flat. If not convex, you could measure capacitance and ESR them and try using them again.
>
> I might try that for my radio but I would not put back in a customers radio.
>
>
> Terry K9TW
>
>
>
>
>

46646. For Sale - TS830S and VFO230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 16:26:15 UTC
From: <mcleodm@...>
Topic: 46646 Message: 46646

After 22 years of enjoying this rig I have decided to part with it. It was overhauled by Ken K4EAA in 2009. The receiver is still strong but it has developed low power output problems, and sending it to the USA again for work is an expensive proposition.

So I will take offers.. Photos and more detail on the radio can be had sending email to ve5zg at rac.ca

73
Malcolm McLeod
VE5ZG

46647. RE: For Sale - TS830S and VFO230

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 18:35:02 UTC
From: <wagstw46@...>
Topic: 46646 Message: 46647

Hi Malcom

What is the serial number?

Merry Xmas

Terry K9TW

46648. Re: [TS-520_820_530_830] TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 19:01:01 UTC
From: <john@...>
Topic: 46619 Message: 46648

I see from your QRZ page that you renovate and sell ham radio's Michael !!!
What are you selling I wonder ?

John Snell / GØRDO
www.morsemad.com
----- Original Message -----
From: Michael Sylvester
To: TS-520_820_530_830@yahoogroups.com
Sent: Tuesday, December 24, 2013 3:07 PM
Subject: Re: [TS-520_820_530_830] TS-830 power supply

46649. RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 15:12:44 UTC
From: <glene77is@...>
Topic: 46619 Message: 46649

Michael Sylvester

Hey, I am game !

I will pay you a dollar more than Mike W5RKL offered,

will pay the shipping, cab fare to the post office,
and send you a Fruit Cake as a gift !!!

Man! Be patient and get the rig fixed !!!
Don't let the frustrations eat you up ,
maybe you should ship it to Dave, AK4AA,
before you joke about selling it for "parts".

Google for this and other services :

KENWOOD TRANSCEIVER SERVICE http://www.oldhamdave.com/ www.oldhamdave.com/☐ https://www.google.com/search?q=Ham+Radio+Kenwood+830+repairs&oq=Ham+Radio+Kenwood+830+repairs&sugexp=chrome,mod=0&sourceid=chrome&ie=UTF-8# http://webcache.googleusercontent.com/search?q=cache:jMN9gKp22_wJ:www.oldhamdave.com/+&cd=3&hl=en&ct=clnk&gl=us https://www.google.com/search?q=related:www.oldhamdave.com/+Ham+Radio+Kenwood+830+repairs&tbo=1&sa=X&ei=UqO5UqDsKKmR2QWSoYCYBQ&ved=0CEkQHzAC

KENWOOD TS-520 TS-520S TS-520SE TS-820 TS-820S TS-530S ... amateur AK4AA, well-qualified to repair, align, and refurbish amateur radio ... Dave's specialty is the Kenwood series of "hybrid" transceivers, the TS-520 through TS-830S.

Anyway you push it, Ham Radio is meant to be a Good Thing !
Glen Ellis, KK4LPG, Bio at QRZ.com.

46650. Holiday greetings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 21:48:05 UTC
From: Joseph Stiles
Topic: 46650 Message: 46650

Greeting Group!

  Well, another year is about to come to a close. This group has done well. We have

many new members and, some changes in the group's "administration." So, let's please remember why we are here....to further the preservation of these wonderful old rigs, and to further the enhancement of the Amateur Radio Community in general. Please be respectful of, and to, other members.

  So, to all members of the group..... Happy Holidays!

  Also, to the men and women of our military services, no matter where you may be, we appreciate
your service, and wish that you could be with your loved ones instead of on the other side of the worldor, where you happen to be, other than with your family. Many have sacrificed themselves so we can be here today. So, next timeyou see a military person...give them a quick salute and, tell them thanks! It will make their day!

  Thanks for your time...........

73 Joe
WB7UQU
Group Co-owner

46651. Re: [TS-520_820_530_830] Holiday greetings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-24 23:12:33 UTC
From: KB1TCD
Topic: 46650 Message: 46651

Thanks Joe!

But here in Maine we call it Christmas!
So, that being said, I hope everyone has a very un-PC Merry Christmas!
and keep them tubes a glowing!

73 de Jose, KB1TCD

46653. boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 04:08:01 UTC
From: <bozo231@...>
Topic: 46653 Message: 46653

I bought a boonton 92ea millimeter with cable and rf end but there is no probe tip !!! does anyone know where i can get one also i'm looking for a set of(THE HANGING Boards as Bob m.) calls them for a 520 anyone know where to obtain these boards at

Thanks and Merry Chrsitmas to everyone Ron KK4PWF

46654. Re: [TS-520_820_530_830] boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 04:15:16 UTC
From: Jim Lamanteer
Topic: 46653 Message: 46654

RON BOB MANSKER SHOULD HAVE THESE BOARDS LOOK ON QTH ADDS UNDER KENWOOD TS-520 AND U WILL SEE HIM ADVERTIZE 520 PARTS THERE. THERE IS A PLACE HERE IN N.J THAT SELLS THE TIPS ILL LOOK IT UP AND GET BACK TO U. HOPE THIS HELPS 73`S JIMMY WB2KNR MERRY CHRISTMAS

On Tue, 12/24/13, bozo231@... <bozo231@...> wrote:

Subject: [TS-520_820_530_830] boonton probe tip
To: TS-520_820_530_830@yahoogroups.com
Date: Tuesday, December 24, 2013, 8:08 PM

I bought a boonton 92ea millimeter with cable
and rf end but there is no probe tip !!! does anyone know
where i can get one also i'm looking for a set of(
THE HANGING Boards as Bob m.) calls them for a 520
anyone know where to obtain these boards at

 Thanks and Merry Chrsitmas to
everyone   Ron KK4PWF

46656. Re: [TS-520_820_530_830] boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 04:58:08 UTC
From: Jim Lamanteer
Topic: 46653 Message: 46656

MIKE WHERE ON E-BAY?? THANKS JIMMY WB2KNR MERRY CHRISTMAS

On Tue, 12/24/13, Michael Sylvester <sylvstrmchl@...> wrote:

Subject: Re: [TS-520_820_530_830] boonton probe tip
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Date: Tuesday, December 24, 2013, 8:20 PM

Not sure what
"hanging boards" are but there is a bunch of Knwd
radios being parted out right now on eBay. You might look
there.
I've picked up a few boards and a couple HV
cages for cheap lately.
Michael///KD0WSJ

From:
"bozo231@..." <bozo231@...>
To:
TS-520_820_530_830@yahoogroups.com
Sent: Tuesday,
December 24, 2013 10:08 PM
Subject:
[TS-520_820_530_830] boonton probe tip

I bought a boonton 92ea millimeter with cable and
rf end but there is no probe tip !!! does anyone know where
i can get one also i'm looking for a set of(THE
HANGING Boards as Bob m.) calls them for a 520 anyone
know where to obtain these boards at

 Thanks and Merry
Chrsitmas to everyone   Ron
KK4PWF

46658. Re: [TS-520_820_530_830] boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 06:01:37 UTC
From: Jim Lamanteer
Topic: 46653 Message: 46658

On Tue, 12/24/13, Michael Sylvester <sylvstrmchl@...> wrote:

ROGER THAT THANKS.

Subject: Re: [TS-520_820_530_830] boonton probe tip
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Date: Tuesday, December 24, 2013, 9:34 PM

There is a generator board here:
http://www.ebay.com/itm/Nice-Functional-Kenwood-TS-520-Generator-Board-/291041216313?pt=US_Ham_Radio_Transceivers&hash=item43c3688739#ht_59wt_888

This fellow has a couple boards but doesn't
identify them for $25 shipped:
http://www.ebay.com/itm/Kenwood-TS-520-Miscellaneous-Parts-Free-Shipping-Con-US-/161103253328?pt=LH_DefaultDomain_0&hash=item2582808f50#ht_2067wt_888

Kenwood ts-520 parts search:
http://www.ebay.com/sch/i.html?_odkw=kenwood+ts+parts&_osacat=0&_from=R40&_trksid=p2045573.m570.l1313.TR0.TRC0.Xkenwood+ts-520+parts&_nkw=kenwood+ts-520+parts&_sacat=0

Just do a search for ts 520 or ts-520 or Kenwood
parts....when you find an item, go to that persons
"store" or click on "see other
items".
Hope this helps.
Michael///KD0WSJ

The "New topic" window is not working for me.
Twice today the send button didn't function. Had to copy
and paste back here.

From: Jim Lamanteer
<jimlamanteer@...>
To:
TS-520_820_530_830@yahoogroups.com
Sent: Tuesday,
December 24, 2013 10:58 PM
Subject: Re:
[TS-520_820_530_830] boonton probe tip

MIKE WHERE ON E-BAY?? THANKS JIMMY WB2KNR MERRY
CHRISTMAS

On

Tue, 12/24/13, Michael Sylvester
<sylvstrmchl@yahoo.com> wrote:

Subject: Re: [TS-520_820_530_830] boonton probe
tip
To:
"TS-520_820_530_830@yahoogroups.com"
<TS-520_820_530_830@yahoogroups.com>
Date: Tuesday, December 24, 2013, 8:20 PM

Not sure
what
"hanging boards" are but
there is a bunch of Knwd
radios being parted
out
right now on eBay. You might look
there.
I've picked up a few boards and a couple
HV
cages for cheap lately.
Michael///KD0WSJ

From:
"bozo231@..."
<bozo231@...>
To:
TS-520_820_530_830@yahoogroups.com
Sent: Tuesday,
December 24,
2013 10:08 PM
Subject:
[TS-520_820_530_830] boonton probe tip

I bought a
boonton 92ea millimeter with cable and
rf end but there is no probe tip !!! does
anyone know where
i can get one also i'm
looking for a set of(THE
HANGING
Boards as Bob m.) calls them for a 520
anyone
know where to obtain these
boards at

 Thanks and
Merry
Chrsitmas to
everyone   Ron
KK4PWF

46659. Re: [TS-520_820_530_830] boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 06:34:58 UTC
From: Ronald Robinson
Topic: 46653 Message: 46659

ok thanks Jim an Michael the hanging boards on a 520 are the ant coil unit ,mixer coil unit and the drive coil unit

On Tuesday, December 24, 2013 10:08 PM, "bozo231@..." <bozo231@...> wrote:

I bought a boonton 92ea millimeter with cable and rf end but there is no probe tip !!! does anyone know where i can get one also i'm looking for a set of(THE HANGING Boards as Bob m.) calls them for a 520 anyone know where to obtain these boards at

 Thanks and Merry Chrsitmas to everyone Ron KK4PWF

46661. Re: [TS-520_820_530_830] Holiday greetings

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 06:36:02 UTC
From: Jim W7RY
Topic: 46650 Message: 46661

Indeed!

Merry Christmas to all!
73
Jim W7RY

On 12/24/2013 3:12 PM, KB1TCD wrote:
>
> Thanks Joe!
>
> But here in Maine we call it Christmas!
> So, that being said, I hope everyone has a very un-PC Merry Christmas!
> and keep them tubes a glowing!
>
> 73 de Jose, KB1TCD
>
>

46662. Tube 6146B

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 12:04:11 UTC
From: <radiovintage2000@...>
Topic: 46662 Message: 46662

Hi

I need 6 new valves 6146B, you can tell me a good and honest seller in the price, or if any member of the group wants to sell this type of valve.
I prefer in EUROPE if possible, otherwise all over the worldthanks
Frank - Radiovintage2000

mail: Radiovintage2000@yahoo.it

46663. RE: Tube 6146B

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 12:32:10 UTC
From: <w5rkl@...>
Topic: 46662 Message: 46663

I don't know of a sourece in the UK but I use

www.vacuumtubes.net

They have both, NOS and "Chinese" 6146s, your choice. I pick "NOS" and have never received a bad tube from them. I purchased six 6146As 4 years ago, all used in my Heathkit transmitters/transceivers and they all are still in service today, working very well.

73
Mike W5RKL

46664. RE: boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 16:39:19 UTC
From: <wagstw46@...>
Topic: 46653 Message: 46664

Ron:

If you cannot find a probe tip then buy an adapter. Can get un-terminated and 50 ohm terminations. Screws on probe body and then connect a BNC to mini-grabber test lead to it. Works just fine as usually cant get probe tip into high density areas of the KW boards and at frequencies involved dont need to be too concerned about lead inductance/capacitance effects on your readings. Here is one on Ebay

221247330760

Merry X-mas
Terry K9TW

46665. Re: [TS-520_820_530_830] RE: boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 17:13:50 UTC
From: Ron
Topic: 46653 Message: 46665

Ok thanks a lot Terry !!! Merry Christmas to u and ur family !!!

Ron KK4PWF

On Dec 25, 2013, at 10:39 AM, <wagstw46@...> wrote:

>
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> Ron:
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>
> If you cannot find a probe tip then buy an adapter. Can get un-terminated and 50 ohm terminations. Screws on probe body and then connect a BNC to mini-grabber test lead to it. Works just fine as usually cant get probe tip into high density areas of the KW boards and at frequencies involved dont need to be too concerned about lead inductance/capacitance effects on your readings. Here is one on Ebay
>
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>
>
> Merry X-mas
>
> Terry K9TW
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46666. Re: [TS-520_820_530_830] RE: boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 17:53:06 UTC
From: Jim Lamanteer
Topic: 46653 Message: 46666

RON BOONTON CORP 25 EASTMANS ROAD PARSIPPANY N.J. 07054 PHONE 1-973-386 9696 ASK FOR JIM. DONT KNOW IF HE STILL WORKS THERE BUT WORTH A TRY. OR YES U CAN DO AS TERRY DESCRIBED AS WELL. HOPE THIS HELPS, MERRY CHRISTMAS 73`S JIMMY WB2KNR

On Wed, 12/25/13, Ron <bozo231@...> wrote:

Subject: Re: [TS-520_820_530_830] RE: boonton probe tip
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Date: Wednesday, December 25, 2013, 9:13 AM

Ok thanks a lot Terry !!! Merry
Christmas to u and ur family !!!

Ron KK4PWF
On Dec 25, 2013, at 10:39 AM, <wagstw46@...>
wrote:

Ron:
If
you cannot find a probe tip then buy an adapter. Can get
un-terminated and 50 ohm terminations. Screws on probe body
and then connect a BNC to mini-grabber test lead to it.
Works just fine as usually cant get probe tip into high
density areas of the KW boards and at frequencies involved
dont need to be too concerned about lead
inductance/capacitance effects on your readings. Here is
one on Ebay
221247330760
Merry
X-masTerry
K9TW

46667. RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 18:04:56 UTC
From: <vk2bcu@...>
Topic: 46660 Message: 46667

Hi Michael,
In the past I worked with two guys on two useful projects.

The first (I'll call him "N") would patiently discuss every aspect of the problem to be solved until he was confident he understood the problem completely.

The second (I'll call him "R") had a similarly brilliant mind, and had his invention worked, he would now be wealthy beyond imagination.

"R" lacked patience to understand the nature of the problem he wished to solve.
It was not his nature to slow down and think. He believed he could short-cut natural law by constant activity. He often said, "Let's get on with it."

"N" was successful - his project (a machine worth near $1 million) continues to work after 30 years - 24 hours per day.

"R" was unsuccessful - even though his project was not more complicated than "N's" project.

I learned a great deal from watching these two fellows.

I came to understand the difference between directed thoughtful energy and undirected energy.

With electronics the careful observer finds the tricky faults - the faults that others miss.

In the end, "make haste slowly" wins. I learned this from "N".

The principle applies in TS-520 (etc) maintenance.
This list is crowded with postings (and questions) from fellows who take short cuts rather than spending the time to understand the working principle of the "instrument" on the bench before them.

I worked for many years with "N", and he taught me many things, but the greatest thing I learned from him was to observe carefully and think deeply.

Les
formerly VK2BCU.

46668. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 18:11:48 UTC
From: W LEWIS
Topic: 46660 Message: 46668

Brings to mind an airline(to remain unnamed) I flew for. Never enough time to do it right but always enough time to do it over.
Merry Christmas and best 73,
Butch Lewis
KØPSA

From: "vk2bcu@..." <vk2bcu@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Wednesday, December 25, 2013 12:04 PM
Subject: [TS-520_820_530_830] RE: TS-530S recap successful

Hi Michael,
In the past I worked with two guys on two useful projects.

The first (I'll call him "N") would patiently discuss every aspect of the problem to be solved until he was confident he understood the problem completely.

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Les
formerly VK2BCU.

46669. The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 17:22:40 UTC
From: <famtech@...>
Topic: 46669 Message: 46669

Well, here's a big project. I aquried a non-functional TS-820 that's completely dead. No receive/transmit, relays, audio or digital display. The VFO jumper is installed. High and screen voltages are present. Upon checking the low voltage power supplies, I found the 14-Volt rail low. I replaced C1 and C2 on the relay circuit board and this brought it back to 14.5 volts. Now the problems found with the +9 volt supply. Found Q7 (2SA496) shorted. Replaced using a NTE-184. Q4, Q5, Q6 and D5 checked OK. Now, here's the issue. Adjusting VR4 effects no change in setting for 9-volts out. Sits at about 6.7 volts. Remove the load and output jumps to around 12 volts. I also found the 5 Volt regulator and series 5.6 ohm resistor supplying display power open and replaced those. Still no display.

Wonder what's with the 9-volt supply ??

Jim L
WB6KVD

46670. Re: [TS-520_820_530_830] RE: boonton probe tip

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 18:54:00 UTC
From: Ron
Topic: 46653 Message: 46670

Thanks for the info Jimmy ! I'll check tomorrow. Merry Christmas !!!

Ron KK4PWF

On Dec 25, 2013, at 11:53 AM, Jim Lamanteer <jimlamanteer@yahoo.com> wrote:

> RON BOONTON CORP 25 EASTMANS ROAD PARSIPPANY N.J. 07054 PHONE 1-973-386 9696 ASK FOR JIM. DONT KNOW IF HE STILL WORKS THERE BUT WORTH A TRY. OR YES U CAN DO AS TERRY DESCRIBED AS WELL. HOPE THIS HELPS, MERRY CHRISTMAS 73`S JIMMY WB2KNR
> ---
> On Wed, 12/25/13, Ron <bozo231@...> wrote:
>
> Subject: Re: [TS-520_820_530_830] RE: boonton probe tip
> To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
> Date: Wednesday, December 25, 2013, 9:13 AM
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> Ok thanks a lot Terry !!! Merry
> Christmas to u and ur family !!!
>
> Ron KK4PWF
> On Dec 25, 2013, at 10:39 AM, <wagstw46@...>

> wrote:
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46671. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 19:06:11 UTC
From: Joseph Stiles
Topic: 46660 Message: 46671

Michael,

I do not know where you got your HV caps from but, the shrink wrapping on the outside indicates where the "neg" lead is. I can not understand how you figured it was a "zero." Also, the positive or "+" terminal is usually marked(stamped) on the bottom of the respective terminal. I suggest that you do slow down. One of these days you may electrocute yourself..or do other serious harm to you and or the rig under repair. This group is not intended, or designed to be a quick and or easy answerto anyone's questions.

73 Joe
WB7UQU
Group Co-owner

On Wednesday, December 25, 2013 10:11 AM, W LEWIS <nscb56a@...> wrote:

>Brings to mind an airline(to remain unnamed) I flew for. Never enough time to do it right but always enough time to do it over.
>Merry Christmas and best 73,
>Butch Lewis
>KØPSA
>
>
>From: "vk2bcu@...m" <vk2bcu@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Wednesday, December 25, 2013 12:04 PM
>Subject: [TS-520_820_530_830] RE: TS-530S recap successful
>
>
>Hi Michael,
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30 years - 24 hours per day.
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>
>
>Les
>formerly VK2BCU.
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46672. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 19:45:39 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46672

Jim:

How hot is the series pass heat sink getting? Can you leave finger your on it?

What is the load resistance from AF-1 Pin 1 White/Org wire to chassis ground in RX mode with the power off? Should be approx 85 ohms.

You can carefully release White/Org load wire at Pin 1 by depressing lock tab with sharp pointed tool (I use tip of soldering aid) and place ma meter in series to measure the load current. Should be something on order of 150ma in RX mode.

If you unplug AF-1 and feed regulator with bench 14vdc (or jumper in the rigs 14vdc) and place 100 ohm dummy load resistor from 9vdc pin to chassis ground can you vary the 9vdc regulated with VR-4?

Terry K9TW

46673. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-25 20:25:30 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46673

Jim:

I forgot to ask what RF-1 is doing.

Of course you need to find and fix cause of low 9vdc regulated, but where is RF-1 voltage at? RF-1 is the AGC/ALC bus reference voltage and should be approx 3.5vdc. With 9vdc regulated approx 2 volts low then RF-1 is going to be pretty low so the AGC bus which supplies the dc control voltage to all the gain controlled dual gate mosfets on the IF and RF board will be quite low making the receiver sensitivity low.

If RF-1 is too low then there will be no RX due to the gain controlled stages being cut off.

Blank display typically means PLL unlock which means you will have no VCO signal. With no VCO you will have no LO at the RX and TX mixers on the RF board so no RX (no RIF signal) or TX function (no TX drive to 12BY7A control grid).

One cause of PLL unlock is loss of VFO output. With less than 7vdc supplied to the VFO its rf output level will very likely be too low to produce the mixing required for VCO signal. I seem to remember of VFB gets much lower than approx 6.5vdc RX and Display are dead.

So of course first objective is to restore 9vdc regulated to normal. If you get normal 9vdc should be able to adjust RF-1 to normal level and most likely will get your RX and display back. .

Terry K9TW

46676. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 01:30:01 UTC
From: Wes Will
Topic: 46660 Message: 46676

> grey stripe with 00000 down the side of the cap, THE NEGATIVE LEAD.

Those zeroes I suspect all have a "dash" inside them... If you stop looking so hard at the circle, and start looking at the dash, you might start seeing the minus sign on a round field that means 'negative' pole.

I am looking at a couple of electrolytics marked precisely this way. The "zero" part is just a field, plain and empty, on which to stamp the minus sign.

If I squint I can see where you got confused. But forty or fifty years of mucking about with this crap, I'm used to it.

(Anyone else remember 'stop-light' markings on square, flat-pack capacitors in old TVs and radios? Six circles, two rows of three, coloured dots in 'em. All sorts of other kinds of part markings, none of them compatible with the others...)

--
Wes Will
N9KDY

46678. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 05:45:04 UTC
From: R Oler
Topic: 46660 Message: 46678

Butch. What did the mythical "Rex Cramer" on Airplane say about airline management...to his wife. " Oh airline management they are all crooks, cheats, and liars"

What did you fly? Current post training captain DE Triple 7 for an overseas airline. Robert Oler WB5MZO

Sent from my iPad

> On Dec 26, 2013, at 12:11 AM, "W LEWIS" <nscb56a@prodigy.net> wrote:
>
> Brings to mind an airline(to remain unnamed) I flew for. Never enough time to do it right but always enough time to do it over.
> Merry Christmas and best 73,
> Butch Lewis
> KØPSA
>
> From: "vk2bcu@operamail.com" <vk2bcu@operamail.com>
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Wednesday, December 25, 2013 12:04 PM
> Subject: [TS-520_820_530_830] RE: TS-530S recap successful
>
> Hi Michael,
> In the past I worked with two guys on two useful projects.
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> The first (I'll call him "N") would patiently discuss every aspect of the problem to be solved until he was confident he understood the problem completely.
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> "N" was successful - his project (a machine worth near $1 million) continues to work after 30 years - 24 hours per day.
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> The principle applies in TS-520 (etc) maintenance.
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> I worked for many years with "N", and he taught me many things, but the greatest thing I learned from him was to observe carefully and think deeply.
>
> Les
> formerly VK2BCU.
>
>
>
>

46679. Experience vs Advice

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 06:24:36 UTC
From: rkersey tds.net
Topic: 46679 Message: 46679

Michael S.,

Best of luck with your unorthodox approach to radio repair. In the 60's at my
high school there was a sign that said "Experience keeps a dear school, but some
will learn no other way." That's basically what you've told us about yourself. If I were one of the gurus here (which I'm not), why would I spend my time drafting a careful response to one of your queries when it was anybody's guess whether you'd wait long enough to receive it or whether you'd charge ahead on your own?

What you've said in you last email was, "Thanks for your help, but there's no guarantee I'm going to listen to you." I don't think this is a great way to find mentors willing to help you.

You report a number of less than optimal growing up experiences, but don't seem to grasp that atypical experiences may lead to atypical behaviors, but these may not be successful or heroic. One of my mentors told me that if I couldn't be perfectly normal, maybe I should act as if I was. I can't say that I've become healthy, but acting as if I am has allowed me a lot of benefits. But I can't, I guess, expect others to understand that . . . .

Very Best Regards,
Roy Kersey
KI4HAG

46680. Re: [TS-520_820_530_830] Experience vs Advice

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 10:08:45 UTC
From: R Oler
Topic: 46679 Message: 46680

Well said. Robert WB5MZO and S2 something soon.

Sent from my iPad

> On Dec 26, 2013, at 12:24 PM, "rkersey tds.net" <rkersey@tds.net> wrote:
>
> Michael S.,
>
> Best of luck with your unorthodox approach to radio repair. In the 60's at my
> high school there was a sign that said "Experience keeps a dear school, but some
> will learn no other way." That's basically what you've told us about yourself. If I were one of the gurus here (which I'm not), why would I spend my time drafting a careful response to one of your queries when it was anybody's guess whether you'd wait long enough to receive it or whether you'd charge ahead on your own?
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> You report a number of less than optimal growing up experiences, but don't seem to grasp that atypical experiences may lead to atypical behaviors, but these may not be successful or heroic. One of my mentors told me that if I couldn't be perfectly normal, maybe I should act as if I was. I can't say that I've become healthy, but acting as if I am has allowed me a lot of benefits. But I can't, I guess, expect others to understand that . . . .
>
> Very Best Regards,
> Roy Kersey
> KI4HAG
>

46681. Re: [TS-520_820_530_830] Experience vs Advice

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 12:10:02 UTC
From: Gordon JC Pearce
Topic: 46679 Message: 46681

On Thu, Dec 26, 2013 at 01:24:36AM -0500, rkersey tds.net wrote:
> Michael S.,
>
> Best of luck with your unorthodox approach to radio repair. In the 60's at
> my
> high school there was a sign that said "Experience keeps a dear school, but
> some
> will learn no other way." That's basically what you've told us about
> yourself. If I were one of the gurus here (which I'm not), why would I
> spend my time drafting a careful response to one of your queries when it
> was anybody's guess whether you'd wait long enough to receive it or whether
> you'd charge ahead on your own?

The good thing about taking this approach to hybrid radios is that one way or another, you're only going to do it once...

Merry KZZZZRRTT-mas from the blue (but bloody cold) seas and sandy beaches of the east coast. No, I'm not going swimming.

--
Gordonjcp MM0YEQ/A

46682. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 12:15:10 UTC
From: Gordon JC Pearce
Topic: 46660 Message: 46682

On Thu, Dec 26, 2013 at 11:45:04AM +0600, R Oler wrote:
>
> What did you fly? Current post training captain DE Triple 7 for an overseas airline.
Robert Oler WB5MZO

Foreign line that flies triple-7s? If you fly into EGPF the chances are you hang a sharp left onto base leg over my house. Dip a wing next time you're passing ;-)

--
Gordonjcp MM0YEQ/A

46683. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 12:24:46 UTC
From: R Oler
Topic: 46660 Message: 46683

Gordon when we ferry I stop there...and next time I'll dip a wing and maybe we can eyeball...we always spend the night. RGO

Sent from my iPad

> On Dec 26, 2013, at 6:11 PM, "Gordon JC Pearce" <gordon@gjcp.net> wrote:
>
> On Thu, Dec 26, 2013 at 11:45:04AM +0600, R Oler wrote:
> >
> > What did you fly? Current post training captain DE Triple 7 for an overseas airline. Robert Oler WB5MZO
>
> Foreign line that flies triple-7s? If you fly into EGPF the chances are you hang a sharp left onto base leg over my house. Dip a wing next time you're passing ;-)
>
> --
> Gordonjcp MM0YEQ/A
>
>

46684. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 13:34:48 UTC
From: <rrmvargo@...>
Topic: 46660 Message: 46684

Perspective is everything. I too have looked at caps & have seen the zero and not the minus. If you have ever seen the Old Hag or Beautiful Young woman, you'll understand how this is possible. 73 - Bob

http://www.moillusions.com/young-lady-or-old-hag/

46685. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 13:47:25 UTC
From: K5MYJ
Topic: 46660 Message: 46685

The problem is it shows you are not competent with modern components.

Electrolytic capacitors have been marked this way for over 30 years.

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"
----- Original Message -----
From: rrmvargo@...
To: TS-520_820_530_830@...m
Sent: Thursday, December 26, 2013 5:34 AM
Subject: Re: [TS-520_820_530_830] RE: TS-530S recap successful

Perspective is everything. I too have looked at caps & have seen the zero and not the minus. If you have ever seen the Old Hag or Beautiful Young woman, you'll understand how this is possible. 73 - Bob

http://www.moillusions.com/young-lady-or-old-hag/

46686. Re: [TS-520_820_530_830] TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 14:12:35 UTC
From: richard radke
Topic: 46660 Message: 46686

Yup, Bob’s right. You started seeing minus signs on caps back when Japanese components became more common. There was no plus sign in their “alphabet" at the time

Rick
W9WS

On Dec 26, 2013, at 7:47 AM, K5MYJ <macklinbob@...> wrote:

> □
>
> The problem is it shows you are not competent with modern components.
>
> Electrolytic capacitors have been marked this way for over 30 years.
>
> Bob Macklin
> K5MYJ
> Seattle, Wa.
> "Real Radios Glow In The Dark"
> ----- Original Message -----
> From: rrmvargo@...
> To: TS-520_820_530_830@yahoogroups.com
> Sent: Thursday, December 26, 2013 5:34 AM
> Subject: Re: [TS-520_820_530_830] RE: TS-530S recap successful
>
>
> Perspective is everything. I too have looked at caps & have seen the zero and not the minus. If you have ever seen the Old Hag or Beautiful Young woman, you'll understand how this is possible. 73 - Bob
>
> http://www.moillusions.com/young-lady-or-old-hag/
>
>
>

46687. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 15:27:00 UTC
From: W LEWIS
Topic: 46660 Message: 46687

I don't know exactly who I'm responding to, Robert or Gordon, But here's the run down. First paying job, night freight (mostly canceled checks) 10 legs per night, Denver to Kansas City through Nebraska, Aero Commander 500B. Then, 4000 hours SA226 Metroliner(Air Midwest), B-727 100,200 (Air One), DC-9-10,30 (Midway), on to PSA (wonderful airline) DC-9 Super 80 (MD-82), DC-9-30. PSA merged with USAir/ways in 1988. Flew the B-737 300,400, B-757, B-767 international. Never made it to EGPF, USAirways added Glasgow after I retired. There you have it. Contact me off net (QRZ email is correct) and we can ragchew about airplanes and Kenwoods. What could be better? Maybe F/As. Thanks for asking.
Best regards and 73,
Butch Lewis
KØPSA (for the airline)

From: Gordon JC Pearce <gordon@...>
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, December 26, 2013 6:15 AM
Subject: Re: [TS-520_820_530_830] RE: TS-530S recap successful

On Thu, Dec 26, 2013 at 11:45:04AM +0600, R Oler wrote:
>
> What did you fly? Current post training captain DE Triple 7 for an overseas airline.
Robert Oler WB5MZO

Foreign line that flies triple-7s? If you fly into EGPF the chances are you hang a sharp left onto base leg over my house. Dip a wing next time you're passing ;-)

--
Gordonjcp MM0YEQ/A

46688. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 16:10:50 UTC
From: <rrmvargo@...>
Topic: 46660 Message: 46688

And you assume too much. Just because I can see the zero doesn't mean I don't know what it really means. And it certainly doesn't mean I have made that error. I haven't. So who's incompetent here? The one who is assuming. As an engineer, I learned long ago not to assume. 73 - Bob

46689. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 16:24:29 UTC
From: K5MYJ
Topic: 46660 Message: 46689

IT'S NOT A ZERO! IT IS A CIRCLE WITH A MINUS SIGN!

Bob Macklin
K5MYJ
Seattle, Wa.
"Real Radios Glow In The Dark"

----- Original Message -----
From: rrmvargo@...
To: TS-520_820_530_830@yahoogroups.com
Sent: Thursday, December 26, 2013 8:10 AM
Subject: Re: [TS-520_820_530_830] RE: TS-530S recap successful

And you assume too much. Just because I can see the zero doesn't mean I don't know what it really means. And it certainly doesn't mean I have made that error. I haven't. So who's incompetent here? The one who is assuming. As an engineer, I learned long ago not to assume. 73 - Bob

46690. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 16:49:34 UTC
From: W LEWIS
Topic: 46660 Message: 46690

Hi Robert,
They should have added idiots.
Butch

_____
From: R Oler <orbitjet@...>
To: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Cc: "TS-520_820_530_830@yahoogroups.com" <TS-520_820_530_830@yahoogroups.com>
Sent: Wednesday, December 25, 2013 11:45 PM
Subject: Re: [TS-520_820_530_830] RE: TS-530S recap successful

Butch. What did the mythical "Rex Cramer" on Airplane say about airline management...to his wife. " Oh airline management they are all crooks, cheats, and liars"

What did you fly? Current post training captain DE Triple 7 for an overseas airline.
 Robert Oler WB5MZO
Sent from my iPad
On Dec 26, 2013, at 12:11 AM, "W LEWIS" <nscb56a@...> wrote:

>Brings to mind an airline(to remain unnamed) I flew for. Never enough time to do it right but always enough time to do it over.
>Merry Christmas and best 73,
>Butch Lewis
>KØPSA
>
>
>
>_____
> From: "vk2bcu@..." <vk2bcu@...>
>To: TS-520_820_530_830@yahoogroups.com
>Sent: Wednesday, December 25, 2013 12:04 PM
>Subject: [TS-520_820_530_830] RE: TS-530S recap successful
>
>
>Hi Michael,
>In the past I worked with two guys on two useful projects.
>
>
>The first (I'll call him "N") would patiently discuss every aspect of the problem to be solved until he was confident he understood the problem completely.
>
>
>The second (I'll call him "R") had a similarly brilliant mind, and had his invention worked, he would now be wealthy beyond imagination.
>
>"R" lacked patience to understand the nature of the problem he wished to solve.

>It was not his nature to slow down and think. He believed he could short-cut natural law by constant activity. He often said, "Let's get on with it."
>
>
>
>"N" was successful - his project (a machine worth near $1 million) continues to work after 30 years - 24 hours per day.
>
>
>
>"R" was unsuccessful - even though his project was not more complicated than "N's" project.
>
>
>I learned a great deal from watching these two fellows.
>
>I came to understand the difference between directed thoughtful energy and undirected energy.
>
>With electronics the careful observer finds the tricky faults - the faults that others miss.
>
>In the end, "make haste slowly" wins. I learned this from "N".
>
>
>
>The principle applies in TS-520 (etc) maintenance.
>This list is crowded with postings (and questions) from fellows who take short cuts rather than spending the time to understand the working principle of the "instrument" on the bench before them.
>
>
>
>I worked for many years with "N", and he taught me many things, but the greatest thing I learned from him was to observe carefully and think deeply.
>
>
>Les
>formerly VK2BCU.
>
>
>
>
>
>
>
>

46691. Group Degenerating

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 18:06:36 UTC
From: <n6wk@...>
Topic: 46691 Message: 46691

Wow, This group seems to be degenerating very Quickly.

:-(:-(

Gordon
N6WK

46692. Re: [TS-520_820_530_830] Group Degenerating

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 18:07:34 UTC
From: R Oler
Topic: 46691 Message: 46692

wow I dont see that Robert WB5MZO AND S2 PROBABY LJ OR TX SOON RGO

Sent from my iPad

> On Dec 27, 2013, at 12:06 AM, n6wk@n6wk.com wrote:
>
> Wow, This group seems to be degenerating very Quickly.
>
> :-(:-(
>
> Gordon
> N6WK
>
>

46693. Re: [TS-520_820_530_830] Disrespect towards any member!!!!!

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 18:46:08 UTC
From: W5RKL
Topic: 46660 Message: 46693

That's ENOUGH!!!

EVERYONE, and I mean EVERYONE, stop the disrespect and name calling
RIGHT NOW!!!!!

Naming calling and disrespect to or about ANY member, regardless of what
YOU personally think of any member, will NOT be tolerated on this group!!!

Mike W5RKL
Moderator

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46694. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 19:16:17 UTC
From: <wagstw46@...>
Topic: 46660 Message: 46694

Bob and others:

I am not trying to defend Michael, but what I believe he is using is the Nichicon Black case Type GN HV caps that Ken Kempski K4EAA sells. These have snap in terminals and if you have little experience and hurry your work and do not have a questioning attitude easy to put them in wrong.

Take a look at this data sheet. Look at the photo of the cap. There is no photo of the terminal end which would help. The polarity band on the case as most of us know by convention identifies the negative terminal so it doesnt matter if it has Os or Zeros or Minus signs imprinted on it. All we really need is the stripe or band to denote the negative terminal. We dont need any markings within the band. It just so happens that it has oblong circles which are symbols for a negative or minus sign. Look at the picture and you can see the polarity stripe with the oblong minus signs imprinted on the vertical band.

As I said an experienced tech would know without asking that this is the minus terminal of the cap. If you look at the drawing of the terminal post you will see the the negative terminal is nearest to the polarity stripe that extends to the end view. Again pretty standard stuff.

However, there is some confusion in actual practice if you look at the round rivet head as it comes with a cross hatch pattern imprinted on it that could be miscontrued as positive symbols. If you take a quick look you might think it was a Plus sign for the positive terminal. That makes no sense as it is the terminal closest to the negative polarity stripe. The first time I used these caps I had to stop and think about it. There is no polarity marking on the positive terminal which is opposite the polarity stripe on the can. I dont know why the negative terminal doesnt have a minus sign or black paint dot which would be more typical.

Perhaps the production run of caps that Ken sells are a factory mistake. Maybe the cross hatched rivet was intended to be used on the positive terminal and was installed at factory on the negative terminal? This would eliminate any confusion as the crosshatching does look like plus signs.

So in Michaels defense the cross hatch pattern on the negative terminal is where the confusion came in. No minus sign on it and no black paint dot on it. It is just located close to the polarity stripe on the case.

If you buy the Black PTE case caps from Ken just make sure you connect the terminal closest to the polarity stripe to negative regardless what marking it has imprinted on the terminal rivet head. If you get the Blue PTE case caps there is virtually no way to reverse them as the Positive terminal has one large Plus sign imprinted on the rivet head and the Negative terminal is closest to the case polarity stripe.

I think we have beat this to death.

http://www.nichicon.co.jp/english/products/pdfs/e-gn.pdf

Terry K9TW

46695. Re: [TS-520_820_530_830] RE: TS-530S recap successful

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 19:49:50 UTC
From: Joseph Stiles
Topic: 46660 Message: 46695

Greetings Group,

Thanks to Terry-K9TW, and others, for your observations and input regarding this subject. I have obtained replacement HV caps from Ken-K4EAA and "other sources" and have not had a problem identifying the "neg" terminal...maybe lucky? The problem being members not being able to follow instructions given, AFTER asking for help, disregarding safety protocol(s)...and simply saying...thanks for the help...but I'm gonna do what I want. This group is not about that. There are group members that are very knowledgeable about troubleshooting, diagnostics, repair...or any other term you care to apply, regarding the KW hybrids specifically and, electronics in general. If for some reason(s), you have difficulty abiding by the group's policies/rules...please let any of the "moderators" or "co-owners" know and, we'll be happy to grant your request to be removed from group participation .

I am trying my best to maintain the intended spirit and function of this group. I must say that recently, it has tried my patience, and my willingness to "not over-moderate," but I am attempting to keep this group functional as to purpose. So that being said:

As Mike-W5RKL stated prior: This topic is closed!

So...to all...have a great rest of '13 and let's strive for a better '14

73 Joe
WB7UQU
Group Co-owner

On Thursday, December 26, 2013 11:16 AM, "wagstw46@..." <wagstw46@...> wrote:

>Bob and others:
>
>
>I am not trying to defend Michael, but what I believe he is using is the Nichicon Black case Type GN HV caps that Ken Kempski K4EAA sells. These have snap in terminals and if you have little experience and hurry your work and do not have a questioning attitude easy to put them in wrong.
>
>
>Take a look at this data sheet. Look at the photo of the cap. There is no photo of the terminal end which would help. The polarity band on the case as most of us know by convention identifies the negative terminal so it doesnt matter if it has Os or Zeros or Minus signs imprinted on it. All we really need is the stripe or band to denote the negative terminal. We dont need any markings within the band. It just so happens that it has oblong circles which are symbols for a negative or minus sign. Look at the picture and you can see the polarity stripe with the oblong minus signs imprinted on the vertical band.

>
>
>As I said an experienced tech would know without asking that this is the minus terminal of the cap. If you look at the drawing of the terminal post you will see the the negative terminal is nearest to the polarity stripe that extends to the end view. Again pretty standard stuff.
>
>
>However, there is some confusion in actual practice if you look at the round rivet head as it comes with a cross hatch pattern imprinted on it that could be miscontrued as positive symbols. If you take a quick look you might think it was a Plus sign for the positive terminal. That makes no sense as it is the terminal closest to the negative polarity stripe. The first time I used these caps I had to stop and think about it. There is no polarity marking on the positive terminal which is opposite the polarity stripe on the can. I dont know why the negative terminal doesnt have a minus sign or black paint dot which would be more typical.
>
>
>Perhaps the production run of caps that Ken sells are a factory mistake. Maybe the cross hatched rivet was intended to be used on the positive terminal and was installed at factory on the negative terminal? This would eliminate any confusion as the crosshatching does look like plus signs.
>
>
>So in Michaels defense the cross hatch pattern on the negative terminal is where the confusion came in. No minus sign on it and no black paint dot on it. It is just located close to the polarity stripe on the case.
>
>
>If you buy the Black PTE case caps from Ken just make sure you connect the terminal closest to the polarity stripe to negative regardless what marking it has imprinted on the terminal rivet head. If you get the Blue PTE case caps there is virtually no way to reverse them as the Positive terminal has one large Plus sign imprinted on the rivet head and the Negative terminal is closest to the case polarity stripe.
>
>
>
>I think we have beat this to death.
>
>
>http://www.nichicon.co.jp/english/products/pdfs/e-gn.pdf
>
>
>Terry K9TW
>
>
>

46696. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 17:59:35 UTC
From: <famtech@...>
Topic: 46669 Message: 46696

The +9 volt regulated supply is now up and running. It really helps to use the right pass transistor. I put a NTE-184 (NPN) instead of the correct NTE-185 (PNP). Dumb mistake.

Now, as far as the 3.3 volt RF-1. It's sitting at +13.6 volts. Unplug the IF3 connector on the IF board and drops to around 3.3 volts at the AF-1 board.

Jim L.

46697. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-26 22:10:30 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46697

If you unplug IF-3 on IF board what voltage do you then have on Pin 8 on the exposed board connector pin? If you have 13.6vdc on RF-1 Pin 8 then you have a fault from the 14vdc supply to your AGC bus. I have never seen this.

Only source of 14vdc other than shorted series pass is a shorted dual gate mosfet in one of the four gain controlled devices. Drain would have to be shorted to Gate 2 of Q1, Q2, Q3 IF amps or Q2 RF amp. The AGC bus feeds those four active devices that have 14vdc Drain supply.

RF-1 also feeds the ALC bus but that should be out of the picture in Rx mode and no source of 14vdc from the ALC circuit

Terry K9TW

46698. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-27 00:12:45 UTC
From: <famtech@...>
Topic: 46669 Message: 46698

One thing that's going for us when we try to repair these things is that it once worked.

After removing the IF-3 connector, ,there is about 140mv on the exposed pin #8 on the board.

The digital display is on and with the band switch set to 40m, it reads "9.111.1".

Jim L.

46699. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-27 13:27:42 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46699

That is good. Should never be 14vdc supply on the AGC bus back feeding RF-1. Should be no source of 14vdc on any pins on IF-3?

So as I understand your previous post you said that you had normal RF-1 at the AF-AVR board with IF-3 unplugged and with it plugged in then you had 13.6vdc on RF-1? As I said that is very rare if not unheard of.

Have you repeated this measurement? If you find you now have normal RF-1 with IF-3 landed do you now have receive mode? If you turn RF gain full CCW does the S-meter deflect full scale? If so that is telling you that RF-1 at AVR board is making it to the IF Board and AGC bus is energized to proper base level (full RF gain)

Work on getting RX mode and then can work on digital display.

Do that by making sure you have normal 9vdc and RF-1 voltages at the AF-AVR board. These two voltages along with 14vdc are required for RX mode.

If dont have normal RF-1 (3.3 to 3.5vdc) wont have AGC or ALC bus and no RX and TX modes.

Terry K9TW

46700. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-27 17:24:21 UTC
From: <famtech@...>
Topic: 46669 Message: 46700

First of all, thanks for all the valuable input. So far and in review, here's where things stand. I replaced the two low voltage filter capacitors, the shorted 9-volt pass transistor, the open 5-volt 7805 regulator and it's open series dropping resistor. With all connectors plugged into their respective circuit boards, these voltages are measured. The 14-volt supply measures +13.8. The 9-volt supply is set at +9.01 volts. The 5-volt supply for the display is at +5 volts and the 5-volt supply on the relay board is at +5 volts. The RF-1 voltage is at +12.2 volts. Pulling the IF-3 connector from the IF board drops the RF-1 voltage down to +3.3 volts. With the IF-3 connector un-plugged, pin-8 on the IF board is next to zero. With the IF-3 connector plugged into the IF board but with the RF-1 wire floating, pin-8 is next to zero but there is +12 volts measured on the RF-1 line. There is no S-meter action. No audio or "hiss" from the speaker. The receive/transmit switch does nothing or any of the other controls for that matter. The S2001A finals and 12BY7 are originals and test fine. Overall condition of the rig is an eight.

There is a fellow on Ebay selling TA7201P amp IC's in case anyone is interested. Item #565827260135. Heard these devices are no longer being made.

Regards,

Jim L.

46701. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-27 23:01:21 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46701

What do you mean by the RF-1 lead floating? Have you released the lead from the IF-3 plug body?

If so, you are telling me you have approx 12vdc on it coming from the AVR board in an unterminated state ie no load on it. In unterminated state it should have approx 9vdc on it and not 12vdc. Whatever is on the Collector of Q7.

Try connecting a 10k to 15k resistor from the free end of RF-1 lead at the IF board to chassis ground and then measure the voltage. It needs a dummy load on it to be able to adjust VR-1 to produce 3.3 vdc.

Maybe what you have is a bad molex connector interface at IF-3 Pin 8 or a bad solder connection at Pin 8 so the AGC bus is not being fed thru R66 2.2 meg resistor. If RF-1 is really open circuited with IF-3 plugged in you will have no AGC bus voltage and Rx will be dead.

What do you have to measure the AGC bus with? Need minimum of 11 meg input Z meter.

If you have a 3vdc battery (couple of flashlite batteries in series) connect the negative lead to chassis and plus lead to AGC Pin 11 and see if Rx comes alive.

Terry K9TW

46702. Weak, noisy and distorted audio TS-830S.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 04:19:09 UTC
From: Craig Roberts
Topic: 46669 Message: 46702

Well, now I've done it!

Today I removed my TS-830S RF Board and replaced L21 (we had some 10 meter output problems). All went well and the operation was nowhere near as difficult as I had imagined it would be.

HOWEVER, upon reassembly, I am experiencing weak, distorted and noisy (S9) audio. All is quiet with a dummy load, but hooking up an antenna brings on the audio junk. Transmit seems fine.

Somehow, somewhere, I have messed up. All RF board headers seem intact and the three soldered wires are in their places.

Any ideas, gurus?

Many thanks once again and 73,

Craig
W3CRR

46703. RE: Weak, noisy and distorted audio TS-830S.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 04:30:46 UTC
From: <n6wk@...>
Topic: 46669 Message: 46703

Does this mean the Coil I sent finally made it there?

73,
Gordon

46704. HeathKit Electronic Keyer to TS52s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 03:25:44 UTC
From: Wayne Schrubbe
Topic: 46704 Message: 46704

Hi,
This is my first note to the group, I hope I am sending this to the right place...
I am looking to use my HeathKit paddle Keyer on my ts520s.
I saw in an older letter the group about it, and he made it sound like you just
plug it in the back of the radio with a good wire setup.
Am I getting that right? or do I have to change things in the keyer?
I hope someone can fill me in on using this paddle keyer.
BTW. I have been looking at this group for over a year now, and it has to be the
best place for any info on older Kenwood radios! You guys Know your stuff!!!
I have a ts520s and I LOVE it.... Everything is working right now and I have made some great calls with only a g5rv jr. I cant tell you how much I have learned about my rig from the letters I have seen here....
I hope some one can fill me in on this paddle setup. I would love to use it on my 520s....
Thanks for the help.....
73
Wayne N9RXB

46705. Re: [TS-520_820_530_830] HeathKit Electronic Keyer to TS52s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 06:33:34 UTC
From: Wes Will
Topic: 46704 Message: 46705

On 12/27/2013 09:25 PM, Wayne Schrubbe wrote:
>
>
> Hi,
> This is my first note to the group, I hope I am sending this to the
> right place...

Right place OM. Welcome aboard.

> you just
> plug it in the back of the radio with a good wire setup.
> Am I getting that right? or do I have to change things in the keyer?

I am not absolutely certain, having never done it myself, but I think they just play together out of the box.

You can hook up the "Receiver Audio" jack on the back to the rig audio out and listen to the sidetone of the keyer as well as the radio audio through the headphones plugged into the keyer. THAT bit I know for sure, it worked really well on an HW-8 with an HD-1410 keyer. (My fist is all thumbs, I don't use any kind of bug or electronic keyer. Straight key for me, only, I'm a Morse KLUTZ as it is.)

But as for connecting the keyer, as I said, I've not done that, so do NOT take my advice on that. My --guess--, looking at the manual, is that they just plug together, but DON'T take my word for it.

What I can offer for sure is a truly pristine copy of the builder's manual as a PDF file. You didn't specify a model, so I'm assuming it's an HD-1410. I have that model builder's manual, complete, except for the schematic. I think I can even find that if you need it, as well, or perhaps point you to where you can grab it yourself. I have a LOT of files gathered over the years, I'm a digital pack-rat.

Contact me off-list if you need the manual.

--
Wes Will
N9KDY

46706. RE: [TS-520_820_530_830] Weak, noisy and distorted audio TS-830S.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 10:10:14 UTC
From: fpath fpath
Topic: 46669 Message: 46706

if it was working ok prior to changing out parts, retrace your steps, usually the easiest or start taking measurements and compare back to service manual

73's
Dave
vk5Pdl

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@...
Date: Sat, 28 Dec 2013 04:19:09 +0000
Subject: [TS-520_820_530_830] Weak, noisy and distorted audio TS-830S.

Well, now I've done it!

Today I removed my TS-830S RF Board and replaced L21 (we had some 10

meter output problems). All went well and the operation was nowhere

near as difficult as I had imagined it would be.

HOWEVER, upon reassembly, I am experiencing weak, distorted and noisy

(S9) audio. All is quiet with a dummy load, but hooking up an antenna

brings on the audio junk. Transmit seems fine.

Somehow, somewhere, I have messed up. All RF board headers seem intact

and the three soldered wires are in their places.

Any ideas, gurus?

Many thanks once again and 73,

Craig

W3CRR

46707. Re: [TS-520_820_530_830] HeathKit Electronic Keyer to TS52s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 11:25:23 UTC
From: Mike
Topic: 46704 Message: 46707

Wayne,

You didn't say which Heathkit keyer you are referring to. The HD-10 and HD-1410 keyers both will work with any of the KW hybrids. I have no experience with the Heathkit SA-5010 micro keyer so I won't comment on it.

The HD-10 has a maximum negative keying voltage rating of -105VDC at 30ma. The HD-10 is not an Iambic keyer.

The HD-1410 will key both positive and negative keying voltages. The maximum positive keying voltage is +300VDC at 200ma and the maximum negative voltage is -200VDC at 10ma. The HD-1410 is an Iambic keyer. An Iambic keyer allows you to "squeeze and release" the paddles to form characters. This takes a lot of practice. This does not mean you can't use the HD-1410 keyer with the KW hybrids. It simply means you have to form the characters yourself using the dot and dash paddles individually. The paddles are connected internally during assembly based on whether the operator is left or right handed. You can change the paddles from right to left handed or vice verse by simply removing the power cable from the rear panel, remove the cabinet top, and swap the paddle wire connections, there are 2 of them.

There are no internal "jumpers" to change. There is a mechanical adjustment in both keyers that sets the paddle "travel" distance. This adjustment is made on the HD-10 by loosening the "micro switch" mounting bracket screws on the bottom of the keyer the move the brackets to the desired setting. The HD-1410 has a similar paddle travel distance adjustment but is much easier. Remove the power cable, remove the top cabinet, then loosen the screw on the "Black" blade you see on top of the paddles. This allows you to move the blade left or right to shorten or lengthen the paddle travel distance between the paddle contacts. Adjust the blade to the desired distance then tighten the blade screw. Power up the keyer and check the paddle operation. If it is okay, replace the top cover and tighten the side panel screws. If the paddle travel needs adjusting, simply repeat the process until you have set the paddle travel according to you liking.

Connecting the HD-10 or HD-1410 keyer to the KW hybrids is very simple. I recommend using shielded keying cable. I use VCR/DVD interconnecting cable. A 1/4" mono plug is required for on one end so it can be plugged into the KW hybrid's CW key socket, check your local Radio Shack they may have it. You can use a stereo 1/4" plug, just use the "TIP" and "SLEEVE" connections, leaving the "RING" connection unused. The cable's center conductor wire is connected to the plug's "Tip" and the shield is connected to the plug's "Sleeve". This is required for either keyer. If you are using the HD-1410, leave one end with an RCA plug attached.

Connecting the opposite end to the HD-10 keyer, connect the "center" wire to "KEYED LINE" terminal and the shield to the "Ground".

Connecting the HD-1410 to the KW hybrid, simply plug the RCA plug into the HD-1410's "KEYED OUTPUT" socket on the rear panel of the keyer.

The HD-10 has a "Weight" control, accessable through the center of the "SPEED" knob (knob on the left). A narrow blade screw driver is required to make that adjustment. Hold the SPEED knob so it does not rotate then adjust the WEIGHT control using the screw driver to the desired setting.

The HD-1410 does not have a weight control.

The HD-1410 SPEED knob, when pulled out, makes the keyer have a constant "Key" on the "KEYER OUTPUT" socket, allowing the transmitter to be keyed "continuously" as long as the SPEED knob is pulled OUT. Pushing the SPEED knob "IN" removes the constant key at the KEYER OUTPUT socket.

The HD-10 has a similar constant key control but it's on the POWER switch. Move the POWER switch fully to the right will result in a constant keyed output. Move the POWER switch to the middle will remove the constant key at the keyer's output.

That's all there is to connecting and using either keyer with your KW hybrid.

One word of advice. A keyer will not make you send good CW if you have not learned the code and have practiced to achieve good rhythm "first" using a straight key. I have heard all the stores, "a keyer will make you sound good..." Nope, not until you learn rhythm using a straight key FIRST then learn how to put that rhythm to use by learning how to "properly" use the keyer paddles. This ALL takes plenty of "Practice" and you won't learn it over night, over a weekend, or even in 6 months. I have been sending and receiving CW for over 47 years, 22 of which were as a Navy Radioman and Navy CW instructor. I've heard very good fist but I have also heard some very lousey/horrible fist. You should listen to the ARRL machine CW (computer generated) and practice sending so your fist sounds the "same" as the ARRL machine CW. Listen to the rhythm the machine code makes, that should be the goal you should practice for.

73
Mike W5RKL

On 12/27/2013 9:25 PM, Wayne Schrubbe wrote:
> Hi,
> This is my first note to the group, I hope I am sending this to the
> right place...
> I am looking to use my HeathKit paddle Keyer on my ts520s.
> I saw in an older letter the group about it, and he made it sound like
> you just
> plug it in the back of the radio with a good wire setup.
> Am I getting that right? or do I have to change things in the keyer?
> I hope someone can fill me in on using this paddle keyer.

> BTW. I have been looking at this group for over a year now, and it has
> to be the
> best place for any info on older Kenwood radios! You guys Know your
> stuff!!!
> I have a ts520s and I LOVE it.... Everything is working right now and
> I have made some great calls with only a g5rv jr. I cant tell you how
> much I have learned about my rig from the letters I have seen here....
> I hope some one can fill me in on this paddle setup. I would love to
> use it on my 520s....
> Thanks for the help.....
> 73
> Wayne N9RXB
>

46708. SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 12:16:19 UTC
From: Peter Ravn
Topic: 46257 Message: 46708

Mike,

I will do the K9TW final Unit Cathode/Screen grid protection modification and let you know the result. How likely is it that the new 6146W□s died when the four cathode resistors opened?

73

Peter OZ8cth

Fra: Peter Ravn [mailto:fasan5@...]
Sendt: 21. december 2013 18:46
Til: 'TS-520_820_530_830@yahoogroups.com'
Emne: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I did perform voltage test after I replaced the four cathode resistors. Voltages were according to specs. Then I plugged in the new final tubes. Again bias and screen voltages on FG and SG on the final unit board were according to specs. Then I switched on the HEATER and after a few minutes the SG SWITCH as well. Voltages still normal, no smoke, no unusual sounds. It was not until I keyed the transmitter and started the standard bias adjustment procedure that the cathode resistors opened. I did no more than that.

The finals (6146W JAN) were shipped from RF parts through a local shop and arrived yesterday. They are unused/new and quite expensive. If they are bad and have shorts, I will naturally lodge a complaint. But how to prove they were bad on arrival?

73

Peter OZ8CTH

Fra: <mailto:TS-520_820_530_830@yahoogroups.com>
TS-520_820_530_830@yahoogroups.com [
<mailto:TS-520_820_530_830@yahoogroups.com>
mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 21. december 2013 17:12
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You should first think what "difference" or "change" has occurred since you replaced the 4 cathode resistor then performed the voltage measurements/test? The only change you have indicated is you replaced the

6146B final tubes. Yes, I said I didn't trust the original tubes, still don't, but now I don't trust the replacement tubes you used either! I suspect there are possibly shorts in the replacement 6146Bs which caused significant increases in voltage, current, and power dissipation in the cathode circuit with the replacement 6146Bs installed.

You should understand the 6146 has a "Beam Forming" plate that is connected both internally AND externally to the tube's "Cathode". This is required so the Beam Forming plate has the same potential as the Cathode, "negative in respects to the plate". So any short to the Beam Forming plate is also a short to the Cathode.

You can perform the calculations yourself, to see what happens when element short internally in the tube. All the voltage and resistance values you need to perform the calculations are shown on the final amplifier's schematic. The following is an example if a short occurs between the 6146 screen and beam forming plate/cathode and it clearly shows what voltage, current, and power values will be in the final amplifier's cathode circuit.

For example, if the screen shorts to the beam forming plate, the cathode voltage would "instantly" become "+265VDC" which will result in "53 amps" of cathode current (265 / 5 = 53) and 14,045 watts dissipated in the cathode circuit (53 x 53 x 5 = 14045)! That would result in 13.25 amps flowing through "each" 20 ohm 1/2 watt cathode resistor (265 / 20 = 13.25) and each cathode resistor dissipating 3,511.25 watts (13.25 x 13.25 x 20 = 3511.25).

73
Mike W5RKL

On 12/21/2013 7:26 AM, Peter Ravn wrote:

Mike,

I had carefully followed your instructions and was now ready for the final test with a new set of 6146s plugged in. When I was adjusting the bias with the pot on the rear panel, there was a hardly audible crack. The meter said 60 mA, when I turned off the radio and started looking for a cracked resistor. I found none, so the crack might have come from somewhere else in my room. But when I resumed the bias adjustment, there was instantly a loud crack and a flash. I powered off the 830s immediately.

Upon closer inspection four cathode resistors on the final unit board were open. They had worked as fuses and hopefully saved the finals. In the morning I had replaced the old cathode resistors with new ones with the same specs, so why did they open?.

73

Peter OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 20. december 2013 04:27

Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

That's great to hear your 830 is coming back to life.

You said the plates turned RED in the 6146s. You don't know what damage may have occurred in the tubes when that happened. You said with the tubes removed there is no smoke and no unusual sounds. You also said the voltages are changing as they should when testing between receive and transmit, at least that is what I got out of what you said. Therefore, that's why I would not use the original tubes. It's also possible the original tubes themselves may have caused some or all of your problems.

73
Mike W5RKL

On 12/19/2013 12:32 PM, Peter Ravn wrote:

Mike,

Good news! My TS830S passed the first tests with driver and final tubes removed. No smoke or unusual sounds. Bias voltages run smoothly from - 40 VDC to - 110 VDC on FG. Screen voltages are + 265 VDC on SG. The panel meter works normally again, and so does the receiver. The next and final test will be with tubes installed.

I am waiting for the final cage kit from KE7OAY, and tomorrow I will have a new set of 6146B□s to replace the ones that turned RED. You stress that I should not reuse the same tubes. Why not?

Thanks a lot for your outstanding help.

73

Peter OZ8CTTH

Fra: Peter Ravn [mailto:fasan5@...]
Sendt: 14. december 2013 17:09
Til: 'TS-520_820_530_830@yahoogroups.com'
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I found the smoking gun today: R102, a 10 k ohms resistor connecting Q10 on the AF unit to the FG terminal on the board. The resistor is severely discoloured, but surprisingly not open. It will naturally be replaced.

73

Peter, OZ8CTH

a: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 14. december 2013 09:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

I have ordered The Final Cage Repair Kit (C7, C8 and L1) from KE7OAY. When it is installed, and R11, R15 and R16 on the rectifier have been replaced, I will follow your instruction and let you know the result.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 11. december 2013 22:15
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

I made a couple of mistakes.

First, I gave you the wrong final amplifier tube socket pin number to measure the final tube's screen voltage, it should be pin 3 instead of pin 5.

I also left out, accidentally deleted it, where I asked you to check the bias voltage at the final amplifier's tube socket, pin 5, You should measure the grid voltage in transmit and adjust the bias pot. You should see a smooth increase and decrease in bias voltage on pin 5 of the final tube socket when adjusting the bias pot.

Ken, K4EAA, sells an RF amplifier rebuild kit that has the small RF choke along with a few other components. Check his website for prices, www.k4eaa.com .

Sorry for the mistakes.

73
Mike W5RKL

On 12/11/2013 12:30 PM, Peter Ravn wrote:

Mike,

This is what I found today. I rechecked the inside of the final amplifier and found no obvious signs of overheating. I measured the big RF choke (L2). Unplugged it was 0.9 ohms and 137 uH. I lifted the small RF choke (L1), which was 0.5 ohms and only 0.035 uH instead of 470 uH. To be absolutely sure I repeated the measurement five or six times. So apparently L1 has gone bad and should be replaced. The thing is how to get it.

In the RF unit I checked resistors R6 and R7, and they are ok. I also checked C181 and C182 in the IF unit. One was 27 uF, the other 18 uF, so they seem ok. In the rectifier R15 is 60 K and R16 70 K. They should be 57 K and will be replaced together with the infamous R11, which suddenly looked overheated though not open.

To be continued

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 11. december 2013 17:02
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Hi Peter,

You said you checked the inside the final amplifier. Did you visually inspect the 2 RF chokes in the final amplifier? There are 2, the large vertical choke between the 2 final tubes and small choke on the chassis near the final tube sockets, it looks like a resistor. It's on the top of the final amplifier section of the chassis.

Also, do you have a known good pair of 6146Bs? I wouldn't trust the ones that were in the 830 when the smoke and RED plates occurred. If not then obtain a known good pair of 6146Bs to replace the old 6146Bs.

I recommend you leave the driver and both finals out of the 830. Make sure the final plate caps can't touch/short to anything, then connect a DC volt meter's Black lead to the Final Unit's "FG" terminal and the meter's Red lead to the chassis. Set the DC volt meter to measure a minimum of 200VDC. Set the Mode switch to USB or LSB, and power up the 830. If any abnormal noise are heard or you see smoke, turn the 830 off immediately and locate the source of the noise/smoke and fix it before proceeding. If everything appears normal then flip the SEND switch UP and note the bias voltage on the DC volt meter. Rotate the bias pot either side of center rotation, you should see a smooth increase and decrease of the bias voltage. Unkey the transmitter.

Repeat the test except this time you will be measuring the final tube's screen voltage on pin 5 of the final tube socket. You should see approximately +265VDC. The screen voltage will not change much, if at all, when you switch from receive to transmit then back to receive. This is because there are no final tubes in the final amplifier so screen current will flow in the screen circuit. Unkey the 830 and power the 830 OFF.

If there are no problems encountered during the above test, proceed to the next test. However, as I said above, if there are any problems encountered do NOT proceed with the next test, determine the cause of the problem and fix it before you proceed.

Set the SG switch to "OFF", power up the 830, and note the final tube screen voltage, pin 5 on the tube socket and "SG" terminal on the Final Unit. The voltage should be approximately "-100VDC" and the Relay RL1 on the Rectifier Unit should be energized. Power the 830 OFF and set the SG Switch to ON and repeat the final tube screen voltage check, it should be approximately +265VDC and Relay RL1 on the Rectifier Unit should NOT be energized.

If those test/checks are good then power off the 830, let the HV filter capacitors bleed to zero (check HV caps with a DC volt meter) then install the driver and a pair of "known good" 6146Bs in the final amplifier.

Set the SG switch to OFF, power up the 830, and set HEATER switch to ON. Allow about an minute for tube warm up. Look and listen for any abnormal noises and smoke. If you see and/or hear any smoke and/or abnormal noise, power the 830 OFF immediately and locate the source of the problem and fix it before you proceed.

Set meter switch to ALC, CAR knob full CW, DRIVE control to 12 o'clock, band switch to 7, and SEND Switch UP. Again, if any problems such as abnormal sounds, smoke, etc., are seen/heard, turn the 830 OFF immediately. If no problems occur, adjust the DRIVE control for a peak indication. If meter pegs full to the right, reduce the CAR Control CCW so the meter pointer is pointing at or near 12 o'clock and continue adjusting DRIVE control for a peak ALC meter indication. Again, if any problems occur, regardless of what those problems may be, unkey the transmitter immediately!! If the problems continues, you smell something getting hot or you see smoke, power the 830 OFF immediately and determine the cause of the problem and fix it before you proceed any further.

Measure all final tube socket and Final Unit voltages on the "foil side" of the Final Amplifier Unit. Attempting to measure the final tube's screen and grid voltage through the top of the tube sockets can easily result in your hand/fingers and meter probes coming in contact with the HV on the RF choke and the plate cap parasitic suppressors. Use caution when measure DC voltage, as you know there are voltages in the 830 that can easily kill you so take your time and pay attention to what you are doing. Do not attempt to perform any of these test/voltage measurements when you are tired.

73
Mike W5RKL

On 12/10/2013 12:03 PM, Peter Ravn wrote:

Mike,

I carefully followed your instructions, and this is what I have found:

All four cathode resistors in the final unit are within specs: R2 22 ohms, R3 21.7 ohms, R4 21.7 ohms and R5 20.9. They didn□t look overheated either, so there was no need to replace them. But the screen resistors looked somewhat bleak. R7 was 119 ohms and R8 109 ohms, so they were replaced. I carefully inspected the board and found no smoking gun. Finally I cleaned the board on both sides and replugged it.

With my ohm meter I spotted the erratic behavior of the bias pot you mention. After a careful cleaning the pot now shows smooth change of resistance when rotated. The resistance is now also identical on both terminals.

I opened the final cage and removed the final tubes. In the cage there was no sign of overheating. I also removed the driver tube.

On the reticifier R11 survived the battle, but with clear traces of overheating.

This is status until now. I will continue the troubleshooting as soon as I find time.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 10. december 2013 13:55
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

It appears the bias pot is the source of instability when setting the 60ma idling current.

Unplug the main power, make sure the HV caps have bled down to zero before you attempt any of the following checks and cleaning steps.

Before you perform the following cleaning and testing process, thoroughly check the Final Unit's Cathode and Screen resistors. If there is evidence the resistors are damaged (overheated) or any of the resistors are out of tolerance, replace all of them. For example, if you find 2 of the 4 cathode resistors have overheated, replace all 4 of them with new resistors. The same for the screen resistors, if one if bad or out of tolerance then replace both with new resistors.

Thoroughly clean the bias pot with contact cleaner. Exercise the pot throughout it's travel, many times, during the cleaning process. I use DeoXit F5 Fader cleaner for pots then I use canned air to remove all cleaner residue and any dirt from the pot. I then test the pot using an ohm meter connected between the pot's wiper (center terminal) and any of the outside terminals. I rotate the pot slowly watching the ohm meter to see if any position results in erratic behavior. If I see erratic behavior I clean the pot again, thoroughly then retest the pot. Once the pot exhibits smooth resistance changes I consider the pot clean.

Remove the Driver and both Final tubes and make sure the plate caps cannot touch anything or short to the chassis etc.

You should use an analog DC volt meter for the following test. The meter should have a low voltage setting of approximately 200 to 250VDC. Set the meter to either low voltage setting, which ever your analog meter has.

Connect the analog DC volt meter to the Final Unit's "FG" terminal and ground (RED lead to FG terminal and BLACK lead to the Chassis). With you finger on the main power switch, power up the 830. If you see smoke or hear unusual sounds turn the 830 off immediately and find what is causing the smoke and/or unusual sounds and eliminate the problem before proceeding. If there is no smoke and no unusual sounds, continue on to the next step.

Set the mode switch to USB or LSB and set the SEND switch UP. Again, any unusual sounds or you see smoke, unkey the 830 and turn it off immediate. If all is okay so far then adjust the bias pot while watching the analog DC volt meter. The meter indication should rise and fall, depending on the direction you are rotating the bias pot indicating a smooth change in voltage as you rotate the bias pot. If this occurs, move the analog DC volt meter RED lead to pin 5 on the final tube socket foil side of the Final Unit PC board and repeat the bias pot adjustment, watching the meter closely, especially noting the volt meter movement at the low negative level of bias voltage, i.e., around the -50 to -70 VDC range. You should see the same results, a smooth increase and decrease of the bias voltage. If this test indicates a smooth change in bias voltage, no instability in the bias pot voltage indicated on your analog DC volt meter, then the bias circuit is working properly. The test results should be achieved using the analog DC volt meter connected to the AF Unit's "FG" terminal. The AF Unit and Final Unit "FG" terminals are connected together with a wire in the wiring harness. You can see this on the 830 schematic.

Do not reuse the same 6146 tubes, obtain known good 6146Bs.

Let us know what the results of the above tests are.

73
Mike W5RKL

On 12/9/2013 4:29 PM, Peter Ravn wrote:

Mike,

After replacing R11 I had 264 DVC on the RF unit terminal, on terminals 210A and 210B on the rectifier and on SG on the final unit. After some time I managed to get 60 mA idle current and started tuning up. The transmitter seemed somewhat unstable, and the panel meter would not zero in STAND-BY. A scary noise was suddenly heard, whereupon the finals turned deadly red and the fuse on the rear blew. When I replaced the fuse and turned on the radio again, smoke came from somewhere between the AF and the RF unit. End of today.

Good night and good luck.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af W5RKL
Sendt: 9. december 2013 19:57
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You also might check the RF Unit's voltage divider resistors, R36 (100K) and R37 (3.3K). Terry, K9TW, told me those resistors are some times changed to "hot rod" the hybrids. I wasn't aware those resistors were changed to "hot rod" the hybrids so check them.

Also, check the final unit's R7 and R8, both 100 ohms. They are the final unit's "screen resistors". If they both measure within tolerance you do NOT have to replace them!!!!

Let me know what you find when checking R36 and R37 on the RF unit and R7 and R8 on the Final Unit board. Also let me know if you can tune your 830 up to full power into your dummy load.

73
Mike W5RKL

On 12/9/2013 10:26 AM, Peter Ravn wrote:

Mike,

I have rechecked the voltages on the rectifier. On terminal 210A there are zero VDC, and on terminal 210B there are 264 DVC. If I bypass the open R11, I get 263 DVC on terminal 210A. No wonder that I see no voltages on plug 9, pin 2 on the RF unit.

Time to replace the open R11?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 15:16
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You say that R11 is OPEN. Okay that will result in 210A voltage to be "0VDC" just as I said it would.

I said you should recheck your voltages on the Rectifier Unit's 210A and 210B terminals, it appeared you had them "backwards". Once you found R11 was open, did you recheck the 210A and 210B voltages as I asked you do to? Since you say R11 is "open" then, as I indicated above, the voltage on the Rectifier Unit's "210A" terminal is "0VDC". You initially said the voltage

on the Rectifier Unit's "210B" terminal was "0VDC" which I didn't believe you and so I asked you to recheck your voltages. What is the voltage on the Rectifier Unit's "210B" terminal?

73
Mike W5RKL

On 12/9/2013 7:14 AM, Peter Ravn wrote:

Mike,

Thanks to your patience and conscise instruction I found the culprit: R11 is open. I checked all the other diodes on the rectifier board, including the D6 you mentioned, and they are all ok.

I have a new 470 ohms 1W resistor to replace the bad one, but before doing so I should like to know what made R11 open. What else to check before firing up my TS830S?

Once again thanks for your help. It is outstanding.

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 9. december 2013 13:49
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

You measured +263VDC at 210A but zero VDC at 210B? That doesn't make sense. I think you have the voltage measurements at the Rectifier Unit's 210A and 210B "backwards". I think the Rectifier Unit's "210A" terminal voltage is "0VDC" and the Rectifier Unit's "210B" terminal voltage is "+263VDC". You need to "recheck" the voltages on the Rectifier Unit's "210A" and "210B" terminals.

You also did not comment on the condition of "R11" (470 ohm) on the Rectifier Unit I asked you to do. Did you visual inspect R11? Did you measure the resistance of R11? If R11 is "open" then the Rectifier Unit's "210A" terminal voltage will be "0VDC" which will results in 0VDC on the RF Unit plug 9 pin 2 (210A) and 0VDC on SG1, SG2, PD2, and the Final Unit's "SG" terminal and the final tube's screen, pin 3.

Are you using the TS-830 schematic to troubleshoot this problem? You need to do that.

73
Mike W5RKL

On 12/9/2013 1:49 AM, Peter Ravn wrote:

Mike,

There is no voltage on RF unit plug 9 pin2 (210A). On 210A on the rectifier there are 263 DVC, but zero on 210B, so where does that leave us?

73

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 23:41
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter,

The Rectifier Unit's HV supply is a "Voltage Doubling" supply. Therefore, you will not see 800VAC on the transformer's "800AC" terminal. I recommend you spend some time studying how voltage doubling supplies work. The ARRL handbook has a section that covers different types of power supplies, including voltage doubling supplies.

Your problem does not appear to be a bias problem but rather a loss of screen voltage to the driver and both final tubes.

Loss of screen voltage to the driver and both final tubes will shut those tubes "down", no conduction in the tubes will occur. That means you will not see any drive from the driver tube to the final amplifier, no final tube IP current indication of any kind in any mode, and the final amplifier's cathode voltage will be zero.

The reason the final tube cathode voltage is zero is simply because there is no current flowing in the final tubes. This is part of vacuum tube theory which is discussed in the ARRL handbook, early editions are the best or you can study the same theory in John T. Fryes, Basic Radio Course which is available in CD form from a seller on eBay.

Since you have already checked the final tube's screens for voltage and found it to be zero, now check the RF Unit plug 9 pin 2 (210A). This is the driver tube's screen voltage from the Rectifier Unit's 210A source. If voltage is zero at RF Unit plug 9 pin 2, is zero check the Rectifier Unit's "210A" and "210B" supply outputs. If voltage at 210A "and" 210B are zero, check Rectifier Unit diode D6, it's most likely "open" resulting in zero voltage at 210A and 210B, hence zero screen voltage to the driver and both final tubes. Visually inspect R11, 470 ohm resistor on the Rectifier Unit. Resistor R11 is physically located on the Rectifier Unit but R11 is connected between the positive terminals of C180 and C181 which are on the IF Unit.

If D6 is open, check C180 and C181, both are 22ufd 350VDC "Radial lead" capacitors on the IF unit, they are the filter capacitors for the Rectifier Unit's 210A and 210B supply, one or both could be shorted which would take out D6 resulting in zero Rectifier Unit 210A and 210B voltage, hence no

screen voltage to the driver and both final tubes.

73
Mike W5RKL

On 12/8/2013 3:59 PM, Peter Ravn wrote:

Mike,

Here is an update on my latest findings.

On the rectifier board there are no voltages on TUNE, SG1, SG2, PD1 and PD2. On AC800 there are only 324 VAC instead of 800 VAC. Voltages on all other terminals on the rectifier board are ok, including the bias voltage which is ☐ 110 DVC. R15 was checked and found ok. The preliminary conclusion is that the finals are getting no screen voltage from the rectifier.

In TUNE/SEND the panel meter shows 900 DVC.

When the HEATER is switched on, the filaments in the finals come alive. Voltages on the filaments are according to specs. There are ☐ 103 DVC on the grids (pins 5), and with the bias potentiometer on the rear the voltages can be adjusted from ☐ 93 to -103 VDC. So this part seems to work . But there are no voltages on the screen or on the cathode. Screen and cathode resistors were checked and found ok, so the problem must be somewhere else.

Good night and good luck.

Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Peter Ravn
Sendt: 8. december 2013 17:29
Til: TS-520_820_530_830@yahoogroups.com
Emne: SV: SV: [TS-520_820_530_830] TS830S no bias

Mike,

A new careful measurement gave another result. On the rectifier there are ☐ 109 DVC in STAND-BY and ☐ 107 DVC in TUNE. On pins 5 of the final unit there are ☐ 96 DVC in STAND-BY and ☐ 57 DVC in TUNE. So apparently there is a loss, but not a complete loss of bias voltage, which might prove fatal.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 16:39
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: SV: [TS-520_820_530_830] TS830S no bias

Peter,

Loss of bias voltage to the final tubes will result in the final tubes conducting to saturation levels even in receive. Loss of bias voltage to the final tubes may have permanently damaged your final tubes.

Have you checked/measured the bias voltage at the Rectifier Unit's "-C" terminal?

I recommend you troubleshoot the bias supply from the Rectifier Unit "-C" to the final tubes to find where the loss of bias voltage is occurring.

73
Mike W5RKL

On 12/8/2013 9:15 AM, Peter Ravn wrote:

Mike,

I followed the standard procedure. I turned the POWER and HEATER switches on, placed the MODE switch to SSB, the METER switch to lp, pushed the SEND button and adjusted the BIAS control, but there was no reading at all. I then measured pin 5 in in the finals and saw no voltages in STAND-BY or SEND position. The only deflection on the TS meter is in HV in SEND position with voltages about 820 DVC.

A correction to my first mail. I do hear the t/r antenna relay when I key the transmitter.

73 Peter, OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com
[mailto:TS-520_820_530_830@yahoogroups.com] På vegne af Mike
Sendt: 8. december 2013 15:24
Til: TS-520_820_530_830@yahoogroups.com
Emne: Re: [TS-520_820_530_830] TS830S no bias

Peter,

You said you checked for bias voltage and found none. If I may ask, did you measure the bias voltage at the final tube grids, pin 5, and that is where you found no bias voltage?

73
Mike W5RKL

On 12/8/2013 2:15 AM, ravnpeter@... wrote:

There is no current in TUNE position on my TS830s. In SEND position there is no deflection on the meter and no noise from the t/r relay. The heater and SG switch are naturally on.

I checked R15 in the rectifier, and it was okay. So were the cathode and plate resistors in the final unit. I then checked the bias and found no bias at all. Adjusting the the BIAS control had no effect.

Any advice will be appreciated.
Thanks.

Peter, OZ8CTH

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

<http://www.avast.com/>

This email is free from viruses and malware because avast! Antivirus
<http://www.avast.com/> protection is active.

46709. RE: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 17:54:22 UTC
From: <wagstw46@...>
Topic: 46257 Message: 46709

Peter:

Here is my unsolicited opinion. It really depends on how risk averse you are. To know that you have to understand the jeopardy. What is the worse thing that could happen?

There probably is not a single one of us who have experienced cathode resistor failure who didnt put in new resistors and try it again with the same tubes and that includes me. Often nothing happened or hours or few days later they popped again.

Only way you could screen the tubes that I know of is with a hi-pot or put them back in RF service in your TS830. People have the same decision to make when a 572B arcs over in their SB-200s or even with higher power finals.

So what is the risk? What can happen if one of these 6146Ws arcs over again?

First a tube arc over is different than thermal runaway. Tube arc over almost always is from anode to cathode as the beam plates are physically closest to the anode. This generally does not cause element melting or sagging to the extent that internal shorts are developed. It usually doesnt vaporize the anode and beam forming plates due to the mass of metal involved. Not a thin grid like structure. Thermal runaway on the other hand produces extreme elevated temperature for much longer time and can cause elements to deform and sag and short and destroy the tube. Probably worse case tube arc over would be from Anode to Control Grid. That is rare in my experience, but causes lots of damage to ALC circuit, bias pot, -C supply, TIF amp, meter FET etc. I would never use those tubes again.

So if you install new cathode resistors and want to try it again with same tubes you may or may not experience another arc over. They may function just fine. However, if you experience another Anode to Cathode arc over what is the jeopardy?

1. Loss of panel meter.
2. Stress on HV filter caps, HV rectifier diodes, and Power Transformer windings.
3. Stress on RF plate choke and small VHF plate choke
4..Popped cathode resistors (chance to lift a foil during repeated replacement)
5. Unanticipated down time

Before I got my DC hi-pot I would no longer use any 6146 final that was involved in a blown cathode meter shunt event. I simply did not trust them. Now that I have a hi-pot I would test and if the tube would hold off 2000 vdc to 2500 vdc then I might use it. If it breaks down at 1500 vdc I would definitely not. Tubes see approx 1600 volts peak voltage swing in service.

Absent a hi-pot my advice is to NOT USE THESE TUBES again in your KW hybrid unless you understand what jeopardy the rig would face with another arc over event and are willing to accept that risk.

I might try them in my HeathKit DX-35 or DX-60 which has lower dc plate voltage and lower peak voltage swing than the KW hybrids.

It appears to me you have four choices:

1. Try the 6146Ws again
2. Try a different set of finals
3. Install the protection mod and use different tubes
4. Install protection mod and try the 6146Ws again

In my case I got tired of repeat blown resistors with different brands of tubes. I have also replaced the panel meter in several customer radios. Fortunately not in my rigs.

I dont know if the protection mod has been called upon to act or not. Since installing in all 4 of my KW hybrids I have not blown any cathode resistors or the primary fuse. It could be the mod has never been challenged? I am running RCA 6146B and JAN Sylvania 6146W tubes. Supposedly NOS.

Just my 2 cents worth.

Terry K9TW

46710. Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 18:07:55 UTC
From: Craig Roberts
Topic: 46669 Message: 46710

It was "one of those things." The weak, noisy and distorted audio on my TS-830s cleared up after I re-seated (for the third time) the shielded VCO line cable. Apparently, the shield ground wasn't "making it".

I am somewhat mystified by the cause and effect, but -- nevertheless -- am gratified that all is back to normal.

The original problem remains, however: very low drive and output on 10 meters. Tweaking L21 brings it up a bit (though not to normal levels), but doing so is obviously compensating for an aging or defective component that has knocked the circuit out of resonance.

Any ideas?

Oh -- I must mention the compassion and generosity of one of our group. After I destroyed my original L21 RF coil through overly enthusiastic slug turning, jamming and subsequent destructive attempts to recover, he sent me a replacement. It arrived yesterday and thus began my most recent adventure. I will name not my benefactor to prevent him from receiving a flood of "hey, do you have a spare..." requests, but mention his kindness as a demonstration of the finer aspects of this forum of friends.

Happy New Year, y'all!

Craig
W3CRR

46713. Re: [TS-520_820_530_830] Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 18:19:06 UTC
From: Jim W7RY
Topic: 46669 Message: 46713

Glad you found it....

On 12/28/2013 10:07 AM, Craig Roberts wrote:
>
>
> The original problem remains, however: very low drive and output on 10
> meters. Tweaking L21 brings it up a bit (though not to normal levels),
> but doing so is obviously compensating for an aging or defective
> component that has knocked the circuit out of resonance.
>
> Any ideas?
>

Bad driver tube?
73
Jim W7RY

46714. Re: [TS-520_820_530_830] Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 20:16:50 UTC
From: Joseph Stiles
Topic: 46669 Message: 46714

Jim,

Well... glad you got it back up an operating...to a point.

Lack of adequate output on 10 meters when the lower bands are ok, may indicate a failing driver tube.

You should be able to get full ALC meter swing on 10 meters. Tune rig for max output, put rig into transmit, watch drive level(ALC) it should be steady...if it falls off...your 12by7a is
going flat. You can also watch the rigs Ip output on the rigs meter...if it falls off...possibly the finals are getting tired too

73 Joe
WB7UQU

On Saturday, December 28, 2013 11:51 AM, Jim W7RY <jimw7ry@...> wrote:

>Glad you found it....
>
>
>
>On 12/28/2013 10:07 AM, Craig Roberts wrote:
>
>
>>
>>The original problem remains, however: very low drive and
output on 10
>>meters. Tweaking L21 brings it up a bit (though not to
normal levels),
>>but doing so is obviously compensating for an aging or
defective
>>component that has knocked the circuit out of resonance.
>>
>>Any ideas?
>>
>Bad driver tube?
>73
>Jim W7RY
>
>
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>
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>
>

46715. Re: [TS-520_820_530_830] Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 20:26:07 UTC
From: Craig Roberts
Topic: 46669 Message: 46715

Thanks Jim and Joe,

The low drive and output on 10 are apparently not products of tired tubes. Both the driver and finals are brand new. They were the first components I changed when the problem became apparent, though the symptoms are just the same as a bad driver (or aged finals) would trigger.

Hmmmm.

73!

Craig
W3CRR

46716. Re: [TS-520_820_530_830] Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 20:36:37 UTC
From: Joseph Stiles
Topic: 46669 Message: 46716

Craig,

Are your driver and final tubes KNOWN good? If newly purchased, more than likely they are. If you have just tested them in a "tubes tester" and they tested "OK" or some number indication that they are good...be aware that the testers do not guarantee that the tubes will work in the actual RF environment. Many members keep a set of KNOWN good finals and driver to help eliminate such a problem.

Just another wrench in the works hihi

73 Joe
WB7UQU

On Saturday, December 28, 2013 12:27 PM, Craig Roberts <crgrbrts@...> wrote:

>Thanks Jim and Joe,
>
>The low drive and output on 10 are apparently not products of tired
>tubes. Both the driver and finals are brand new. They were the first
>components I changed when the problem became apparent, though the
>symptoms are just the same as a bad driver (or aged finals) would trigger.
>
>Hmmmm.
>
>73!
>
>Craig
>W3CRR
>
>
>
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>

46717. SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 20:56:44 UTC
From: Peter Ravn
Topic: 46257 Message: 46717

Terry,

Thank you for listing the pros and cons. The choice is naturally mine, and it is not an easy one. If I order a new set of 6146W's from RF Parts, I may end up with the same problem and lose another 150 dollars. Alternatively I can install the ones that turned RED when all the troubles started a few weeks ago. Or I can install an old set of 6146A/B I have never used before and whose story I do not know. However, the risk of another arc will still be there. That is why your cathode/screen protection modification will be the first thing for me to do.

73

Peter OZ8CTH

a: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af wagstw46@...
Sendt: 28. december 2013 18:54
Til: TS-520_820_530_830@yahoogroups.com
Emne: RE: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter:

Here is my unsolicited opinion. It really depends on how risk averse you are. To know that you have to understand the jeopardy. What is the worse thing that could happen?

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Only way you could screen the tubes that I know of is with a hi-pot or put them back in RF service in your TS830. People have the same decision to make when a 572B arcs over in their SB-200s or even with higher power finals.

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So if you install new cathode resistors and want to try it again with same tubes you may or may not experience another arc over. They may function just fine. However, if you experience another Anode to Cathode arc over what is the jeopardy?

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2. Stress on HV filter caps, HV rectifier diodes, and Power Transformer windings.

3. Stress on RF plate choke and small VHF plate choke

4..Popped cathode resistors (chance to lift a foil during repeated replacement)

5. Unanticipated down time

Before I got my DC hi-pot I would no longer use any 6146 final that was involved in a blown cathode meter shunt event. I simply did not trust them. Now that I have a hi-pot I would test and if the tube would hold off 2000 vdc to 2500 vdc then I might use it. If it breaks down at 1500 vdc I would definitely not. Tubes see approx 1600 volts peak voltage swing in service.

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I might try them in my HeathKit DX-35 or DX-60 which has lower dc plate voltage and lower peak voltage swing than the KW hybrids.

It appears to me you have four choices:

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4. Install protection mod and try the 6146Ws again

In my case I got tired of repeat blown resistors with different brands of tubes. I have also replaced the panel meter in several customer radios. Fortunately not in my rigs.

I dont know if the protection mod has been called upon to act or not. Since installing in all 4 of my KW hybrids I have not blown any cathode resistors or the primary fuse. It could be the mod has never been challenged? I am running RCA 6146B and JAN Sylvania 6146W tubes. Supposedly NOS.

Just my 2 cents worth.

Terry K9TW

46718. RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 21:13:05 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46718

It bemuses me that once the experiential phase of troubleshooting low RF drive and low RF output is over (try new driver tube, try new finals, clean the bandswitch contacts etc) why people do not automatically reach for either an RF millivolt meter or an O-scope and run the TX Level Diagrams that Kenwood was so kind to give us.

If you have neither of those pieces of test gear you will need a VTVM and RF probe. Remember need a multi-diode probe to get on Driver tube plate and 6146 control grids as single germanium diode probe is only good for approx 30 volts.

In about 10 minutes you should be able to at least find where the drive level is down at and can then begin trouble shooting that area. Not likely low TIF signal on 10 meters as TIF if not band specific. So no real reason to be testing 8.830mhz from the IF board. Where then is the next logical place to look?

Well can start at output of TX Mixer and work toward the 6146 control grids or start at the control grids and work way back to TX Mixer.

What is the rf drive level at TX Mixer output at TP-4?

What is the rf drive level at the plate of the Driver tube?

You have two parallel resonant tank circuits that must get switched in and it is sounding like that is not occurring.

Remember the TX Level Diagrams were taken at 14.2mhz so will be approx levels.

At 28.5mhz should see something like the following:

3.0v rms rf volts at TP-4 (approx 8.8v p-p)

54.0v rms rf volts at Plate of Driver tube (approx 153v p-p)

48.0v rms rf volts at 6146 control grids (approx 136v p-p)

Terry K9TW

46719. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 21:20:57 UTC
From: Craig Roberts
Topic: 46669 Message: 46719

This is why we love you, Terry.

Incidentally, upon whose knee, if anyone's, did you sit to learn your troubleshooting skills? Some of us are curious about your technical education.

Many thanks - again,

Craig
W3CRR

46720. RE: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 21:26:59 UTC
From: <wagstw46@...>
Topic: 46257 Message: 46720

Peter:

If the finals turned red it wasnt from an arc over. It was from loss of operating bias. The high plate current caused the anodes to glow red. I would be even more worried about using finals that experienced thermal runaway than I would those that arced over. As I mentioned much more likely to have sagged elements that shorted together and or vaporized during a thermal run away event.

The protection mod will not protect tubes from thermal runaway. I believe Mike W5RKL helped you verify you had a good clean bias voltage pot with no dead spots anywhere in the full range of rotation. I think also verified could set operating bias to approx -60vdc to establish normal 60ma zero signal current. This is a must to prevent a repeat incident.

I am sorry I confused arc over event with thermal runaway. Not sure how that happened. Very seldom will the cathode resistors pop open during a thermal runaway event. Certainly not in time to prevent final tube damage.

Terry K9TW

46721. Re: [TS-520_820_530_830] HeathKit Electronic Keyer to TS52s

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 22:47:51 UTC
From: CROOKS David
Topic: 46704 Message: 46721

To Mike W5RKL and Joe WB7UQU.
Please put a stop to the off-topic stories that some members are still posting.
Thanks
Dave f4eyk

46722. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 22:59:34 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46722

Craig:

Not criticizing you or anyone else. Nor am I trying to impress anyone. Just trying to help. I see this same scenario played out time and time again when troubleshooting low rf drive and low rf output when it is one of the easier problems we encounter and has been addressed here time and time again. I am not opposed to the experiential stuff. Always do the simple stuff first as time is money in service business.

Now it may not be one of the easier things to fix as first time you have to pull RF board and repair bandswitch loose rivet to foil trace it can be a daunting task and been more than one person re-install and get S22 out of sync and burn up a set of finals. Having the right de-soldering tool makes it much easier.

My bio is listed on QRZ.com.

Never got to work on a service bench under tutelage of a master tech.

No EE degree here. I took calculus for business majors in college. That should tell you something.

Takes a combo of interest, initiative, curiosity, work ethic, ability to read and comprehend what you read, thirst for knowledge,questioning attitude, experience, and aptitude. Troubleshooting is a way of thinking. It is logical and systematic. Can study trouble shooting methods like split search and fault tree analysis all day long and not be a good troubleshooter. Key ingredient is aptitude. I am interested in golf but will never have the aptitude to be a scratch golfer.

Also I dont think anyone will ever be really good at troubleshooting if not well grounded in radio and electronic fundamentals. If you cant go to the white board and draw the basic building blocks of a SSB transmitter and receiver and the goes ins and goes outs at each block then will never be among the best. Should be able to tell from memory what are the goes ins and goes out of a KW hybrid ring diode Balanced Modulator and the approx levels of each. This is what Mike Waldrop W5RKL and I preach about all the time. We are able to troubleshoot and repair these old radios because we have the proper foundation as well as the interest and aptitude. We know the KW hybrid circuits because we have studied them. Of course cant get there over nite. I am in my 10th year of owning and servicing KW hybrids. Still learning.

Terry K9TW

46723. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 23:32:46 UTC
From: John Davidson
Topic: 46669 Message: 46723

My TS520 couldn't make 100 W on 10M from day one, new out of the box ! I think I GOT 75 WATTS NEW AND LESS AS THINGS AGED. I think the combo of a 12BY7 and S2001 tubes just are not going to be as hot on 10M as the lower bands without gold plated wiring and more voltage.
73...JD

On Saturday, December 28, 2013 5:59 PM, "wagstw46@..." <wagstw46@...> wrote:

Craig:

Not criticizing you or anyone else. Nor am I trying to impress anyone. Just trying to help. I see this same scenario played out time and time again when troubleshooting low rf drive and low rf output when it is one of the easier problems we encounter and has been addressed here time and time again. I am not opposed to the experiential stuff. Always do the simple stuff first as time is money in service business.

Now it may not be one of the easier things to fix as first time you have to pull RF board and repair bandswitch loose rivet to foil trace it can be a daunting task and been more than one person re-install and get S22 out of sync and burn up a set of finals. Having the right de-soldering tool makes it much easier.

My bio is listed on QRZ.com.

Never got to work on a service bench under tutelage of a master tech.

No EE degree here. I took calculus for business majors in college. That should tell you something.

Takes a combo of interest, initiative, curiosity, work ethic, ability to read and comprehend what you read, thirst for knowledge,questioning attitude, experience, and aptitude. Troubleshooting is a way of thinking. It is logical and systematic. Can study trouble shooting methods like split search and fault tree analysis all day long and not be a good troubleshooter. Key ingredient is aptitude. I am interested in golf but will never have the aptitude to be a scratch golfer.

Also I dont think anyone will ever be really good at troubleshooting if not well grounded in radio and electronic fundamentals. If you cant go to the white board and draw the basic building blocks of a SSB transmitter and receiver and the goes ins and goes outs at each block then will never be among the best. Should be able to tell from memory what are the goes ins and goes out of a KW hybrid ring diode Balanced Modulator and the approx levels of each. This is what Mike Waldrop W5RKL and I preach about all the time. We are able to troubleshoot and repair these old radios because we have the proper foundation as well as the interest and aptitude. We know the KW hybrid circuits because we have studied them. Of course cant get there over nite. I am in my 10th year of owning and servicing KW hybrids. Still learning.

Terry K9TW

46724. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 02:15:44 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46724

We are talking about TS-830S and not a TS520,

I have owned several and currently own two and I have never seen one that would not do 100 watts out on 10 meters. There is a reason why, but too many key strokes to explain here.

Yes pretty common that a TS-520 will have a little less output on 10 meters. 75 to 80 watts is about as good as they will do. The fallacy is that it is normal for a TS-520 to have no ALC indication on 10 meters and that is baloney. Never had one on bench that I could not get ALC indication on 10 meters. Wont be as much as later hybrids and takes pretty much full Car Level, but always able to produce enough drive to overcome the DC bias offset and produce positive grid current and resulting ALC indication.

Terry K9TW

46725. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 03:27:37 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46725

Having lower output power on 10 meters has nothing to do with 12BY7A or S2001 tube upper frequency limitations or "gold plated wiring or voltages". The tubes are no where near upper frequency limitations or transit time effects. Skin effect is not a factor at 30mhz.

We are all aware of and have come to accept that pretty much all multi-band band switching transmitters, exciters, and linear amplifiers will have lower output power on 10 meters. We accept it and live with it , but few question or understand why. We also know that usually can do better if we design and build a single band transmitter or linear. This has to do with component layout and use of vacuum variables and other tricks.

It is actually pretty easy to understand what is going on with KW hybrid and pretty much same design challenge for Heath and Yaesu and Drake and ....

It is a combination of factors, but mostly due to design trade offs in optimum LC ratios and resonant circuit loaded Q. The large frequency range from 160 meters to 10 meters presents the designers with a challenge. That challenge is due to parasitic capacitance. That capacitance is primarily due to the input and output inter-electrode capacitance of the tubes and the capacitance of the circuit PC traces and bandswitch contacts and lead wires. At 10 meters this fixed parasitic capacitance becomes a significant factor to deal with. Infinite combination of L and C that will resonate at 30 mhz, but not all are efficient and/or practical to build and make adjustable.

This fixed minimum capacitance becomes more of a factor as you go up in frequency because Xc gets smaller. Lower Xc means more feed thru power and more grid losses which means more driving power required. It forces the designers to use tuned circuit inductors (Transmit mixer, Driver tube plate circuit, and Pi-network tank) that are less than optimum value. We would like to use High C parallel resonant circuits where RF energy is not wasted as heat, but this fixed minimum parasitic capacitance prevents that. The dielectric loss of a High Q rf capacitor is typically much lower than the IR copper losses of an inductor. So the designers have to live with less than optimum LC ratios due to having to use a higher L than they would like to use to resonate with this fixed circuit parasitic capacitance. .

If you dont believe this or havent thought about it take a look at the 10 meter Mixer and Drive tuned circuits in your KW hybrid and ask yourself where are the fixed capacitors for these slug tuned coils. There are no fixed capacitors in parallel with these slug tuned coils as there are on the lower bands. The capacitance is in the input and output inter-electrode capacitance of the Driver tube and the associated pc traces and bandswitch contacts. The tube capacitances are actually used to tune these circuits to resonance. Just not at optimum LC ratio and not at optimum loaded Q. This means RF energy is lost in form of heat.

The tank circuit (Pi-network) also presents a problem on 10 meters as designers have to live with the output capacitance that the 6146 final tubes present. This capacitance is in shunt with the tank capacitor which has a pretty high fixed minimum. This fixed minimum capacitance again means using more than optimum inductance on the tank coil tap so that it can be tuned to resonance. More inductance means more RF energy wasted as heat. This is why

we see the small aux coil of heavier gauge for 10 meters.

If you were a designer of a 160 meter to 10 meter multi-band transceiver and could chose between which end of the wide bandwidth range for the least efficiency which would you chose? It is an easy answer. You would chose 10 meters for the lower efficiency end of the operating range as it is the easiest to compensate for this lower efficiency and resulting lower output power with external means.

Isnt it easier to build and swing a high gain directional antenna for 10 meters than it would be for 160 meters. So we live with and expect lower output power on 10 meters and the propagation characteristics and high gain directive antennas more than compensate for it.

More detail to understanding why it is "normal" to see less output power on 10 meters, but too many key strokes.

Less than optimum LC ratios and loaded Q are the the primary factors at play here.

Terry K9TW

46726. RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-28 23:57:01 UTC
From: <dfm4290@...>
Topic: 46619 Message: 46726

I replaced the capacitors and checked the diodes.
All seams ok.
The voltage reads 950 volts on the radio meter.
I still get no power out.
The ALC will peak but when I switch to IP The meter shows no output.
Any ideas of what to try next?

46727. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 12:20:40 UTC
From: Mike
Topic: 46619 Message: 46727

Have you checked the SG switch to ensure it is in the ON position? Also, have you measured the final tube screen voltage, pin 3 on the final tube sockets or the SG terminal on the Final Unit PC board. The approximate final tube screen voltage in standby (receive) is +265VDC with the SG switch set to ON but switches to approximately -105VDC with the SG switch set to OFF.

Another subject.
May I also remind you that all members are required to add a "signature" to the end of each message the member posts on the group. That signature can be the member's first name, call sign, or both. "Screen names" such as "gigawatt900" or "lcr800" are not acceptable signatures at the end of a message.

73
Mike W5RKL

On 12/28/2013 5:57 PM, dfm4290@... wrote:
>
> I replaced the capacitors and checked the diodes.
>
> All seams ok.
>
> The voltage reads 950 volts on the radio meter.
>
> I still get no power out.
>
> The ALC will peak but when I switch to IP The meter shows no output.
>
> Any ideas of what to try next?
>
>
>

46728. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 13:56:11 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46728

In my closing summation I should have re-stated all of the primary reasons for increased loss at 10 meters. They are in the text but may be too cryptic.

1. Losses in the Mixer and Driver stage tuned circuits due to having to use less than optimum LC ratio and optimum loaded Q. Typically loss is approx 1% to 2% of total RF output power.

2. Losses due to higher drive power requirements due to grid circuit losses. RF current flows thru Cgk (control grid to cathode interelectrode capacitance) and thru Lk (internal cathode lead inductance). A 12BY7A has approx 10 pf of input capacitance and a 6146B has approx 13 pf of input capacitance. For the 12BY7A this means an Xc of approx 8k ohms at 1.9mhz and 520 ohms at 30 mhz. For the 6146B this means an XC of approx 6.4k ohms at 1.9mhz and approx 410 ohms at 30 mhz. This lower resistance at 10 meters means higher RF drive current is fed thru from the control grids to the cathode series inductance and to chassis ground thru the cathode rf bypass caps. Typically loss in RF drive at the finals is 1% to 2% of total RF output power.

3. Pi-network tank circuit losses due to less than ideal LC ratios and less than optimum loaded Q. Results in higher I^R losses. Typically around 3% at 160 meters and approx 6% at 10 meters.

A minimum of 10% total output power loss at 10 meters would not be unusual. In practice depending on which model you own it can be more or less. RF board and band switch layouts are different between the rigs. The tanks are pretty similar in design and physical layout.

I will drop this now. If anyone is interested in talking any aspect of KW hybrid design be glad to do so off the Reflector.

Love to see someone elses calcs for what the 12BY7A sees when it looks at the 6146 control grids. I also have driver stage RF input power calcs, RF output power calcs, and experimental results with terminating the plate circuit with different values of dummy load resistors and how that compared to my Rg calcs.

Terry K9TW

46729. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 09:58:19 UTC
From: clifford wright
Topic: 46669 Message: 46729

In fact it actually has more to do with tank circuit design. There are a
few tubes like the TT21 which is getting a little lossy on 30 MHz but
most compact transceivers have BIG compromises in the component values
in the plate circuit of the output tubes. This is usually due to simple
lack of space. The TS820 is actually less than 50 % efficient on several
bands. It is one reason why the 6146B's etc can get stressed more easily.
A quick calculation shows you that at 100 watts output the plate/screen
disappation for the 2 tubes is probably about 70 Watts or more (right
near the top end of their specs) . Old QST figures indicated that on
some bands the TS820 was not able to output
more than about 75/80 watts because of this tube stress problem.
If they were running at 66% this would be reduced to ~40 to 50 and the
anodes would be a lot happier and your rig would run cooler.
I am starting thinking about a major rebuild of my TS820 final using a
single 4CX150 or similar and totally redesigning the tank coils to bring
up the efficiency. This would be possible because of the increased space
available. But this is a long term idea until I get a suitable tube.
ZL1BDA.

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46730. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 13:28:56 UTC
From: <dfm4290@...>
Topic: 46619 Message: 46730

I switched from 40 meters to 80 meters and I am getting 100 watts out.
My guess is the band switch needs to be cleaned.
I also need to neutralize the tubes.
Is their a description of how to do this on this web sight?
I have a plastic screwdriver and an o-scope to use for this.
Thanks
Dale (KD0GES)

46731. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 19:05:46 UTC
From: Mike
Topic: 46619 Message: 46731

Dale,

The TS-830 final amplifier neutralizing procedures are in the TS-830 operator's manual, page 27 paragraph 6.4. It is also part of the alignment procedures in the TS-830 service manual, step 25.

I recommend you thoroughly read and understand the neutralizing steps and have the necessary test equipment on hand first, before you attempt neutralizing the final amplifier.

73
Mike W5RKL

On 12/29/2013 7:28 AM, dfm4290@... wrote:
>
> I switched from 40 meters to 80 meters and I am getting 100 watts out.
>
> My guess is the band switch needs to be cleaned.
>
> I also need to neutralize the tubes.
>
> Is their a description of how to do this on this web sight?
>
> I have a plastic screwdriver and an o-scope to use for this.
>
> Thanks
>
> Dale (KD0GES)
>
>

46732. Re: [TS-520_820_530_830] RE: Weak, noisy and distorted audio FIXED.

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 22:28:18 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46732

You really need to have some one look at your TS-820. There is clearly a problem and it doesnt sound like a design problem. Perhaps not well aligned or a problem with low drive on some bands. The 6146 finals are no where near maximum upper frequency limit at 30 mhz. Why you would even mention it is a mystery.

I own a TS-820 and have worked on my share. I have included the loading results from my personal TS-820 that I just ran today on the bench. These output power levels in my experience are typical of a spec TS-820.

If I owned a TS-820 or any hybrid that was 50% efficient on any band I would never accept that this was per design unless perhaps I had soft finals. Physical size and room in the PA cage has nothing to do with it. What would you do to your TS-820 if you had more room? What "bigger" components would you install in the PA cage?

10 meters is a compromise in your TS 820 tank circuit due to the minimum capacitance value of the air variable tank capacitor that is in shunt with the output capacitance of the 6146 tubes. That tube output capacitance is what a KW engineer has to design around. All you can do there is make sure you have short anode and plate blocking capacitor leads and a high quality tank cap with as low a minimum capacitance as you can find. KW has done that with the close component spacing that you bemoan.

In order to have some tuning range to dip the tank to resonance on 10 meters the design engineers had to use a value of inductance that is much higher than they would have liked to. They are using a compromise LC ratio which is less than optimum which results in less than optimum loaded Q. This means higher I ^ R losses ie heat from the circ current flowing thru the higher resistance that this higher inductance presents.

Nothing at all to do with how big something is in the tank. If we had lone skinny runs of wire then we could say shame on KW but that is not the case.

At 28.5mhz have you measured the tank capacitor value and tank inductor value at resonance? What is the LC ratio? What is the Q?

Have you made the same measurements on 160 meters or 80 meters and compared the results?

I am interested in comparing results.

If you own service manual suggest you run TX Level Diagram on all bands. Clearly a problem if you are seeing 50% efficiency on some bands.

Here are my loading results into 50 ohm dummy load that I ran for this response to you.

1. 1.9 mhz @200ma = 90 watts @225ma = 105 watts
2. 3.8 mhz @200ma = 90 watts @225ma = 105 watts
3. 7.2 mhz @200ma = 90 watts @225ma = 105 watts
4. 14.2mhz @200ma = 85 watts @225ma = 95 watts
5. 21.2mhz @200ma = 85 watts @225ma = 90 watts
6. 28.5mhz @200ma = 80 watts @225ma = 85 watts

Lowest Plate voltage = approx 820vdc

Maximum CAR pot level = 3

Pair of 6146W JAN Sylvania finals with very few hours on them.

Remember the TS-820 is rated by KW at 160 watts dc input power and not 180 watts DC input like the TS530 and TS830. It has nothing to do with the tubes dissipation ratings as they all use the same tubes. It has nothing to do with how big or how much room is in the PA cage. My guess is it has to do with the VA rating of the power transformer, but no documentation that I know of to prove that.

Loading your TS-820 to 225ma is not placing undue stress on the final tubes or shortening the life especially in ICAS duty cycle modes.

Terry K9TW

46733. Kenwood Hybrid Net Update (December 29, 2013)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 23:17:05 UTC
From: Mark Gilger
Topic: 46733 Message: 46733

Net Info:
Saturday: 7.235 @ 3:30pm Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

The net recently celebrated it□s 2nd year in existence on November 1st, 2013. The yearly check-in totals are posted at the bottom of this message. It showed we had a 10% increase in our Saturday check-ins and an 8% on Sunday as compared to the 2012 check-ins.

Jimmy, WB2KNR ran the Saturday net on 40 meters. He had 22 check ins under poor band condition. We had the following number of radios checking in.

3 running TS-520(x)
1 running TS-530(x)
1 running TS-820(x)
6 running TS-830S

Jimmy was using his TS-520.

The Sunday□s 20 meter net had 32 stations checking in under good band conditions. There were 13 new stations checking in, W6DSL, K6TWT, AB1KC, N4JK, W0TAS, W5DUG, N0VQ, WA7AFL, KE7HLK, KL7IBY, KF6YIJ, VA7GCD, and N0GKO.

Out of those, there was:

4 running TS-520(x)
0 running TS-530(x)
2 running TS-820(x)
5 running TS-830S

I was running my 820 twins, TS-820s + R-820.

We have been having several people checking in regularly with their TS-430, TS-440, and TS-940□s, which of course is not a hybrid, although over 30+ years old. Everyone is welcome as long as they have an interest in the older equipment.

If anyone would be interested in filling in as a net control station, please send me an email. Currently it's just myself, WB2KNR and WB0SGA. I would like to get several more. If we do, we can alternate so everyone might be on a 3-4 week rotation. It's a lot of fun and a good way to make sure you station is optimized.

For anyone that has not heard, we have a new web site that WB4HFN is hosting. He currently has a very nice site for Drake, Collins and Heathkit and now Kenwood Hybrids. Good quality manuals plus sale flyers and brochures will be found here, along with user supplied information for all Hybrids.

His URL is:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

To date, we have had the following check-in:

Nov. 2011 ☐ Oct. 2012 Saturday total 754
check-ins, Sunday total 563 check-ins
Nov. 2012 - Oct. 2013 Saturdays total 828 check-ins, Sunday total 609 check-ins

November 2013, Saturday☐s net total = 94, Sunday☐s total = 85
December 2013, Saturday☐s net total = 87, Sunday☐s total = 103 (Month to date)

Net Info:
Saturday: 7.235 @ 3:30 Eastern following the Swan Tech Net
Sunday: 14.316 @ 1800 UTC following the ICOM net

Web Site:
<http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm>http://www.wb4hfn.com/KENWOOD/KenwoodHomePage.htm

73's,
Mark, WB0IQK

46734. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 21:38:15 UTC
From: <dfm4290@...>
Topic: 46619 Message: 46734

I started the process to neutralize the tubes.
The first thing the manual states is tune into a dummy load at 28.5 MHz.
As soon as I hit transmit in the tune position the main fuse blew.
Earlier this morning I used the radio to talk to the people on the breakfast club on 3.73 MHz and they said the radio sounded real good so apparently it worked all right on the lower frequency.
Another thing when in the tune position the radio only gets about 2 to 5 watts output but when I transmit in short wave it puts out 100 watts.
When the fuse blew would it be from runaway oscillation of the tubes?
Would this rune the tubes?
Would it help to neutralize the tubes on a lower frequency and work my way to 28.5 MHz in steps?
Thanks for any help.
Dale KD0GES

---In TS-520_820_530_830@{{emailDomain}}, <w5rkl@...> wrote:

Dale,

The TS-830 final amplifier neutralizing procedures are in the TS-830 operator's manual, page 27 paragraph 6.4. It is also part of the alignment procedures in the TS-830 service manual, step 25.

I recommend you thoroughly read and understand the neutralizing steps and have the necessary test equipment on hand first, before you attempt neutralizing the final amplifier.

73
Mike W5RKL

On 12/29/2013 7:28 AM, dfm4290@... mailto:dfm4290@... wrote:

I switched from 40 meters to 80 meters and I am getting 100 watts out.
My guess is the band switch needs to be cleaned.
I also need to neutralize the tubes.
Is their a description of how to do this on this web sight?
I have a plastic screwdriver and an o-scope to use for this.
Thanks
Dale (KD0GES)

46735. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-29 22:22:11 UTC
From: <dfm4290@...>
Topic: 46619 Message: 46735

I found out the plate capacitor shorted the suppressor on top of the tube.
Dale KD0GES

46736. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 00:46:32 UTC
From: Michael Sylvester
Topic: 46619 Message: 46736

What are you using for an antenna?
How are your SWR's ?
I'm sure one of the Gurus will be along shortly so I won't fathom a geuss.
Curious, I was on the "Beakfast Club" this morning also, I don't recall hearing your call sign. There were multiple weak signals today though, you may have been one of those I couldn't hear.
What is you QTH?
I am in SW Missouri, I can hear most everyone real well, 1200 foot elevation, one of the biggest hills arounbd and center of the country.
But I don't recall your call this morning....
Good luck.
Michael///KD0WSJ

On Sunday, December 29, 2013 6:28 PM, "dfm4290@..." <dfm4290@...> wrote:

I found out the plate capacitor shorted the suppressor on top of the tube.
Dale KD0GES

46737. Re: [TS-520_820_530_830] RE: TS-830 power supply

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 11:26:14 UTC
From: Gordon JC Pearce
Topic: 46619 Message: 46737

On Sun, Dec 29, 2013 at 02:22:11PM -0800, dfm4290@... wrote:
> I found out the plate capacitor shorted the suppressor on top of the tube.
> Dale KD0GES

That would do it. You *did* remember to turn the SG switch off before neutralising, right? ;-)

--
Gordonjcp MM0YEQ

46738. TS-830S 'nother rig, 'nother symptom

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 14:26:15 UTC
From: Craig Roberts
Topic: 46619 Message: 46738

Simply put:

TS-830S worked briefly, but now...

on power up, RL1 on AF board trips, S-meter pegs, no receive.

46739. RE: TS-830S 'nother rig, 'nother symptom

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 16:39:23 UTC
From: <wagstw46@...>
Topic: 46619 Message: 46739

Craig:

Sounds like you have lost AGC bus voltage. This dc control voltage is applied to Gate 2 of the IF and RF gain controlled devices and absent this voltage will have no Rx and S-meter will peg as it is a voltmeter measuring the AGC bus. It is reverse reading voltmeter. With +3.6vdc on the bus the S-meter will read Zero. As the voltage goes down (due to reducing the rf gain pot or from strong off air signal biasing on AGC detector) the meter will move off Zero and go up scale. The lower the voltage on the AGC bus the higher your S-meter (voltmeter) will read and the lower the RF and IF stage gain.

Anytime S-meter pegs and no Rx it means that the AGC bus voltage is no longer at RF-1 level (approx 3.6vdc). One way that can occur is to turn the RF gain pot full CCW. If RF gain pot is not full CCW and S-meter is pegged check this:

1. Measure RF-1 at Audio board Conn 9. Should be approx 3.6vdc. If not there then measure regulated 9vdc at TP-6. Need 9vdc regulated to produce RF-1. If good RF-1 at AF board move on to IF board.
2. Measure RF-1 at IF board Conn 8
3. If you have good RF-1 at IF board Conn 8 should have an energized AGC bus assuming dont have a dirty molex connector pins or bad solder joint.

If you have a 10meg to 11meg DMM or VTVM can measure AGC bus voltage, but meter will pull it down. You wont be able to measure it accurately but can tell if it has positive voltage on it. 3.6vdc will be pulled down to approx 3.0vdc or less. Measure at Conn 15 pin 3 and make sure you are on Pin 3 and not Pin 1 as it has SG voltage on it.

If you have a dc bench supply can apply 3vdc at Conn 15 Pin 3 and see if Rx comes alive and S-meter comes off the peg. If no bench supply just use couple of flashlite batteries in series. Apply negative from battery to chassis ground and connect positive down inside Pin 3. You are just paralleling a low impedance power supply with a high impedance power supply. If Rx comes alive, but S-meter stays pegs then you have lost meter JFET Q11 (it is shorted)
.

Terry K9TW

46740. SV: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 17:05:36 UTC
From: Peter Ravn
Topic: 46257 Message: 46740

Terry,

Today I received the KE7OAY final cage repair kit. When I replaced the old C8 10nF capacitor, it was cracked in 10 mm long lines at the top of both sides. Although it is still 10 nF, I suspect it is leaky. Which role has C8 played in my long story of red finals and open cathode resistors?

73

Peter OZ8CTH

Fra: TS-520_820_530_830@yahoogroups.com [mailto:TS-520_820_530_830@yahoogroups.com] På vegne af wagstw46@...
Sendt: 28. december 2013 22:27
Til: TS-520_820_530_830@yahoogroups.com
Emne: RE: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Peter:

If the finals turned red it wasnt from an arc over. It was from loss of operating bias. The high plate current caused the anodes to glow red. I would be even more worried about using finals that experienced thermal runaway than I would those that arced over. As I mentioned much more likely to have sagged elements that shorted together and or vaporized during a thermal run away event.

The protection mod will not protect tubes from thermal runaway. I believe Mike W5RKL helped you verify you had a good clean bias voltage pot with no dead spots anywhere in the full range of rotation. I think also verified could set operating bias to approx -60vdc to establish normal 60ma zero signal current. This is a must to prevent a repeat incident.

I am sorry I confused arc over event with thermal runaway. Not sure how that happened. Very seldom will the cathode resistors pop open during a thermal runaway event. Certainly not in time to prevent final tube damage.

Terry K9TW

46741. RE: SV: SV: SV: SV: SV: SV: SV: [TS-520_820_530_830] TS830S no bias

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 19:33:46 UTC
From: <wagstw46@...>
Topic: 46257 Message: 46741

Peter:

C8 is an RF bypass capacitor. Its performance or failure would not be related to tube arc over or tube thermal run away events.

It is extremely difficult to make a solenoid wound Plate choke that will present an acceptably high amount of inductive reactance across the frequency range of our KW hybrids without having a series resonant hole in it close to one of our bands. Adding 160 meters to the transceivers made it even harder to design an effective choke. Couple of options. 1. Use space wound choke to break up the distributed capacitance or 2. Add an additional choke at cold end and orient it at a right angle to break up the mutual inductance coupling. KW chose method 2 as space winding means a much taller choke.

L2 Plate Choke is there to allow us to supply 900vdc anode voltage to the 6146 finals and prevent RF current from flowing back to the HV power supply. The HV filter caps wont like RF. In addition to not wanting ripple on our DC supply it will cause dielectric heating and over time can damage the HV filter capacitors.

L2 is approx 168uhy with a parallel resonant point at approx 14.0 mhz. This means it will have the highest inductive reactance around 20 meters ie it will function best there to provide the highest inductive reactance (opposition to rf current flow). Its first series resonant hole is around 25mhz which is almost too close to comfort for 24mhz operation as that means it will have the lowest inductive reactance and less opposition to RF current flow.

Since L2 cannot offer high reactance across the entire operating range there will always be some RF current that will get past it. We place C8 at "cold end" of the choke to shunt any RF that makes it past L2s windings to ground. C8 has to be a Type 1 capacitor designed for RF current. It is essentially in severe duty.

It is not uncommon to see it discolored, have hole blown in it, and/or the case split open. Always good to inspect it when working on PA cage and as you discovered measuring the capacitance is not an effective way to assess its condition.

Having not witnessed your event and only going on my understanding of what you described it clearly sounds like thermal runaway due to loss of -dc operating bias voltage which is not related to the damage you see on C8.

Who knows maybe you had thermal runaway accompanied by an arc over? If elements sagged could have actually contacted and shorted as opposed to anode voltage ionizing the gas and conducting to the beam plates in the typical manner.

Terry K9TW

.

46742. RE: TS-830S 'nother rig, 'nother symptom

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 22:06:13 UTC
From: <wagstw46@...>
Topic: 46619 Message: 46742

Craig:

I re-read your post. I skipped over RL-1 keying when you turn on the power switch. Sorry about that.

If that is happening with Send switch in REC, mic PTT not locked, CW key not depressed etc then may have shorted relay switch Q17 on AF board.

If rig is in CW mode and Heaters on and the CAR Level pot advanced what you are seeing on S-meter is ALC indication (RF drive) ? Place in SSB mode or turn off Heaters and turn down CAR level pot to see if S-,meter goes back to zero on power on.

Need more detail to help you.

Terry K9TW.

46743. another fix done (tnx to Terry)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 22:08:20 UTC
From: Craig Roberts
Topic: 46619 Message: 46743

Terry:

Got it! Following your expert and -- as usual -- highly detailed "cause and effect" narrative, I applied my trusty ME-260/U multimeter with RF probe to the job. The very first suggested measurement indicated no voltage present on the AF board connector #9 RF-1 pin -- that is, until I nudged the connector with a bit of authority.

Bingo! Reception returned and the S-meter fell to normal readings. Subsequent, highly magnified inspection of that pin and its next door neighbor revealed barely discernible cracks in their foils that had been quite possibly exacerbated by my Molex connector unplugging, cleaning and re-seating regimen a day earlier. As many others, yourself included, have mentioned frequently, these radios' aged circuit boards are quite fragile.

I, again, commend and thank you for generously sharing your time and expertise, Terry.

Incidentally, my short experience with these Kenwood hybrids is modifying my habits for the better. I do not have a technical education (well, in electronics, that is -- I'm an old Naval Aviator with a considerable background in aeronautical disciplines). All things ham radio have been self taught during relatively short, "leisure time" hours. I have some experience in homebrewing, a great deal of experience in kit building and long experience in restoring vintage equipment employing point-to-point wiring, so my operational skills are good and my wiring and soldering neat, clean, orderly and efficient.

Accordingly, I have often favored the "shotgun" approach to reviving old radios, beginning with wholesale recapping followed by the replacement of other components as deemed appropriate. I can see now that such methods with these radios and similar devices with aging circuit boards and dense component populations is not always wise and that the "if it ain't broke, don't fix it" philosophy is often best employed.

That is one of the many lessons I have learned during my few months as a member of this group.

Thank you, 73 and Happy New Year to all (and special thanks again, Terry).

Craig
W3CRR

46744. RE: another fix done (tnx to Terry)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 22:29:54 UTC
From: <wagstw46@...>
Topic: 46619 Message: 46744

Craig:

OK but remember RF-1 is dc voltage and not RF voltage so you cannot measure it with a RF Probe. Just use DMM or VTVM to measure RF-1. RF in this case stands for "Reference" voltage and not Radio Frequency. Some call it the "FET BIAS" voltage and that is not correct.

All the gain controlled devices are dual gate mosfets. They do use dc bias voltage to set the operating point, but that low level dc voltage is supplied to Gate 1. RF-1 is the base or reference voltage for the AGC bus and ALC bus fed thru a 2.2 meg resistor making these busses high impedance power supplies. These busses then become variable dc control or servo voltage applied to Gate 2 and controls the gain of the device. Around 4vdc on Gate 2 produces max gain.

Yes need to be very careful with any and all of the molex connectors and when de-soldering and re-soldering on these old boards. Not the nice G10 and heavy plated boards we have today. Just phenolic boards from the period.

Everyone has different opinions about cleaning all as first step or as regular and routine step. I dont subscribe to that approach after having seen what can happen. Of course comes time when may have to pull and clean, but have to be damn careful and anytime necessary to pull a board it is mandatory to inspect all molex pins under magnification and you simply cannot re-solder them as the pins appear to have never wetted and will not take solder via reheating. Have to clean the oxide off the pins either thru lite sanding, scraping with Xacto knife, or cleaning with an abrasive of some type. Some report good results using an eraser, but that has not been my experience. IF board is probably the most susceptable as it sees the most cycling of connectors with all the in and out installation of various optional filters over rigs life.

Wishing you a Happy, Prosperous, and most of all Healthy 2014
Terry K9TW

46745. Low power output in tune mode TS-830

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-30 23:02:59 UTC
From: <dfm4290@...>
Topic: 46745 Message: 46745

When I am in tune mode I get around two or three watts output.
In CW mode I get 100 watts out.
Any ideas what to check for to fix the tune mode low output?
Thanks
Dale (KD0GES))

46746. Re: [TS-520_820_530_830] Low power output in tune mode TS-830

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 01:09:44 UTC
From: Joseph Stiles
Topic: 46745 Message: 46746

Dale,

Power output in "tune mode" is always lower, but in this case I suspect that resistors 15 & 16 on the rectifier board...are way out of spec. These two R's cut down power(voltage) to the final amplifier tubes in "tune" mode so they do not operate at full voltage or power..while out of resonance. These resistors are both 56K ohms...and tend to be a common problem with the
"no/low output in tune" complaint. You can go into the "files section" and search "conversations" regarding this topic....probably 2-3 hundred posts. You can check the voltage at the "tune" post on the rectifier board...should be 2-3hundred volts DC...I may be off...by a bit...but anything way lower indicates a possible problem with R's 15 & 16 on the rectifier board

73 Joe
WB7UQU

On Monday, December 30, 2013 4:54 PM, "dfm4290@..." <dfm4290@...> wrote:

>When I am in tune mode I get around two or three watts output.
>In CW mode I get 100 watts out.
>Any ideas what to check for to fix the tune mode low output?
>Thanks
>Dale (KD0GES))
>
>
>

46747. Re: [TS-520_820_530_830] RE: another fix done (tnx to Terry)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 02:19:12 UTC
From: Craig Roberts
Topic: 46619 Message: 46747

Tnx agn, Terry.

I misspoke. I do have an RF probe for my old military VTVM, but didn't employ it for the DC voltage reading(s).

After determining that to pins on the AF board's connector #9 were less than secure, I very carefully scraped away a little of the green solder resist from the traces involved and resoldered the pins and adjacent lands with my Antex miniature iron. All is well again and the receiver audio sounds cleaner than ever. (This could be my imagination, but I'll run with it anyway).

Back in the '70's, I worked for The Heath Company in the marketing department. But, probably because I was considered an "average" non-techie ham, I was given the happy duty of test building new kits in the amateur radio product line. Among them was the solid state SB-104 and SB-104A transceivers and "peripherals." These marvelous kits employed glass boards and very durable copper plating. This excellent practice was actually an economy move -- or turned out to be -- despite the extra materials cost. More rugged boards, able to withstand the soldering/desoldering/resoldering cycles often meted out by hasty kit builders, meant fewer parts exchanges and reworking by our techs. At Kenwood, the engineers and bean counters probably never figured on a group pf "devotees" like us attempting to keep these wonderful radios spewing RF thirty or forty years on.

All the very best to you, too, Terry.

73 to all,

Craig
W3CRR

46748. TS-520 CB Mod Undo

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 01:57:28 UTC
From: <rcksil@...>
Topic: 46748 Message: 46748

I picked up a 520s a couple of years ago that had the CB Mod. Looking for somebody in the greater Long Beach Ca area to undo the CB. Can somebody give me a line on somebody.

Thanks
Rick / WA6ES

46749. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 03:05:08 UTC
From: <famtech@...>
Topic: 46669 Message: 46749

I am using a Hewlett-Packard 3466A DVM to measure all voltages.

3.3 volts is now on the RF-1 rail and after fixing the FIX/VOX board, the relays now work. The meter tracks the RF gain control. The high 12 volts on the RF-1 line was caused by a tiny flake of metal finding it way and becoming wedged between pins 4 and 5 on relay board connector RL-1, circuit board side.

The VCO seems to be working. Measured 3.3 volts at TP-4 to ground on all bands. The main VFO is working too. Still no receive yet but things are improving. What's wrong with this TS-820 ?? What do you have ??

Regards,

Jim L.
WB6KVD

46750. a real puzzler / low drive on lower portions of bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 06:10:51 UTC
From: Craig Roberts
Topic: 46619 Message: 46750

Well, we're almost there.

...same TS-830S with the reception problem (now solved with Molex connector pin repair on the AF board).

We now have low drive - or no drive -- on the lower portions of the lower bands, i.e., 160, 80 and 40. In other words, using 80 as an example, drive and output are normal at 3.975 MHz but negligible at 3.525 unless I crank the carrier control wide open. Even then, the maximum output is no more than 50 watts. The situation is the same on 160 and 40 meters; everything's fine at the upper ends of the bands but unwell at the lower ends. This anomaly became apparent after the RF board was pulled and replaced for the sake of replacing a 10 meter RF coil.

The drive control seems to be at fault here, but I can find no misalignment of capacitor plates or other obvious unpleasantness.

Whaddya think?

Thanks,

Craig
W3CRR

46751. Re: [TS-520_820_530_830] Low power output in tune mode TS-830

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 10:01:32 UTC
From: Gordon JC Pearce
Topic: 46745 Message: 46751

On Mon, Dec 30, 2013 at 05:09:44PM -0800, Joseph Stiles wrote:
> Dale,
>
> Power output in "tune mode" is always lower, but in this case I suspect that resistors 15 & 16 on the rectifier board...are way out of spec. These two R's cut down power(voltage) to the final amplifier tubes in "tune" mode so they do not operate at full voltage or power..while out of resonance. These resistors are both 56K ohms...and tend to be a common problem with the
> "no/low output in tune" complaint. You can go into the "files section" and search "conversations" regarding this topic....probably 2-3 hundred posts. You can check the voltage at the "tune" post on the rectifier board...should be 2-3hundred volts DC...I may be off...by a bit...but anything way lower indicates a possible problem with R's 15 & 16 on the rectifier board

It crops up from time to time, but it probably bears repeating - high value resistors subjected to high voltages seem to want to wander off upwards in value. When you find some oddity in an HT circuit, cast a suspicious eye over anything above about 100k first, and then see where you get?

Remember when TVs had CRTs, and not only that but valves? Where I grew up, it was a very "fringe" reception area and the vast majority of "first TVs" people bought were based on the BRC 1400 chassis - VHF/UHF dual-standard, all-valve except the UHF tuner, and by the late 80s when they had filtered down from being the TV in the living room to the TV in the parent's bedroom (after being replaced by a Philips G8) to the TV in the teenagers bedroom (after the G8 was replaced by a Ferguson TX, and the G8 shunted upstairs) then they were showing their age a little and flyback lines were starting to show due to the uncontrollably high brightness. Now, there was this little 220k resistor that went off towards 1M, dead easy to change *if* you knew what you were looking for.

Those 220k resistors and a stock of ZX Spectrum keyboard membranes kept the cash coming in through high-school and I wish I still had my old 1400-chassis set...

--
Gordonjcp MM0YEQ

46752. Re: a real puzzler / low drive on lower portions of bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 10:25:27 UTC
From: clifford wright
Topic: 46619 Message: 46752

Well Craig, the most likely cause I can think of is mistracking of the driver and TX mixer tuned circuits. Are you sure that the coils aren't off tune?
It is, just as you describe, more critical on the lower bands.
So basically do an alignment of the small coils in the TX on the low bands to ensure that the resonances aren't off. I think that it is all in the manual.
ZL1BDA

This email is free from viruses and malware because avast! Antivirus protection is active.
http://www.avast.com

46753. Re: [TS-520_820_530_830] RE: another fix done (tnx to Terry)

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 13:05:14 UTC
From: <wagstw46@...>
Topic: 46619 Message: 46753

Craig:

I lived 40 miles from Hill Top Road and made many trips there in the 60s and 70s. I have lost count of all the kits I built. Heath made it possible for the average fellow on a budget to really enjoy the hobby and to have a modes test bench. I always had good response from their service dept.

I would have loved to have worked there.

Terry K9TW

46754. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 13:24:06 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46754

Jim

Not sure who you are talking to?

OK to measure DC voltage at TP-4, but really need to ensure you have VCO signal at the RF board where the RX and TX Mixers like to use it as the LO.

You should see approx 1.0 rms rf volts for good Mixer operation. (800mv to 1000mv is typical)

The TP is near T2 just down from RF-1 Conn and just below the tank capacitor drive shaft.

Terry K9TW

46755. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 14:21:47 UTC
From: <wagstw46@...>
Topic: 46669 Message: 46755

Jim:

I forgot to ask do you have a decent RF Sig Gen?

If so about time to do some signal injection and signal tracing if you have good AVR dc voltages and good AGC bus voltage a the IF and RF boards.

I like to split the receiver in half by applying 8.830,mhz to the RIF terminal on the RF board. Use approx 50mv or -13dBm at Conn RF-1 Pin 1 should give you nice tone and approx 20 over on S-meter. Couple the signal from hot lead of your Sig gen thru a .01uf blocking cap (value not critical).

If you dont have calibrated output just start high and back it down. Some of the LC type generators will just have Hi-Med-Low and a pot. Start on high with pot to max output. Not too critical for the RIF test but for front end work use as low as you can.

This RIF test tells you that the IF amps, AGC detector, Product detector, and Audio stages are all working and the problem then has to be in the Front end.

Can then start injecting at SO-239 and work toward RIF. I usually do this at 14.2mhz and start with around 50uv or -73dBm signal level.

Terry K9TW

46756. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 16:45:57 UTC
From: <famtech@...>
Topic: 46669 Message: 46756

Terry,

I do have a good signal generator. A Hewlett-Packard 8656B. So, I'll do what you suggest start injecting signals and see where they go in the signal chain and where they stop. I'll keep ya posted. So far, this has been a very interesting project. One of these days, I'm going to have to get my hands on a good sweep generator. My main interest in Ham Radio is getting older gear with issues back on the air. All the equipment in my station are rigs that didn't work when I got them. TS-930S, TS-440SAT, 599D "Twins", HW-101, IC-251A, 75A2, Heath TX-1 and now the 820.

Regards,

Jim L.
WB6KVD

46757. TS-520S No Receive

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 19:53:46 UTC
From: <tghotdogz@...>
Topic: 46757 Message: 46757

Hello again group. Tom in Reno here, W7OA. I sent this post several days ago but I haven't seen it show up yet so maybe it didn't go through for some reason. If it shows up again later, my apologies.
I picked up a TS-520S from ebay - sold as DOA for parts so no ebay story here. Anyway transmit was fine, receive was dead. Traced the problem to the 3rd. IF on the IF board. Q4 was bad - replaced it. Still dead. Came to find T6 IF transformer is open on the secondary. Does anyone have a parts IF board that they would possibly be willing to remove T6 from, or a whole board if the price isn't too steep?

Regards
Tom
W7OA

46758. RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 20:41:26 UTC
From: <famtech@...>
Topic: 46669 Message: 46758

The TS-820 is now receiving signals !! Getting some stations on 20-meters. Found two bad MOSFETS in the IF section. The display is still goofy. Reads 1 .444.4. Interesting. With the screen switch off, going to transmit and back to receive, receive gain is lower. Power cycling brings receiver gain back.

I'm sure after all this messing around, this rig is going to need a complete alignment. At least it's coming back from the dead.

Regards,

Jim L.
WB6KVD

46759. Re: [TS-520_820_530_830] RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 22:21:04 UTC
From: Mike
Topic: 46669 Message: 46759

Jim,

You referred to the "screen switch" which I assume you are referring to the rear panel's "SG" switch. The SG switch has nothing to do with receiver gain.

The sole purpose of the SG switch is to control the final amplifier's "Positive" or "Negative" screen voltage. Placing the SG switch to the "OFF" position applies a "Negative" voltage to the final tube screens. Placing the SG switch to the "ON" position applies a "Positive" voltage to the final tube screens. That's all the SG Switch does, nothing more.

73
Mike W5RKL

On 12/31/2013 2:41 PM, famtech@... wrote:
>
> The TS-820 is now receiving signals !! Getting some stations on
> 20-meters. Found two bad MOSFETS in the IF section. The display is
> still goofy. Reads 1 .444.4. Interesting. With the screen switch off,
> going to transmit and back to receive, receive gain is lower. Power
> cycling brings receiver gain back.
>
> I'm sure after all this messing around, this rig is going to need a
> complete alignment. At least it's coming back from the dead.
>
> Regards,
>
> Jim L.
> WB6KVD
>
>

46760. Re: [TS-520_820_530_830] RE: The TS-820 restore ...

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 22:27:48 UTC
From: Mike W5RKL
Topic: 46669 Message: 46760

Jim,

I forgot to mention the link to my SG switch video. The following link
will take you to the SG Switch video folder.

http://www.n6wk.com/w5rkl/SG%20Switch/

73
Mike W5RKL

On 12/31/2013 4:21 PM, Mike wrote:
>
> Jim,
>
> You referred to the "screen switch" which I assume you are referring
> to the rear panel's "SG" switch. The SG switch has nothing to do with
> receiver gain.
>
> The sole purpose of the SG switch is to control the final amplifier's
> "Positive" or "Negative" screen voltage. Placing the SG switch to the
> "OFF" position applies a "Negative" voltage to the final tube screens.
> Placing the SG switch to the "ON" position applies a "Positive"
> voltage to the final tube screens. That's all the SG Switch does,
> nothing more.
>
> 73
> Mike W5RKL
>
> On 12/31/2013 2:41 PM, famtech@... wrote:
>>
>> The TS-820 is now receiving signals !! Getting some stations on
>> 20-meters. Found two bad MOSFETS in the IF section. The display is
>> still goofy. Reads 1 .444.4. Interesting. With the screen switch off,
>> going to transmit and back to receive, receive gain is lower. Power
>> cycling brings receiver gain back.
>>
>> I'm sure after all this messing around, this rig is going to need a
>> complete alignment. At least it's coming back from the dead.
>>
>> Regards,
>>
>> Jim L.
>> WB6KVD
>>
>
>

46761. RE: [TS-520_820_530_830] a real puzzler / low drive on lower portions of bands

Yahoo group: TS-520_820_530_830 (2013-08 — 2013-12)
Date: 2013-12-31 22:42:12 UTC
From: fpath fpath
Topic: 46619 Message: 46761

Craig,

Is the load control in or about the normal position or are you finding it hard CCW or CW?

73's

Dave

VK5PDL

To: TS-520_820_530_830@yahoogroups.com
From: crgrbrts@...
Date: Tue, 31 Dec 2013 06:10:51 +0000
Subject: [TS-520_820_530_830] a real puzzler / low drive on lower portions of bands

Well, we're almost there.

...same TS-830S with the reception problem (now solved with Molex
connector pin repair on the AF board).

We now have low drive - or no drive -- on the lower portions of the
lower bands, i.e., 160, 80 and 40. In other words, using 80 as an
example, drive and output are normal at 3.975 MHz but negligible at
3.525 unless I crank the carrier control wide open. Even then, the
maximum output is no more than 50 watts. The situation is the same on
160 and 40 meters; everything's fine at the upper ends of the bands but
unwell at the lower ends. This anomaly became apparent after the RF
board was pulled and replaced for the sake of replacing a 10 meter RF coil.

The drive control seems to be at fault here, but I can find no
misalignment of capacitor plates or other obvious unpleasantness.

Whaddya think?

Thanks,

Craig
W3CRR